

**Nexus**®  
**1252/1262/1272**  
**Meters**

HIGH PERFORMANCE SCADA MONITORS

Modbus Protocol & Register Map  
for Nexus® 1252/1262/1272 Meters  
Version 1.27

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***Electro Industries/GaugeTech***

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*“The Leader in Power Monitoring and Smart Grid Solutions”*



**Nexus® 1252/1262/1272 Meters  
Modbus Protocol & Register Map  
Revision 1.27**

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NOTE: For other meters, refer to the Modbus Protocol Map for the meter in use.

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Founded in 1975 by engineer and inventor Dr. Samuel Kagan, EIG changed the face of power monitoring forever with its first breakthrough innovation: an affordable, easy-to-use AC power meter. Thirty years since its founding, Electro Industries/GaugeTech, the leader in power monitoring and control, continues to revolutionize the industry with the highest quality, cutting edge power monitoring and control technology on the market today. An ISO 9001:2015 certified company, EIG sets the industry standard for advanced power quality and reporting, revenue metering and substation data acquisition and control.

EIG products can be found on site at virtually all of today's leading manufacturers, industrial giants and utilities. EIG products are primarily designed, manufactured, tested and calibrated at our facility in Westbury, New York.



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**Appendix A - Glossary**



# Chapter 1

## Modbus Protocol Overview

### 1.1: Introduction

- Nexus® meters can communicate with other devices using the RTU transmission mode of the AEG Modicon Modbus protocol. Communication is available through RS-232 or RS-485 standards.
  - RS-232 communication supports a single connection between one Nexus® meter and one other device, available on the Nexus® meter's Port 1 ONLY.
  - RS-485 communication supports multiple Nexus® meters connected on a network. It is a two-wire connection operating up to 115200 baud, available on Ports 1 through 4.
  - See your Nexus® meter's *Operation and Installation Manual* for wiring details.

### 1.2: Communication Packets

- Communication takes place between a Modbus Master and one or more Nexus® meter Slaves. The Master initiates all communication by transmitting an information packet called the “request” to a specific Slave. The Slave replies with its own packet, called the “response”. A packet is a serial string of 8-bit bytes consisting of the following:
  - Slave Address 1 byte
  - Function Code 1 byte
  - Data N bytes: high-ordered byte first, low-order byte second
  - CRC (RTU Error Checksum) 2 bytes
  - Dead Time 3.5 bytes transmission time
- A single packet can transmit a maximum of 127 registers.

### 1.3: Slave Address and Broadcast Request

- Each Slave device on a communication bus has its own unique address. Only the Slave addressed by a Master will respond. The response packet returned to the Master will have the same value in the Slave Address Field as the request packet. Addresses are programmable and range from 1 to 247.
- A Slave Address of 0 is a broadcast command that allows the Master to send the same packet to all devices at once. All Slaves will obey the packet's instructions, but none will respond. The broadcast request feature is available only with function codes 6 and 10, Preset Single Registers and Preset Multiple Registers, respectively. See Tables 1.3 and 1.4.

## 1.4: Function Codes

A packet's Function Code tells the addressed Slave what action to perform. The Nexus® meter supports the following Modbus Function Codes:

| Function Code |     | Description               |
|---------------|-----|---------------------------|
| Hex           | Dec |                           |
| 03H           | 3   | Read Holding Registers    |
| 06H           | 6   | Preset Single Register    |
| 10H           | 16  | Preset Multiple Registers |

### 1.4.1: Function Code 03—Read Holding Registers

- This function allows a Master station to read one or more parameter values (data registers) from a Nexus® meter Slave. The data registers are 16-bit (two byte) values transmitted in “Big Endian” format: high-ordered byte first, low-ordered byte second.
- The Master device sends a packet defining a start register for the Slave and the number of registers to read. The Slave responds with a packet containing the requested parameter values within the range specified in the request.
- In the following example, a Master device requests a Nexus® meter Slave at address 01H to transmit two values beginning at Register 00001. The Slave replies with values 3031H and 3037H from Registers 00001 and 00002.

| Master Packet            |     | Slave Packet  |     |
|--------------------------|-----|---------------|-----|
| Slave Address            | 01H | Slave Address | 01H |
| Function Code            | 03H | Function Code | 03H |
| Data Starting Address-Hi | 00H | Byte Count    | 04H |
| Data Starting Address-Lo | 00H | Data 1-Hi     | 30H |
| Number of Registers-Hi   | 00H | Data 1-Lo     | 31H |
| Number of Registers-Lo   | 02H | Data 2-Hi     | 30H |
| CRC-Lo                   | C4H | Data 2-Lo     | 37H |
| CRC-Hi                   | 0BH | CRC-Lo        | F1H |
|                          |     | CRC-Hi        | 2AH |

### 1.4.2: Function Code 06—Preset Single Register

- This function allows a Master station to modify a single register in a Nexus® meter Slave. The data registers are 16-bit (two byte) values transmitted high-ordered byte first, low-ordered byte second.
- In the following example, a Master device stores the value 0001H at Register 57346 in a Nexus® meter Slave at address 01H.

| Master Packet            |     | Slave Packet             |     |
|--------------------------|-----|--------------------------|-----|
| Slave Address            | 01H | Slave Address            | 01H |
| Function Code            | 06H | Function Code            | 06H |
| Data Starting Address-Hi | E0H | Data Starting Address-Hi | E0H |
| Data Starting Address-Lo | 01H | Data Starting Address-Lo | 01H |
| Data-Hi                  | 00H | Data-Hi                  | 00H |
| Data-Lo                  | 01H | Data-Lo                  | 01H |
| CRC-Lo                   | 2EH | CRC-Lo                   | 2EH |
| CRC-Hi                   | 0AH | CRC-Hi                   | 0AH |

### 1.4.3: Function Code 10—Preset Multiple Registers

- This function allows a Master station to modify a group of consecutive registers in a Nexus® meter Slave. Registers are 16-bit (two byte) values transmitted high-ordered byte first, low-ordered byte second.
- In the following example, a Master device stores the value 0001H at Register 57345, 0001H at Register 57346 and 0001H at Register 57347 in a Nexus® meter Slave at address 01H.

### 1.4.4: Data Starting Address

- Range in Hex: 0000H - FFFFH
- Range in Decimal: 00001 - 65536

The Address in Chapter 2 (Nexus® meter Modbus Register Map Excel Spreadsheet) is in Decimal.

Example: For some Scada Softwares, to read Holding Registers (1.4.1), Address Format should be: 4(XXXXX) with the XXXXX being our Decimal Address.

| <b>Table 1.4: Function Code 10 Example</b> |     |                          |     |
|--|-----|--------------------------|-----|
| <b>Master Packet</b>                       |     | <b>Slave Packet</b>      |     |
| Slave Address                              | 01H | Slave Address            | 01H |
| Function Code                              | 10H | Function Code            | 10H |
| Data Starting Address-Hi                   | E0H | Data Starting Address-Hi | E0H |
| Data Starting Address-Lo                   | 01H | Data Starting Address-Lo | 01H |
| Number of Setpoints-Hi                     | 00H | Number of Setpoints-Hi   | 00H |
| Number of Setpoints-Lo                     | 03H | Number of Setpoints-Lo   | 03H |
| Byte Count                                 | 06H | CRC-Lo                   | E6H |
| Data #1-Hi                                 | 00H | CRC-Hi                   | 08H |
| Data #1-Lo                                 | 01H |                          |     |
| Data #2-Lo                                 | 00H |                          |     |
| Data #2-Hi                                 | 01H |                          |     |
| Data #3-Lo                                 | 00H |                          |     |
| Data #3-Hi                                 | 01H |                          |     |
| CRC-Lo                                     | 4DH |                          |     |
| CRC-Hi                                     | 46H |                          |     |

## 1.5: CRC (Error Checksum) Algorithm

- The Cyclic Redundancy Check (CRC) field is an error checksum calculation that enables a Slave device to determine if a request packet has been corrupted during transmission.
- Every request packet transmitted from Master to Slave includes a special 16-bit value derived from a CRC-16 algorithm performed on the packet's contents. When a Nexus® meter Slave receives a packet, it performs a CRC-16 calculation and compares the value with the one included in the request packet. If the two values do not match, the Slave will ignore the packet.
- The following is the pseudocode for calculating the 16-bit CRC:

Initialize a 16-bit register to FFFFH.  
Initialize the generator polynomial to A001H.

```

FOR n=1 to # of bytes in packet
  XOR nth data byte with the 16-bit register
  FOR bits_shifted = 1 to 8
    SHIFT 1 bit to the right
    IF (bit shifted out EQUAL 1)
      XOR generator polynomial with the 16-bit register and store result in
      the 16-bit register
    END IF
  END FOR
END FOR
END FOR

```

The resulting 16-bit register contains the CRC-16 checksum.

## 1.6: Dead Time

- A Nexus® meter Slave considers a transmission from a Master complete when it has received no data for a period of 3.5 byte transmission times—approximately 7 ms at 4800 baud and 300 microseconds at 115200 baud. If the Master transmits any gaps between bytes that are longer than this time period, the Slaves will perceive it as dead time.
- At the conclusion of the dead time, all unaddressed Slaves begin listening for a new packet from the Master.

## 1.7: Exception Response (Error Codes)

- A Nexus® meter Slave will send its Master an Exception Response packet, if it has encountered an invalid command or other problem while carrying out the Master's instructions. The function code of the response will have the most significant bit set. The Data field of the Exception Response contains an Error Code specific to the type of problem.
- Table 1.5 below lists the different Error Codes supported by the Nexus® meter.

| Table 1.5: Exception Response (Error Codes) |                       |  |
|---|-----------------------|--|
| Error Code                                  | Name                  | Description  |
| 01  | Illegal Function      | The Slave does not support the function code of the transmitted request packet.                                    |
| 02  | Illegal Data Address  | The Slave does not recognize the address in the data field of the transmitted request packet.                      |
| 03  | Illegal Data Value    | The value referenced in the transmitted request packet is not supported by the register on the Nexus® meter Slave. |
| 06  | Busy, Rejected Packet | The Slave is busy performing a long operation and can not receive the request packet.                              |

- In the following example, a Master Device requests a Nexus® meter Slave at address 01H to transmit the value at Register 00256. The Slave replies with an error, indicating that it is busy.

| <b>Table 1.6: Exception Response Example</b> |            |                     |            |
|--|------------|---------------------|------------|
| <b>Master Packet</b>                         |            | <b>Slave Packet</b> |            |
| <b>Meaning</b>                               | <b>Hex</b> | <b>Meaning</b>      | <b>Hex</b> |
| Address                                      | 01H        | Address             | 01H        |
| Function Code                                | 03H        | Function Code       | 83H        |
| Data Starting Address-Hi                     | 01H        | Error Code          | 06H        |
| Data Starting Address-Lo                     | 00H        | CRC-Lo              | C1H        |
| Number of Registers-Hi                       | 00H        | CRC-Hi              | 32H        |
| Number of Registers-Lo                       | 01H        |                     |            |
| CRC-Lo                                       | 85H        |                     |            |
| CRC-Hi                                       | F6H        |                     |            |

## 1.8: Modbus Extensions

- Modbus Read Requests have a maximum size when using standard Modbus function. EI developed Enhanced (Non-Standard) Modbus Read Requests to allow larger than standard responses. This requires fewer requests and, is therefore, more efficient and total download time is reduced.

This function is also more efficient with Log Retrieval. It allows the Network Card to have DNP communication with the main unit utilizing a Modbus connection.

The following are non-standard extensions to the Modbus Protocol. The Nexus® meter supports the following additional Modbus Function Codes:

| <b>Modbus Extensions</b> |     |                                       |
|--------------------------|-----|---------------------------------------|
| <b>Function Code</b>     |     | <b>Description</b>                    |
| Hex                      | Dec |                                       |
| 23H                      | 35  | Read Holding Registers Multiple Times |
| 42H                      | 66  | Encapsulated DNP for LAN/WAN          |



### 1.8.1: Function Code 23H - Read Holding Registers Multiple Times

This function allows a Master station to read the binary contents of holding registers (4X references) in the slave multiple times. Broadcast is not supported.

The Master device sends a packet defining the starting register, quantity of registers to be read and the repeat count. Registers are addressed starting at zero: registers 1-16 are addressed as 0-15.

Here is an example of a request to read registers 40108-40110 twice from slave device 17:

| Function Code            |               |
|--------------------------|---------------|
| Field Name               | Example (Hex) |
| Slave Address            | 11            |
| Function Code            | 23            |
| Data Starting Address Hi | 00            |
| Data Starting Address Lo | 6B            |
| Number of Registers Hi   | 00            |
| Number of Registers Lo   | 03            |
| Repeat Count             | 02            |
| Error Check (LRC or CRC) | --            |

The register data in the response message are packed as two bytes per register, with the binary contents right justified within each byte. For each register, the first byte contains the high order bits and the second contains the low order bits.

Data is scanned at the following maximum rates, depending on the repeat count:

| Repeat Count | RTU Framing   | ASCII Framing |
|--------------|---------------|---------------|
| 1            | 509 Registers | 253 Registers |
| 2            | 254 Registers | 126 Registers |
| 3            | 169 Registers | 84 Registers  |
| 4            | 127 Registers | 63 Registers  |
| 5            | 101 Registers | 50 Registers  |
| 6            | 84 Registers  | 42 Registers  |
| 7            | 72 Registers  | 36 Registers  |

The response is returned when the data is completely assembled.

Here is an example of a response to the query given earlier:

| <b>Function Code 23H Example (Response)</b> |                      |
|---|----------------------|
| <b>Field Name</b>                           | <b>Example (Hex)</b> |
| Slave Address                               | 11                   |
| Function Code                               | 23                   |
| Byte Count Hi                               | 00                   |
| Byte Count Lo                               | 0C                   |
| Data Hi (Register 40108, First Read)        | 02                   |
| Data Lo (Register 40108, First Read)        | 2B                   |
| Data Hi (Register 40109, First Read)        | 00                   |
| Data Lo (Register 40109, First Read)        | 00                   |
| Data Hi (Register 40110, First Read)        | 00                   |
| Data Lo (Register 40110, First Read)        | 64                   |
| Data Hi (Register 40108, Second Read)       | 02                   |
| Data Lo (Register 40108, Second Read)       | 2B                   |
| Data Hi (Register 40109, Second Read)       | 00                   |
| Data Lo (Register 40109, Second Read)       | 00                   |
| Data Lo (Register 40110, Second Read)       | 00                   |
| Data Lo (Register 40110, Second Read)       | 64                   |
| Error Check (LRC or CRC)                    | --                   |

The contents of Register 40108 are shown as the two-byte values of 02 2B Hex or 555 Decimal. The contents of Registers 40109 - 40110 are 00 00 and 00 64 Hex or 0 and 100 Decimal.

### **1.8.2: Function Code 42H - Encapsulated DNP for LAN/WAN**

- The existing interface between the Network Card and the Main Unit is in Modbus RTU protocol. In order to maintain all of the existing functionality, it is necessary to pass DNP over IP requests and the resultant responses inside a Modbus wrapper.

DNP has commands of variable length, producing responses of variable lengths. A variable size Modbus request that returns a variable size Modbus response requires a new, non-standard function code 42H.

The creation of different DNP associations over IP requires informing the Main Nexus® meter when a new association is made. Function code 42H requests include a bit to indicate **TCP (0) or UDP (1)**, the **Client IP Address**, the **UDP or TCP Client Port**, and a bit to indicate if this is a **New Association (1)** or a continuation of the **Existing Association (0)**.

While the DNP over TCP Connections may be closed at the decision of the Network Card, as would be conveyed by the New Association bit with the next received connection, the main Nexus® meter might also determine that the current DNP over TCP Connection should be closed. The request to close the current DNP over TCP Connection will have to be held in Modbus registers in the main Nexus® meter, polled by the Network Card, and cleared by the Network Card overwriting the registers. If Modbus register 0x0E040 contains the value 0x0AAAA, then the current DNP over TCP Connection (the IP address will be in Modbus registers 0x0E041-0x0E042, the client port number in 0x0E043) must be closed by the Network Card and a value of 0x05555 should be written back to register 0x0E040.

DNP requests and responses may have more than 255 bytes. Function code 42H requests and responses include a 2-byte byte count. The Modbus Function Code 42H, DNP over Modbus is only supported on the internal connection made with a Network Card. It is not available on external communication ports.

This function code is used to transport DNP protocol requests and responses between a Modbus master with a DNP over IP Connection to a Modbus slave with built in DNP functionality. The request PDU (Protocol Data Unit) specifies: New Association or Previous Association, UDP or TCP, IP Address, Client Port Number and a byte count of DNP octets in the UDP datagram or TCP stream being transmitted.

The response returns the Function Code, UDP or TCP indication, IP Address, Client Port Number and a byte count of DNP octets for a possible response.

Examples of a **Request** and

**Response PDU** (\*N = Byte Count):

|                          |              |  |
|--------------------------|--------------|--|
| <b>Address</b>           | 1 Byte       | 0x001 - 0x0F7                          |
| <b>Function Code</b>     | 1 Byte       | 0x042                                  |
| <b>Link Status</b>       | 1 Byte       | 0x000 to 0x003                         |
| <b>Client IP Address</b> | 4 Bytes      | 0x00000000 to 0x0FFFFFFF               |
| <b>Client Port</b>       | 2 Bytes      | 0x00000 to 0x0FFFF                     |
| <b>Byte Count</b>        | 2 Bytes      | 0x00001 to 0x0FFFF                     |
| <b>Data</b>              | N*           | Value                                  |
| <b>Checksum</b>          | 1 or 2 Bytes | 1 Byte LRC (ASCII)<br>2 Byte CRC (RTU) |

|                          |              |  |
|--------------------------|--------------|--|
| <b>Address</b>           | 1 Byte       | 0x001 - 0x0F7                          |
| <b>Function Code</b>     | 1 Byte       | 0x042                                  |
| <b>Link Status</b>       | 1 Byte       | 0x000 to 0x001                         |
| <b>Client IP Address</b> | 4 Bytes      | 0x00000000 to 0x0FFFFFFF               |
| <b>Client Port</b>       | 2 Bytes      | 0x00000 to 0x0FFFF                     |
| <b>Byte Count</b>        | 2 Bytes      | 0x00000 to 0x0FFFF                     |
| <b>Data</b>              | N*           | Value                                  |
| <b>Checksum</b>          | 1 to 2 Bytes | 1 Byte LRC (ASCII)<br>2 Byte CRC (RTU) |

Error Example:

|                       |              |  |
|-----------------------|--------------|--|
| <b>Address</b>        | 1 Byte       | 0x001 to 0x0F7                         |
| <b>Error Code</b>     | 1 Byte       | 0x0C2                                  |
| <b>Exception Code</b> | 1 Byte       | 01 or 03                               |
| <b>Checksum</b>       | 1 or 2 Bytes | 1 Byte LRC (ASCII) or 2 Byte CRC (RTU) |

In the request or response PDU, Link Status bit 0 indicates TCP (0) or UDP (1). In the request PDU, Link Status bit 1 indicates a continuation of the Current Association (0) or the start of a New Association (1).

Here is an example of a pair of requests where a DNP over TCP connection was established with a client at IP Address 1.2.3.4, port 20000. The first TCP frame transmitted 7 bytes in the stream, containing part of a DNP frame. The first request indicates the start of new association and passes the TCP connection information and passes the 7 bytes received. The first response includes no response meant for the network. The second TCP frame transmitted 5 additional bytes in the stream, containing the remainder of the first DNP frame and the start of a second. The second request indicates the continuation of the association, passes the TCP connection information and the additional 5 bytes received. The second response acknowledges the second request and contains the response for the first DNP frame, which is meant to be returned in the TCP.

| Request PDU     |       |                |
|-----------------|-------|----------------|
| Field Name      | (Hex) | DNP Field Name |
| Address         | 0x001 |                |
| Function        | 0x042 |                |
| Status          | 0x002 |                |
| IP Add Quad 1   | 0x001 |                |
| IP Add Quad 2   | 0x002 |                |
| IP Add Quad 3   | 0x003 |                |
| IP Add Quad 4   | 0x004 |                |
| Client Port Hi  | 0x04E |                |
| Client Port Lo  | 0x020 |                |
| Byte Count Hi   | 0x000 |                |
| Byte Count Lo   | 0x007 |                |
| DNP octet       | 0x005 | Start          |
| DNP octet       | 0x064 | Start          |
| DNP octet       | 0x005 | Length         |
| DNP octet       | 0x0C0 | Control        |
| DNP octet       | 0x001 | Destination Lo |
| DNP octet       | 0x000 | Destination Hi |
| DNP octet       | 0x00A | Source Lo      |
| Checksum (CRC1) | 0x05A |                |
| Checksum (CRC2) | 0x045 |                |

| Response PDU    |       |                |
|-----------------|-------|----------------|
| Field Name      | (Hex) | DNP Field Name |
| Address         | 0x001 |                |
| Function        | 0x042 |                |
| Status          | 0x000 |                |
| IP Add Quad 1   | 0x001 |                |
| IP Add Quad 2   | 0x002 |                |
| IP Add Quad 3   | 0x003 |                |
| IP Add Quad 4   | 0x004 |                |
| Client Port Hi  | 0x04E |                |
| Client Port Lo  | 0x020 |                |
| Byte Count Hi   | 0x000 |                |
| Byte Count Lo   | 0x000 |                |
| Checksum (CRC1) | 0x0A4 |                |
| Checksum (CRC2) | 0x01B |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |

| Request PDU     |       |                |
|-----------------|-------|----------------|
| Field Name      | (Hex) | DNP Field Name |
| Address         | 0x001 |                |
| Function        | 0x042 |                |
| Status          | 0x000 |                |
| IP Add Quad 1   | 0x001 |                |
| IP Add Quad 3   | 0x002 |                |
| IP Add Quad 3   | 0x003 |                |
| IP Add Quad 4   | 0x004 |                |
| Client Port Hi  | 0x04E |                |
| Client Port Lo  | 0x020 |                |
| Byte Count Hi   | 0x000 |                |
| Byte Count Lo   | 0x005 |                |
| DNP octet       | 0x000 | Source Hi      |
| DNP octet       | 0x0E0 | CRC Lo         |
| DNP octet       | 0x08C | CRC Hi         |
| DNP octet       | 0x005 | Start          |
| DNP octet       | 0x064 | Start          |
| Checksum (CRC1) | 0x083 |                |
| Checksum (CRC2) | 0x0F8 |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |
|                 |       |                |

| Response PDU    |       |                |
|-----------------|-------|----------------|
| Field Name      | (Hex) | DNP Field Name |
| Address         | 0x001 |                |
| Function        | 0x042 |                |
| Status          | 0x000 |                |
| IP Add Quad 1   | 0x001 |                |
| IP Add Quad 2   | 0x002 |                |
| IP Add Quad 3   | 0x003 |                |
| IP Add Quad 4   | 0x004 |                |
| Client Port Hi  | 0x04E |                |
| Client Port Lo  | 0x020 |                |
| Byte Count Hi   | 0x000 |                |
| Byte Count Lo   | 0x00A |                |
| DNP octet       | 0x005 | Start          |
| DNP octet       | 0x064 | Start          |
| DNP octet       | 0x005 | Length         |
| DNP octet       | 0x000 | Control        |
| DNP octet       | 0x00A | Destination Lo |
| DNP octet       | 0x000 | Destination Hi |
| DNP octet       | 0x001 | Source Lo      |
| DNP octet       | 0x000 | Source Hi      |
| DNP octet       | 0x07F | CRC Lo         |
| DNP octet       | 0x0FD | CRC Hi         |
| Checksum (CRC1) | 0x072 |                |
| Checksum (CRC2) | 0x075 |                |



## **Chapter 2**

# **Nexus® Meter Modbus Register Map**

- The Nexus® meter Modbus Register Map begins on the following page.

One Second Readings use the One Second Block, Registers 00176-00235, described in Section 8.5.

Resetting Maximums, Minimums, Energy Readings and/or Logs use the Action Block, Registers 57345-57393, described in Section 8.71.

Time may be set in the Nexus® meter using the Real Time Block, Registers 00081-00089, described in Section 8.2.

Chapter 8 offers descriptions of all the Nexus® meter Modbus Register Map's Register Block Titles and the Registers included in each block.

See Chapter 3 for a detailed description of Communication Formats referred to in the Register Map's "Type" column. See the Table of Contents for a list of the Register Map's "Types" and their page location in Chapter 3.

See Chapter 4 for an explanation of the Register Map's "Notes" column.

See Chapter 5 for an explanation of Logs, Port Control and Updating Programmable Settings.

See Chapter 6 for an explanation of the Log Formats.

See Chapter 7 for an explanation of the Programmable Settings Blocks.





| Address                     | Line | Pt | DNP Obj | Description                                      | Range                                    | Units                      | Type | R/W |
|-----------------------------|------|----|---------|--|--|----------------------------|------|-----|
| Device Identification Block |      |    |         |  |  |                            |      |     |
| 00001-00008                 | 0    | 0  |         | Device Name                                      |  |                            | F1   | R   |
| 00009-00016                 | 1    | 0  |         | Firmware Variation String 1                      |  |                            | F1   | R   |
| 00017-00024                 | 1    | 1  |         | Firmware Variation String 2                      |  |                            | F1   | R   |
| 00025-00032                 | 1    | 2  |         | Firmware Variation String 3                      |  |                            | F1   | R   |
| 00033-00040                 | 1    | 3  |         | Firmware Variation String 4                      |  |                            | F1   | R   |
| 00041-00048                 | 1    | 4  |         | Firmware Variation String 5                      |  |                            | F1   | R   |
| 00049-00056                 | 1    | 5  |         | Firmware Variation String 6                      |  |                            | F1   | R   |
| 00057-00064                 | 1    | 6  |         | Firmware Variation String 7                      |  |                            | F1   | R   |
| 00065-00072                 | 1    | 7  |         | Firmware Variation String 8                      |  |                            | F1   | R   |
| 00073-00074                 | 2    | 0  |         | Nexus Comm Boot Version Number                   | 9.9.9.9 / 0.0.0.0                        | 0.0.0.1 version            | F2   | R   |
| 00075-00076                 | 3    | 0  |         | Nexus Comm Run-Time Version Number               | 9.9.9.9 / 0.0.0.0                        | 0.0.0.1 version            | F2   | R   |
| 00077-00078                 | 4    | 0  |         | Nexus DSP Boot Version Number                    | 9.9.9.9 / 0.0.0.0                        | 0.0.0.1 version            | F2   | R   |
| 00079-00080                 | 5    | 0  |         | Nexus DSP Run-Time Version Number                | 9.9.9.9 / 0.0.0.0                        | 0.0.0.1 version            | F2   | R   |
| Real Time Block             |      |    |         |  |  |                            |      |     |
| 00081-00084                 | 6    | 0  | 50      | On Time  | 12/31/9999 23:59:59.99                   | 10 msec                    | F3   | R   |
| 00085-00088                 | 7    | 0  | 50      | Current Time                                     | 12/31/9999 23:59:59.99                   | 10 msec                    | F3   | R/W |
| 00089                       | 8    | 0  | 50      | Current Day of the Week                          | Sunday - Saturday                        |                            | F4   | R/W |
| 1 Cycle Block               |      |    |         |  |  |                            |      |     |
| 00090-00093                 | 9    | 0  | 50      | 1 cycle Block Time Stamp                         | 12/31/9999 23:59:59.99                   | 10 msec                    | F3   | R   |
| 00094-00095                 | 10   | 0  |         | 1 cycle Phase A-N Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00096-00097                 | 10   | 1  |         | 1 cycle Phase B-N Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00098-00099                 | 10   | 2  |         | 1 cycle Phase C-N Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00100-00101                 | 11   | 0  |         | 1 cycle Auxiliary Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00102-00103                 | 12   | 0  |         | 1 cycle Phase A Current                          | +65536 A <sup>2</sup> / 0 A <sup>2</sup> | 1/65536 A <sup>2</sup> sec | F5   | R   |
| 00104-00105                 | 12   | 1  |         | 1 cycle Phase B Current                          | +65536 A <sup>2</sup> / 0 A <sup>2</sup> | 1/65536 A <sup>2</sup> sec | F5   | R   |
| 00106-00107                 | 12   | 2  |         | 1 cycle Phase C Current                          | +65536 A <sup>2</sup> / 0 A <sup>2</sup> | 1/65536 A <sup>2</sup> sec | F5   | R   |
| 00108-00109                 | 13   | 0  |         | 1 cycle Measured Neutral Current                 | +65536 A <sup>2</sup> / 0 A <sup>2</sup> | 1/65536 A <sup>2</sup> sec | F5   | R   |
| 00110-00111                 | 14   | 0  |         | 1 cycle Calculated Neutral Current               | +65536 A <sup>2</sup> / 0 A <sup>2</sup> | 1/65536 A <sup>2</sup> sec | F5   | R   |
| 00112-00113                 | 15   | 0  |         | 1 cycle Phase A-B Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00114-00115                 | 15   | 1  |         | 1 cycle Phase B-C Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00116-00117                 | 15   | 2  |         | 1 cycle Phase C-A Voltage                        | +65536 V <sup>2</sup> / 0 V <sup>2</sup> | 1/65536 V <sup>2</sup> sec | F5   | R   |
| 00118                       | 16   | 0  | 1       | 1 cycle High Speed Input Delta and Current State |  |                            | F6   | R   |

| Address            | Line | Pt | DNP<br>Obj | Description   | Range                   | Units            | Type | R/W |
|--------------------|------|----|------------|---|-------------------------|------------------|------|-----|
| Tenth Second Block |      |    |            |   |                         |                  |      |     |
| 00119-00122        | 17   | 0  | 50         | Tenth second Block Time Stamp                                   | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 00123-00124        | 18   | 0  | 30         | Tenth second Phase A-N Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00125-00126        | 18   | 1  | 30         | Tenth second Phase B-N Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00127-00128        | 18   | 2  | 30         | Tenth second Phase C-N Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00129-00130        | 19   | 0  | 30         | Tenth second Auxiliary Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00131-00132        | 20   | 0  | 30         | Tenth second Phase A Current                                    | +32767 V / 0 V          | 1/ 65536 A sec   | F7   | R   |
| 00133-00134        | 20   | 1  | 30         | Tenth second Phase B Current                                    | +32767 V / 0 V          | 1/ 65536 A sec   | F7   | R   |
| 00135-00136        | 20   | 2  | 30         | Tenth second Phase C Current                                    | +32767 V / 0 V          | 1/ 65536 A sec   | F7   | R   |
| 00137-00138        | 21   | 0  | 30         | Tenth second Measured Neutral Current                           | +32767 V / 0 V          | 1/ 65536 A sec   | F7   | R   |
| 00139-00140        | 22   | 0  | 30         | Tenth second Phase A-B Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00141-00142        | 22   | 1  | 30         | Tenth second Phase B-C Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00143-00144        | 22   | 2  | 30         | Tenth second Phase A-C Voltage                                  | +32767 V / 0 V          | 1/ 65536 V sec   | F7   | R   |
| 00145-00146        | 23   | 0  | 30         | Tenth second Phase A VA   | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00147-00148        | 23   | 1  | 30         | Tenth second Phase B VA   | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00149-00150        | 23   | 2  | 30         | Tenth second Phase C VA   | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00151-00152        | 24   | 0  | 30         | Tenth second Three Phase VA                                     | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00153-00154        | 25   | 0  | 30         | Tenth second Phase A VAR  | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00155-00156        | 25   | 1  | 30         | Tenth second Phase B VAR  | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00157-00158        | 25   | 2  | 30         | Tenth second Phase C VAR  | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00159-00160        | 26   | 0  | 30         | Tenth second Three Phase VAR                                    | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00161-00162        | 27   | 0  | 30         | Tenth second Phase A Watts                                      | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00163-00164        | 27   | 1  | 30         | Tenth second Phase B Watts                                      | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00165-00166        | 27   | 2  | 30         | Tenth second Phase C Watts                                      | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00167-00168        | 28   | 0  | 30         | Tenth second Three Phase Watts                                  | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00169-00170        | 29   | 0  | 30         | Tenth second Frequency  | +32767 Hz / 0 Hz        | 1/ 65536 Hz      | F7   | R   |
| 00171              | 30   | 0  | 30         | Tenth second Phase A Power Factor                               | 3.999 / 0.000           | 0.001 PF         | F8   | R   |
| 00172              | 30   | 1  | 30         | Tenth second Phase B Power Factor                               | 3.999 / 0.000           | 0.001 PF         | F8   | R   |
| 00173              | 30   | 2  | 30         | Tenth second Phase C Power Factor                               | 3.999 / 0.000           | 0.001 PF         | F8   | R   |
| 00174              | 31   | 0  | 30         | Tenth second Three Phase Power Factor                           | 3.999 / 0.000           | 0.001 PF         | F8   | R   |
| 00175              | 32   | 0  | 30         | Tenth second Phase A-N Voltage to Auxiliary Voltage Phase Angle | + 180 / - 180           | 0.01 degree      | F9   | R   |
| One Second Block   |      |    |            |   |                         |                  |      |     |
| 00176-00179        | 33   | 0  | 50         | One second Block Time Stamp                                     | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |

| Address               | Line | Pt | DNP Obj | Description                           | Range                   | Units            | Type | R/W |
|-----------------------|------|----|---------|---------------------------------------|-------------------------|------------------|------|-----|
| 00180-00181           | 34   | 0  | 30      | One second Phase A-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00182-00183           | 34   | 1  | 30      | One second Phase B-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00184-00185           | 34   | 2  | 30      | One second Phase C-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00186-00187           | 35   | 0  | 30      | One second Auxiliary Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00188-00189           | 36   | 0  | 30      | One second Phase A Current            | +32767 A / 0 A          | 1/ 65536 A sec   | F7   | R   |
| 00190-00191           | 36   | 1  | 30      | One second Phase B Current            | +32767 A / 0 A          | 1/ 65536 A sec   | F7   | R   |
| 00192-00193           | 36   | 2  | 30      | One second Phase C Current            | +32767 A / 0 A          | 1/ 65536 A sec   | F7   | R   |
| 00194-00195           | 37   | 0  | 30      | One second Measured Neutral Current   | +32767 A / 0 A          | 1/ 65536 A sec   | F7   | R   |
| 00196-00197           | 38   | 0  | 30      | One second Calculated Neutral Current | +32767 A / 0 A          | 1/ 65536 A sec   | F7   | R   |
| 00198-00199           | 39   | 0  | 30      | One second Phase A-B Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00200-00201           | 39   | 1  | 30      | One second Phase B-C Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00202-00203           | 39   | 2  | 30      | One second Phase C-A Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00204-00205           | 40   | 0  | 30      | One second Phase A VA                 | + 32767 V / 0 V         | 1/ 65536 VA sec  | F7   | R   |
| 00206-00207           | 40   | 1  | 30      | One second Phase B VA                 | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00208-00209           | 40   | 2  | 30      | One second Phase C VA                 | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00210-00211           | 41   | 0  | 30      | One second VA                         | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00212-00213           | 42   | 0  | 30      | One second Phase A VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00214-00215           | 42   | 1  | 30      | One second Phase B VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00216-00217           | 42   | 2  | 30      | One second Phase C VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00218-00219           | 43   | 0  | 30      | One second Three VAR                  | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00220-00221           | 44   | 0  | 30      | One second Phase A Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00222-00223           | 44   | 1  | 30      | One second Phase B Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00224-00225           | 44   | 2  | 30      | One second Phase C Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00226-00227           | 45   | 0  | 30      | One second Watts                      | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00228-00229           | 46   | 0  | 30      | One second Frequency                  | + 32767 Hz / 0 Hz       | 1/ 65536 Hz      | F7   | R   |
| 00230                 | 47   | 0  | 30      | One second Phase A Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00231                 | 47   | 1  | 30      | One second Phase B Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00232                 | 47   | 2  | 30      | One second Phase C Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00233                 | 48   | 0  | 30      | One second Three Phase Power Factor   | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00234                 | 49   | 0  | 30      | One second Voltage Imbalance          | +327.67% / -327.68%     | 0.01%            | F10  | R   |
| 00235                 | 49   | 1  | 30      | One second Current Imbalance          | +327.67% / -327.68%     | 0.01%            | F10  | R   |
| Thermal Average Block |      |    |         |                                       |                         |                  |      |     |
| 00236-00239           | 50   | 0  | 50      | Thermal Average Block Time Stamp      | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |

| Address       | Line | Pt | DNP<br>Obj | Description                                | Range                   | Units            | Type | R/W |
|---------------|------|----|------------|--|-------------------------|------------------|------|-----|
| 00240-00241   | 51   | 0  | 30         | Thermal Average Phase A-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00242-00243   | 51   | 1  | 30         | Thermal Average Phase B-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00244-00245   | 51   | 2  | 30         | Thermal Average Phase C-N Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00246-00247   | 52   | 0  | 30         | Thermal Average Auxiliary Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00248-00249   | 53   | 0  | 30         | Thermal Average Phase A Current            | + 32767 A / 0 A         | 1/ 65536 A sec   | F7   | R   |
| 00250-00251   | 53   | 1  | 30         | Thermal Average Phase B Current            | + 32767 A / 0 A         | 1/ 65536 A sec   | F7   | R   |
| 00252-00253   | 53   | 2  | 30         | Thermal Average Phase C Current            | + 32767 A / 0 A         | 1/ 65536 A sec   | F7   | R   |
| 00254-00255   | 54   | 0  | 30         | Thermal Average Measured Neutral Current   | + 32767 A / 0 A         | 1/ 65536 A sec   | F7   | R   |
| 00256-00257   | 55   | 0  | 30         | Thermal Average Calculated Neutral Current | + 32767 A / 0 A         | 1/ 65536 A sec   | F7   | R   |
| 00258-00259   | 56   | 0  | 30         | Thermal Average Phase A-B Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00260-00261   | 56   | 1  | 30         | Thermal Average Phase B-C Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00262-00263   | 56   | 2  | 30         | Thermal Average Phase C-A Voltage          | + 32767 V / 0 V         | 1/ 65536 V sec   | F7   | R   |
| 00264-00265   | 57   | 0  | 30         | Thermal Average Phase A VA                 | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00266-00267   | 57   | 1  | 30         | Thermal Average Phase B VA                 | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00268-00269   | 57   | 2  | 30         | Thermal Average Phase C VA                 | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00270-00271   | 58   | 0  | 30         | Thermal Average VA                         | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 00272-00273   | 59   | 0  | 30         | Thermal Average Phase A VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00274-00275   | 59   | 1  | 30         | Thermal Average Phase B VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00276-00277   | 58   | 2  | 30         | Thermal Average Phase C VAR                | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00278-00279   | 60   | 0  | 30         | Thermal Average VAR                        | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00280-00281   | 61   | 0  | 30         | Thermal Average Phase A Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00282-00283   | 61   | 1  | 30         | Thermal Average Phase B Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00284-00285   | 61   | 2  | 30         | Thermal Average Phase C Watts              | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00286-00287   | 62   | 0  | 30         | Thermal Average Watts                      | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00288-00289   | 63   | 0  | 30         | Thermal Average Frequency                  | + 32767 Hz / 0 Hz       | 1/ 65536 Hz      | F7   | R   |
| 00290         | 64   | 0  | 30         | Thermal Average Phase A Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00291         | 64   | 1  | 30         | Thermal Average Phase B Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00292         | 64   | 2  | 30         | Thermal Average Phase C Power Factor       | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00293         | 65   | 0  | 30         | Thermal Average Power Factor               | 3.999 / 0               | 0.001 PF         | F8   | R   |
| 00294         | 66   | 0  | 30         | Thermal Average Voltage Imbalance          | +327.67% / -327.68%     | 0.01%            | F10  | R   |
| 00295         | 66   | 1  | 30         | Thermal Average Current Imbalance          | +327.67% / -327.68%     | 0.01%            | F10  | R   |
| Maximum Block |      |    |            |  |                         |                  |      |     |
| 00296-00299   | 67   | 0  | 50         | Maximum Block Time Stamp                   | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |

| Address     | Line | Pt | DNP<br>Obj | Description  | Range              | Units            | Type | R/W |
|-------------|------|----|------------|--|--------------------|------------------|------|-----|
| 00300-00301 | 68   | 0  | 30         | Maximum Thermal Average Phase A-N Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00302-00303 | 68   | 1  | 30         | Maximum Thermal Average Phase B-N Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00304-00305 | 68   | 2  | 30         | Maximum Thermal Average Phase C-N Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00306-00307 | 69   | 0  | 30         | Maximum Thermal Average Auxiliary Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00308-00309 | 70   | 0  | 30         | Maximum Thermal Average Phase A Current            | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00310-00311 | 70   | 1  | 30         | Maximum Thermal Average Phase B Current            | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00312-00313 | 70   | 2  | 30         | Maximum Thermal Average Phase C Current            | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00314-00315 | 71   | 0  | 30         | Maximum Thermal Average Measured Neutral Current   | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00316-00317 | 72   | 0  | 30         | Maximum Thermal Average Calculated Neutral Current | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00318-00319 | 73   | 0  | 30         | Maximum Thermal Average Phase A-B Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00320-00321 | 73   | 1  | 30         | Maximum Thermal Average Phase B-C Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00322-00323 | 73   | 2  | 30         | Maximum Thermal Average Phase C-A Voltage          | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00324-00325 | 74   | 0  | 30         | Maximum Thermal Average Phase A VA                 | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00326-00327 | 74   | 1  | 30         | Maximum Thermal Average Phase B VA                 | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00328-00329 | 74   | 2  | 30         | Maximum Thermal Average Phase C VA                 | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00330-00331 | 75   | 0  | 30         | Maximum Thermal Average VA                         | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00332-00333 | 76   | 0  | 30         | Maximum Thermal Average Phase A Positive VAR       | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00334-00335 | 76   | 1  | 30         | Maximum Thermal Average Phase B Positive VAR       | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00336-00337 | 76   | 2  | 30         | Maximum Thermal Average Phase C Positive VAR       | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00338-00339 | 77   | 0  | 30         | Maximum Thermal Average Positive VAR               | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00340-00341 | 78   | 0  | 30         | Maximum Thermal Average Phase A Negative VAR       | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00342-00343 | 78   | 1  | 30         | Maximum Thermal Average Phase B Negative VAR       | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00344-00345 | 78   | 2  | 30         | Maximum Thermal Average Phase C Negative VAR       | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00346-00347 | 79   | 0  | 30         | Maximum Thermal Average Negative VAR               | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00348-00349 | 80   | 0  | 30         | Maximum Thermal Average Phase A Watts Positive     | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00350-00351 | 80   | 1  | 30         | Maximum Thermal Average Phase B Watts Positive     | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00352-00353 | 80   | 2  | 30         | Maximum Thermal Average Phase C Watts Positive     | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00354-00355 | 81   | 0  | 30         | Maximum Thermal Average Positive Watts             | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00356-00357 | 82   | 0  | 30         | Maximum Thermal Average Phase A Watts Negative     | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00358-00359 | 82   | 1  | 30         | Maximum Thermal Average Phase B Watts Negative     | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00360-00361 | 82   | 2  | 30         | Maximum Thermal Average Phase C Watts Negative     | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00362-00363 | 83   | 0  | 30         | Maximum Thermal Average Negative Watts             | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00364-00365 | 84   | 0  | 30         | Maximum Thermal Average Frequency                  | + 32767 Hz / 0 Hz  | 1/ 65536 Hz      | F7   | R   |

| Address       | Line | Pt | DNP<br>Obj | Description  | Range                   | Units          | Type | R/W |
|---------------|------|----|------------|--|-------------------------|----------------|------|-----|
| 00366         | 85   | 0  | 30         | Maximum Thermal Average Phase A Power Factor Quadrant 1  | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00367         | 85   | 1  | 30         | Maximum Thermal Average Phase B Power Factor Quadrant 1  | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00368         | 85   | 2  | 30         | Maximum Thermal Average Phase C Power Factor Quadrant 1  | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00369         | 86   | 0  | 30         | Maximum Thermal Average Power Factor Quadrant 1          | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00370         | 87   | 0  | 30         | Maximum Thermal Average Phase A Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00371         | 87   | 1  | 30         | Maximum Thermal Average Phase B Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00372         | 87   | 2  | 30         | Maximum Thermal Average Phase C Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00373         | 88   | 0  | 30         | Maximum Thermal Average Power Factor Quadrant 2          | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00374         | 89   | 0  | 30         | Maximum Thermal Average Phase A Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00375         | 89   | 1  | 30         | Maximum Thermal Average Phase B Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00376         | 89   | 2  | 30         | Maximum Thermal Average Phase C Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00377         | 90   | 0  | 30         | Maximum Thermal Average Power Factor Quadrant 3          | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00378         | 91   | 0  | 30         | Maximum Thermal Average Phase A Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00379         | 91   | 1  | 30         | Maximum Thermal Average Phase B Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00380         | 91   | 2  | 30         | Maximum Thermal Average Phase C Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00381         | 92   | 0  | 30         | Maximum Thermal Average Power Factor Quadrant 4          | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00382         | 93   | 0  | 30         | Maximum Thermal Average Voltage Imbalance                | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00383         | 93   | 1  | 30         | Maximum Thermal Average Current Imbalance                | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00384         | 94   | 0  | 30         | Maximum THD Phase A-N / A-B Voltage                      | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00385         | 94   | 1  | 30         | Maximum THD Phase B-N / B-C Voltage                      | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00386         | 94   | 2  | 30         | Maximum THD Phase C-N / C-A Voltage                      | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00387         | 95   | 0  | 30         | Maximum THD Phase A Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00388         | 95   | 1  | 30         | Maximum THD Phase B Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00389         | 95   | 2  | 30         | Maximum THD Phase C Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00390         | 96   | 0  | 30         | Maximum K-Factor Phase A Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00391         | 96   | 1  | 30         | Maximum K-Factor Phase B Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00392         | 96   | 2  | 30         | Maximum K-Factor Phase C Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00393-00394   | 97   | 0  | 30         | Coincident Thermal Average VAR for Maximum Positive Watt | +32767 VAR / -32768 VAR | 1/ 65536 W sec | F7   | R   |
| 00395-00396   | 97   | 1  | 30         | Coincident Thermal Average VAR for Maximum Negative Watt | +32767 VAR / -32768 VAR | 1/ 65536 W sec | F7   | R   |
| Minimum Block |      |    |            |  |                         |                |      |     |
| 00397-00400   | 98   | 0  | 50         | Minimum Block Time Stamp                                 | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |
| 00401-00402   | 99   | 0  | 30         | Minimum Thermal Average Phase A-N Voltage                | + 32767 V / 0 V         | 1/ 65536 V sec | F7   | R   |
| 00403-00404   | 99   | 1  | 30         | Minimum Thermal Average Phase B-N Voltage                | + 32767 V / 0 V         | 1/ 65536 V sec | F7   | R   |

| Address     | Line | Pt | DNP<br>Obj | Description   | Range              | Units            | Type | R/W |
|-------------|------|----|------------|---|--------------------|------------------|------|-----|
| 00405-00406 | 99   | 2  | 30         | Minimum Thermal Average Phase C-N Voltage               | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00407-00408 | 100  | 0  | 30         | Minimum Thermal Average Auxiliary Voltage               | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00409-00410 | 101  | 0  | 30         | Minimum Thermal Average Phase A Current                 | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00411-00412 | 101  | 1  | 30         | Minimum Thermal Average Phase B Current                 | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00413-00414 | 101  | 2  | 30         | Minimum Thermal Average Phase C Current                 | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00415-00416 | 102  | 0  | 30         | Minimum Thermal Average Measured Neutral Current        | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00417-00418 | 103  | 0  | 30         | Minimum Thermal Average Calculated Neutral Current      | + 32767 A / 0 A    | 1/ 65536 A sec   | F7   | R   |
| 00419-00420 | 104  | 0  | 30         | Minimum Thermal Average Phase A-B Voltage               | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00421-00422 | 104  | 1  | 30         | Minimum Thermal Average Phase B-C Voltage               | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00423-00424 | 104  | 2  | 30         | Minimum Thermal Average Phase C-A Voltage               | + 32767 V / 0 V    | 1/ 65536 V sec   | F7   | R   |
| 00425-00426 | 105  | 0  | 30         | Minimum Thermal Average Phase A VA                      | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00427-00428 | 105  | 1  | 30         | Minimum Thermal Average Phase B VA                      | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00429-00430 | 105  | 2  | 30         | Minimum Thermal Average Phase C VA                      | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00431-00432 | 106  | 0  | 30         | Minimum Thermal Average VA                              | +32767 VA / 0 VA   | 1/ 65536 VA sec  | F7   | R   |
| 00433-00434 | 107  | 0  | 30         | Minimum Thermal Average Phase A Positive VAR            | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00435-00436 | 107  | 1  | 30         | Minimum Thermal Average Phase B Positive VAR            | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00437-00438 | 107  | 2  | 30         | Minimum Thermal Average Phase C Positive VAR            | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00439-00440 | 108  | 0  | 30         | Minimum Thermal Average Positive VAR                    | +32767 VAR / 0 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00441-00442 | 109  | 0  | 30         | Minimum Thermal Average Phase A Negative VAR            | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00443-00444 | 109  | 1  | 30         | Minimum Thermal Average Phase B Negative VAR            | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00445-00446 | 109  | 2  | 30         | Minimum Thermal Average Phase C Negative VAR            | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00447-00448 | 110  | 0  | 30         | Minimum Thermal Average Negative VAR                    | 0 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 00449-00450 | 111  | 0  | 30         | Minimum Thermal Average Phase A Positive Watts          | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00451-00452 | 111  | 1  | 30         | Minimum Thermal Average Phase B Positive Watts          | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00453-00454 | 111  | 2  | 30         | Minimum Thermal Average Phase C Positive Watts          | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00455-00456 | 112  | 0  | 30         | Minimum Thermal Average Positive Watts                  | +32767 W / 0 W     | 1/ 65536 W sec   | F7   | R   |
| 00457-00458 | 113  | 0  | 30         | Minimum Thermal Average Phase A Negative Watts          | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00459-00460 | 113  | 1  | 30         | Minimum Thermal Average Phase B Negative Watts          | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00461-00462 | 113  | 2  | 30         | Minimum Thermal Average Phase C Negative Watts          | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00463-00464 | 114  | 0  | 30         | Minimum Thermal Average Negative Watts                  | 0 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 00465-00466 | 115  | 0  | 30         | Minimum Thermal Average Frequency                       | + 32767 Hz / 0 Hz  | 1/ 65536 Hz      | F7   | R   |
| 00467       | 116  | 0  | 30         | Minimum Thermal Average Phase A Power Factor Quadrant 1 | 0.999 / 0          | 0.001 PF         | F8   | R   |
| 00468       | 116  | 1  | 30         | Minimum Thermal Average Phase B Power Factor Quadrant 1 | 0.999 / 0          | 0.001 PF         | F8   | R   |

| Address                  | Line | Pt | DNP<br>Obj | Description  | Range                   | Units          | Type | R/W |
|--------------------------|------|----|------------|--|-------------------------|----------------|------|-----|
| 00469                    | 116  | 2  | 30         | Minimum Thermal Average Phase C Power Factor Quadrant 1  | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00470                    | 117  | 0  | 30         | Minimum Thermal Average Power Factor Quadrant 1          | 0.999 / 0               | 0.001 PF       | F8   | R   |
| 00471                    | 118  | 0  | 30         | Minimum Thermal Average Phase A Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00472                    | 118  | 1  | 30         | Minimum Thermal Average Phase B Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00473                    | 118  | 2  | 30         | Minimum Thermal Average Phase C Power Factor Quadrant 2  | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00474                    | 119  | 0  | 30         | Minimum Thermal Average Power Factor Quadrant 2          | 1.999 //1.000           | 0.001 PF       | F8   | R   |
| 00475                    | 120  | 0  | 30         | Minimum Thermal Average Phase A Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00476                    | 120  | 1  | 30         | Minimum Thermal Average Phase B Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00477                    | 120  | 2  | 30         | Minimum Thermal Average Phase C Power Factor Quadrant 3  | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00478                    | 121  | 0  | 30         | Minimum Thermal Average Power Factor Quadrant 3          | 2.999 / 2.000           | 0.001 PF       | F8   | R   |
| 00479                    | 122  | 0  | 30         | Minimum Thermal Average Phase A Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00480                    | 122  | 1  | 30         | Minimum Thermal Average Phase B Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00481                    | 122  | 2  | 30         | Minimum Thermal Average Phase C Power Factor Quadrant 4  | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00482                    | 123  | 0  | 30         | Minimum Thermal Average Power Factor Quadrant 4          | 3.999 / 3.000           | 0.001 PF       | F8   | R   |
| 00483                    | 124  | 0  | 30         | Minimum Thermal Average Voltage Imbalance                | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00484                    | 124  | 1  | 30         | Minimum Thermal Average Current Imbalance                | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00485                    | 125  | 0  | 30         | Minimum THD Phase A-N Voltage / Phase A-B Voltage        | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00486                    | 125  | 1  | 30         | Minimum THD Phase B-N Voltage / Phase B-C Voltage        | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00487                    | 125  | 2  | 30         | Minimum THD Phase C-N Voltage / Phase C-A Voltage        | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00488                    | 126  | 0  | 30         | Minimum THD Phase A Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00489                    | 126  | 1  | 30         | Minimum THD Phase B Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00490                    | 126  | 2  | 30         | Minimum THD Phase C Current                              | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00491                    | 127  | 0  | 30         | Minimum K-Factor Phase A Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00492                    | 127  | 1  | 30         | Minimum K-Factor Phase B Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00493                    | 127  | 2  | 30         | Minimum K-Factor Phase C Current                         | +327.67% / -327.68%     | 0.01%          | F10  | R   |
| 00494-00495              | 128  | 0  | 30         | Coincident Thermal Average VAR for Minimum Positive Watt | +32767 VAR / -32768 VAR | 1/ 65536 W sec | F7   | R   |
| 00496-00497              | 128  | 1  | 30         | Coincident Thermal Average VAR for Minimum Negative Watt | +32767 VAR / -32768 VAR | 1/ 65536 W sec | F7   | R   |
| Maximum Time Stamp Block |      |    |            |  |                         |                |      |     |
| 00498-00501              | 129  | 0  | 50         | Maximum Thermal Average Phase A-N Voltage Time Stamp     | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |
| 00502-00505              | 129  | 1  | 50         | Maximum Thermal Average Phase B-N Voltage Time Stamp     | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |
| 00506-00509              | 129  | 2  | 50         | Maximum Thermal Average Phase C-N Voltage Time Stamp     | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |
| 00510-00513              | 129  | 3  | 50         | Maximum Thermal Average Auxiliary Voltage Time Stamp     | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |
| 00514-00517              | 129  | 4  | 50         | Maximum Thermal Average Phase A Current Time Stamp       | 12/31/9999 23:59:59.99  | 10 msec        | F3   | R   |



| Address     | Line | Pt | DNP<br>Obj | Description  | Range                  | Units   | Type | R/W |
|-------------|------|----|------------|--|------------------------|---------|------|-----|
| 00518-00521 | 129  | 5  | 50         | Maximum Thermal Average Phase B Current Time Stamp                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00522-00525 | 129  | 6  | 50         | Maximum Thermal Average Phase C Current Time Stamp                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00526-00529 | 129  | 7  | 50         | Maximum Thermal Average Measured Neutral Current Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00530-00533 | 129  | 8  | 50         | Maximum Thermal Average Calculated Neutral Current Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00534-00537 | 129  | 9  | 50         | Maximum Thermal Average Phase A-B Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00538-00541 | 129  | 10 | 50         | Maximum Thermal Average Phase B-C Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00542-00545 | 129  | 11 | 50         | Maximum Thermal Average Phase C-A Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00546-00549 | 129  | 12 | 50         | Maximum Thermal Average Phase A VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00550-00553 | 129  | 13 | 50         | Maximum Thermal Average Phase B VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00554-00557 | 129  | 14 | 50         | Maximum Thermal Average Phase C VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00558-00561 | 129  | 15 | 50         | Maximum Thermal Average VA Time Stamp                              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00562-00565 | 129  | 16 | 50         | Maximum Thermal Average Phase A Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00566-00569 | 129  | 17 | 50         | Maximum Thermal Average Phase B Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00570-00573 | 129  | 18 | 50         | Maximum Thermal Average Phase C Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00574-00577 | 129  | 19 | 50         | Maximum Thermal Average Positive VAR Time Stamp                    | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00578-00581 | 129  | 20 | 50         | Maximum Thermal Average Phase A Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00582-00585 | 129  | 21 | 50         | Maximum Thermal Average Phase B Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00586-00589 | 129  | 22 | 50         | Maximum Thermal Average Phase C Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00590-00593 | 129  | 23 | 50         | Maximum Thermal Average Negative VAR Time Stamp                    | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00594-00597 | 129  | 24 | 50         | Maximum Thermal Average Phase A Watts Positive Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00598-00601 | 129  | 25 | 50         | Maximum Thermal Average Phase B Watts Positive Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00602-00605 | 129  | 26 | 50         | Maximum Thermal Average Phase C Watts Positive Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00606-00609 | 129  | 27 | 50         | Maximum Thermal Average Positive Watts Time Stamp                  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00610-00613 | 129  | 28 | 50         | Maximum Thermal Average Phase A Watts Negative Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00614-00617 | 129  | 29 | 50         | Maximum Thermal Average Phase B Watts Negative Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00618-00621 | 129  | 30 | 50         | Maximum Thermal Average Phase C Watts Negative Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00622-00625 | 129  | 31 | 50         | Maximum Thermal Average Negative Watts Time Stamp                  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00626-00629 | 129  | 32 | 50         | Maximum Thermal Average Frequency Time Stamp                       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00630-00633 | 129  | 33 | 50         | Maximum Thermal Average Phase A Power Factor Quadrant 1 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00634-00637 | 129  | 34 | 50         | Maximum Thermal Average Phase B Power Factor Quadrant 1            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00638-00641 | 129  | 35 | 50         | Maximum Thermal Average Phase C Power Factor Quadrant 1 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00642-00645 | 129  | 36 | 50         | Maximum Thermal Average Power Factor Quadrant 1                    | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00646-00649 | 129  | 37 | 50         | Maximum Thermal Average Phase A Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |

| Address                  | Line | Pt | DNP<br>Obj | Description  | Range                  | Units   | Type | R/W |
|--------------------------|------|----|------------|--|------------------------|---------|------|-----|
| 00650-00653              | 129  | 38 | 50         | Maximum Thermal Average Phase B Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00654-00657              | 129  | 39 | 50         | Maximum Thermal Average Phase C Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00658-00661              | 129  | 40 | 50         | Maximum Thermal Average Power Factor Quadrant 2 Time Stamp         | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00662-00665              | 129  | 41 | 50         | Maximum Thermal Average Phase A Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00666-00669              | 129  | 42 | 50         | Maximum Thermal Average Phase B Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00670-00673              | 129  | 43 | 50         | Maximum Thermal Average Phase C Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00674-00677              | 129  | 44 | 50         | Maximum Thermal Average Power Factor Quadrant 3 Time Stamp         | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00678-00681              | 129  | 45 | 50         | Maximum Thermal Average Phase A Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00682-00685              | 129  | 46 | 50         | Maximum Thermal Average Phase B Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00686-00689              | 129  | 47 | 50         | Maximum Thermal Average Phase C Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00690-00693              | 129  | 48 | 50         | Maximum Thermal Average Power Factor Quadrant 4 Time Stamp         | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00694-00697              | 129  | 49 | 50         | Maximum Thermal Average Voltage Imbalance Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00698-00701              | 129  | 50 | 50         | Maximum Thermal Average Current Imbalance Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00702-00705              | 129  | 51 | 50         | Maximum THD Phase A-N / A-B Voltage Time Stamp                     | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00706-00709              | 129  | 52 | 50         | Maximum THD Phase B-N / B-C Voltage Time Stamp                     | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00710-00713              | 129  | 53 | 50         | Maximum THD Phase C-N / C-A Voltage Time Stamp                     | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00714-00717              | 129  | 54 | 50         | Maximum THD Phase A Current Time Stamp                             | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00718-00721              | 129  | 55 | 50         | Maximum THD Phase B Current Time Stamp                             | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00722-00725              | 129  | 56 | 50         | Maximum THD Phase C Current Time Stamp                             | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00726-00729              | 129  | 57 | 50         | Maximum K-Factor Phase A Current Time Stamp                        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00730-00733              | 129  | 58 | 50         | Maximum K-Factor Phase B Current Time Stamp                        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00734-00737              | 129  | 59 | 50         | Maximum K-Factor Phase C Current Time Stamp                        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| Minimum Time Stamp Block |      |    |            |  |                        |         |      |     |
| 00738-00741              | 130  | 0  | 50         | Minimum Thermal Average Phase A-N Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00742-00745              | 130  | 1  | 50         | Minimum Thermal Average Phase B-N Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00746-00749              | 130  | 2  | 50         | Minimum Thermal Average Phase C-N Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00750-00753              | 130  | 3  | 50         | Minimum Thermal Average Auxiliary Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00754-00757              | 130  | 4  | 50         | Minimum Thermal Average Phase A Current Time Stamp                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00758-00761              | 130  | 5  | 50         | Minimum Thermal Average Phase B Current Time Stamp                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00762-00765              | 130  | 6  | 50         | Minimum Thermal Average Phase C Current Time Stamp                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00766-00769              | 130  | 7  | 50         | Minimum Thermal Average Measured Neutral Current Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00770-00773              | 130  | 8  | 50         | Minimum Thermal Average Calculated Neutral Current Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00774-00777              | 130  | 9  | 50         | Minimum Thermal Average Phase A-B Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |

| Address     | Line | Pt | DNP<br>Obj | Description  | Range                  | Units   | Type | R/W |
|-------------|------|----|------------|--|------------------------|---------|------|-----|
| 00778-00781 | 130  | 10 | 50         | Minimum Thermal Average Phase B-C Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00782-00785 | 130  | 11 | 50         | Minimum Thermal Average Phase C-A Voltage Time Stamp               | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00786-00789 | 130  | 12 | 50         | Minimum Thermal Average Phase A VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00790-00793 | 130  | 13 | 50         | Minimum Thermal Average Phase B VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00794-00797 | 130  | 14 | 50         | Minimum Thermal Average Phase C VA Time Stamp                      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00798-00801 | 130  | 15 | 50         | Minimum Thermal Average VA Time Stamp                              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00802-00805 | 130  | 16 | 50         | Minimum Thermal Average Phase A Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00806-00809 | 130  | 17 | 50         | Minimum Thermal Average Phase B Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00810-00813 | 130  | 18 | 50         | Minimum Thermal Average Phase C Positive VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00814-00817 | 130  | 19 | 50         | Minimum Thermal Average Positive VAR Time Stamp                    | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00818-00821 | 130  | 20 | 50         | Minimum Thermal Average Phase A Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00822-00825 | 130  | 21 | 50         | Minimum Thermal Average Phase B Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00826-00829 | 130  | 22 | 50         | Minimum Thermal Average Phase C Negative VAR Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00830-00833 | 130  | 23 | 50         | Minimum Thermal Average Negative VAR Time Stamp                    | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00834-00837 | 130  | 24 | 50         | Minimum Thermal Average Phase A Positive Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00838-00841 | 130  | 25 | 50         | Minimum Thermal Average Phase B Positive Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00842-00845 | 130  | 26 | 50         | Minimum Thermal Average Phase C Positive Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00846-00849 | 130  | 27 | 50         | Minimum Thermal Average Positive Watts Time Stamp                  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00850-00853 | 130  | 28 | 50         | Minimum Thermal Average Phase A Negative Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00854-00857 | 130  | 29 | 50         | Minimum Thermal Average Phase B Negative Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00858-00861 | 130  | 30 | 50         | Minimum Thermal Average Phase C Negative Watts Time Stamp          | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00862-00865 | 130  | 31 | 50         | Minimum Thermal Average Negative Watts Time Stamp                  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00866-00869 | 130  | 32 | 50         | Minimum Thermal Average Frequency Time Stamp                       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00870-00873 | 130  | 33 | 50         | Minimum Thermal Average Phase A Power Factor Quadrant 1 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00874-00877 | 130  | 34 | 50         | Minimum Thermal Average Phase B Power Factor Quadrant 1 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00878-00881 | 130  | 35 | 50         | Minimum Thermal Average Phase C Power Factor Quadrant 1 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00882-00885 | 130  | 36 | 50         | Minimum Thermal Average Power Factor Quadrant 1 Time Stamp         | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00886-00889 | 130  | 37 | 50         | Minimum Thermal Average Phase A Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00890-00893 | 130  | 38 | 50         | Minimum Thermal Average Phase B Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00894-00897 | 130  | 39 | 50         | Minimum Thermal Average Phase C Power Factor Quadrant 2 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00898-00901 | 130  | 40 | 50         | Minimum Thermal Average Power Factor Quadrant 2 Time Stamp         | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00902-00905 | 130  | 41 | 50         | Minimum Thermal Average Phase A Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 00906-00909 | 130  | 42 | 50         | Minimum Thermal Average Phase B Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |

| Address                  | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 00910-00913              | 130  | 43 | 50         | Minimum Thermal Average Phase C Power Factor Quadrant 3 Time Stamp | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00914-00917              | 130  | 44 | 50         | Minimum Thermal Average Power Factor Quadrant 3 Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00918-00921              | 130  | 45 | 50         | Minimum Thermal Average Phase A Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00922-00925              | 130  | 46 | 50         | Minimum Thermal Average Phase B Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00926-00929              | 130  | 47 | 50         | Minimum Thermal Average Phase C Power Factor Quadrant 4 Time Stamp | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00930-00933              | 130  | 48 | 50         | Minimum Thermal Average Power Factor Quadrant 4 Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00934-00937              | 130  | 49 | 50         | Minimum Thermal Average Voltage Imbalance Time Stamp               | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00938-00941              | 130  | 50 | 50         | Minimum Thermal Average Current Imbalance Time Stamp               | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00942-00945              | 130  | 51 | 50         | Minimum THD Phase A-N Voltage / Phase A-B Voltage Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00946-00949              | 130  | 52 | 50         | Minimum THD Phase B-N Voltage / Phase B-C Voltage Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00950-00953              | 130  | 53 | 50         | Minimum THD Phase C-N Voltage / Phase C-A Voltage Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00954-00957              | 130  | 54 | 50         | Minimum THD Phase A Current Time Stamp                             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00958-00961              | 130  | 55 | 50         | Minimum THD Phase B Current Time Stamp                             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00962-00965              | 130  | 56 | 50         | Minimum THD Phase C Current Time Stamp                             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00966-00969              | 130  | 57 | 50         | Minimum K-Factor Phase A Current Time Stamp                        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00970-00973              | 130  | 58 | 50         | Minimum K-Factor Phase B Current Time Stamp                        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00974-00977              | 130  | 59 | 50         | Minimum K-Factor Phase C Current Time Stamp                        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Energy Block (Secondary) |      |    |            |  |                                      |                    |      |     |
| 00978-00981              | 131  | 0  | 50         | Energy Block Time Stamp  | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 00982-00985              | 132  | 0  | 20         | VAhour (BCD) (Quadrants 1+2+3+4)                                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F11  | R   |
| 00986-00989              | 132  | 1  | 20         | Positive VARhour (BCD) (Quadrants 1+2)                             | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F11  | R   |
| 00990-00993              | 132  | 2  | 20         | Negative VARhour (BCD) (Quadrants 3 +4)                            | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F11  | R   |
| 00994-00997              | 132  | 3  | 20         | Positive Watthour (BCD) (Quadrants 1+4)                            | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F11  | R   |
| 00998-01001              | 132  | 4  | 20         | Negative Watthour (BCD) (Quadrants 2+3)                            | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F11  | R   |
| 01002-01005              | 133  | 0  | 20         | VAhour (Binary) (Quadrants 1+2+3+4)                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F12  | R   |
| 01006-01009              | 133  | 1  | 20         | Positive VARhour (Binary) (Quadrants 1+2)                          | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F12  | R   |
| 01010-01013              | 133  | 2  | 20         | Negative VARhour (Binary) (Quadrants 3+4)                          | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F12  | R   |
| 01014-01017              | 133  | 3  | 20         | Positive Watthour (Binary) (Quadrants 1 +4)                        | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F12  | R   |
| 01018-01021              | 133  | 4  | 20         | Negative Watthour (Binary) (Quadrants 2+3)                         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F12  | R   |
| Harmonic Magnitude Block |      |    |            |  |                                      |                    |      |     |
| 01022                    | 134  | 0  | 30         | Phase A-N / Phase A-B Voltage 0 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68%                  | 0.01%              | F10  | R   |
| 01023                    | 134  | 1  | 30         | Phase A-N / Phase A-B Voltage 1 <sup>st</sup> Harmonic Magnitude   | +327.67% / -327.68%                  | 0.01%              | F10  | R   |
| 01024                    | 134  | 2  | 30         | Phase A-N / Phase A-B Voltage 2 <sup>nd</sup> Harmonic Magnitude   | +327.67% / -327.68%                  | 0.01%              | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01025   | 134  | 3  | 30         | Phase A-N / Phase A-B Voltage 3 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01026   | 134  | 4  | 30         | Phase A-N / Phase A-B Voltage 4 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01027   | 134  | 5  | 30         | Phase A-N / Phase A-B Voltage 5 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01028   | 134  | 6  | 30         | Phase A-N / Phase A-B Voltage 6 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01029   | 134  | 7  | 30         | Phase A-N / Phase A-B Voltage 7 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01030   | 135  | 0  | 30         | Phase A-N / Phase A-B Voltage 8 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01031   | 135  | 1  | 30         | Phase A-N / Phase A-B Voltage 9 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01032   | 135  | 2  | 30         | Phase A-N / Phase A-B Voltage 10 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01033   | 135  | 3  | 30         | Phase A-N / Phase A-B Voltage 11 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01034   | 135  | 4  | 30         | Phase A-N / Phase A-B Voltage 12 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01035   | 135  | 5  | 30         | Phase A-N / Phase A-B Voltage 13 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01036   | 135  | 6  | 30         | Phase A-N / Phase A-B Voltage 14 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01037   | 135  | 7  | 30         | Phase A-N / Phase A-B Voltage 15 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01038   | 136  | 0  | 30         | Phase A-N / Phase A-B Voltage 16 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01039   | 136  | 1  | 30         | Phase A-N / Phase A-B Voltage 17 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01040   | 136  | 2  | 30         | Phase A-N / Phase A-B Voltage 18 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01041   | 136  | 3  | 30         | Phase A-N / Phase A-B Voltage 19 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01042   | 136  | 4  | 30         | Phase A-N / Phase A-B Voltage 20 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01043   | 136  | 5  | 30         | Phase A-N / Phase A-B Voltage 21 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01044   | 136  | 6  | 30         | Phase A-N / Phase A-B Voltage 22 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01045   | 136  | 7  | 30         | Phase A-N / Phase A-B Voltage 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01046   | 136  | 8  | 30         | Phase A-N / Phase A-B Voltage 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01047   | 136  | 9  | 30         | Phase A-N / Phase A-B Voltage 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01048   | 136  | 10 | 30         | Phase A-N / Phase A-B Voltage 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01049   | 136  | 11 | 30         | Phase A-N / Phase A-B Voltage 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01050   | 136  | 12 | 30         | Phase A-N / Phase A-B Voltage 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01051   | 136  | 13 | 30         | Phase A-N / Phase A-B Voltage 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01052   | 136  | 14 | 30         | Phase A-N / Phase A-B Voltage 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01053   | 136  | 15 | 30         | Phase A-N / Phase A-B Voltage 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01054   | 137  | 0  | 30         | Phase A-N / Phase A-B Voltage 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01055   | 137  | 1  | 30         | Phase A-N / Phase A-B Voltage 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01056   | 137  | 2  | 30         | Phase A-N / Phase A-B Voltage 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01057   | 137  | 3  | 30         | Phase A-N / Phase A-B Voltage 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01058   | 137  | 4  | 30         | Phase A-N / Phase A-B Voltage 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01059   | 137  | 5  | 30         | Phase A-N / Phase A-B Voltage 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01060   | 137  | 6  | 30         | Phase A-N / Phase A-B Voltage 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01061   | 137  | 7  | 30         | Phase A-N / Phase A-B Voltage 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01062   | 137  | 8  | 30         | Phase A-N / Phase A-B Voltage 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01063   | 137  | 9  | 30         | Phase A-N / Phase A-B Voltage 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01064   | 137  | 10 | 30         | Phase A-N / Phase A-B Voltage 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01065   | 137  | 11 | 30         | Phase A-N / Phase A-B Voltage 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01066   | 137  | 12 | 30         | Phase A-N / Phase A-B Voltage 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01067   | 137  | 13 | 30         | Phase A-N / Phase A-B Voltage 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01068   | 137  | 14 | 30         | Phase A-N / Phase A-B Voltage 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01069   | 137  | 15 | 30         | Phase A-N / Phase A-B Voltage 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01070   | 137  | 16 | 30         | Phase A-N / Phase A-B Voltage 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01071   | 137  | 17 | 30         | Phase A-N / Phase A-B Voltage 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01072   | 137  | 18 | 30         | Phase A-N / Phase A-B Voltage 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01073   | 137  | 19 | 30         | Phase A-N / Phase A-B Voltage 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01074   | 137  | 20 | 30         | Phase A-N / Phase A-B Voltage 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01075   | 137  | 21 | 30         | Phase A-N / Phase A-B Voltage 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01076   | 137  | 22 | 30         | Phase A-N / Phase A-B Voltage 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01077   | 137  | 23 | 30         | Phase A-N / Phase A-B Voltage 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01078   | 137  | 24 | 30         | Phase A-N / Phase A-B Voltage 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01079   | 137  | 25 | 30         | Phase A-N / Phase A-B Voltage 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01080   | 137  | 26 | 30         | Phase A-N / Phase A-B Voltage 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01081   | 137  | 27 | 30         | Phase A-N / Phase A-B Voltage 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01082   | 137  | 28 | 30         | Phase A-N / Phase A-B Voltage 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01083   | 137  | 29 | 30         | Phase A-N / Phase A-B Voltage 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01084   | 137  | 30 | 30         | Phase A-N / Phase A-B Voltage 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01085   | 137  | 31 | 30         | Phase A-N / Phase A-B Voltage 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01086   | 138  | 0  | 30         | Phase A-N / Phase A-B Voltage 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01087   | 138  | 1  | 30         | Phase A-N / Phase A-B Voltage 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01088   | 138  | 2  | 30         | Phase A-N / Phase A-B Voltage 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01089   | 138  | 3  | 30         | Phase A-N / Phase A-B Voltage 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01090   | 138  | 4  | 30         | Phase A-N / Phase A-B Voltage 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01091   | 138  | 5  | 30         | Phase A-N / Phase A-B Voltage 69 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01092   | 138  | 6  | 30         | Phase A-N / Phase A-B Voltage 70 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01093   | 138  | 7  | 30         | Phase A-N / Phase A-B Voltage 71 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01094   | 138  | 8  | 30         | Phase A-N / Phase A-B Voltage 72 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01095   | 138  | 9  | 30         | Phase A-N / Phase A-B Voltage 73 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01096   | 138  | 10 | 30         | Phase A-N / Phase A-B Voltage 74 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01097   | 138  | 11 | 30         | Phase A-N / Phase A-B Voltage 75 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01098   | 138  | 12 | 30         | Phase A-N / Phase A-B Voltage 76 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01099   | 138  | 13 | 30         | Phase A-N / Phase A-B Voltage 77 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01100   | 138  | 14 | 30         | Phase A-N / Phase A-B Voltage 78 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01101   | 138  | 15 | 30         | Phase A-N / Phase A-B Voltage 79 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01102   | 138  | 16 | 30         | Phase A-N / Phase A-B Voltage 80 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01103   | 138  | 17 | 30         | Phase A-N / Phase A-B Voltage 81 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01104   | 138  | 18 | 30         | Phase A-N / Phase A-B Voltage 82 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01105   | 138  | 19 | 30         | Phase A-N / Phase A-B Voltage 83 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01106   | 138  | 20 | 30         | Phase A-N / Phase A-B Voltage 84 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01107   | 138  | 21 | 30         | Phase A-N / Phase A-B Voltage 85 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01108   | 138  | 22 | 30         | Phase A-N / Phase A-B Voltage 86 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01109   | 138  | 23 | 30         | Phase A-N / Phase A-B Voltage 87 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01110   | 138  | 24 | 30         | Phase A-N / Phase A-B Voltage 88 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01111   | 138  | 25 | 30         | Phase A-N / Phase A-B Voltage 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01112   | 138  | 26 | 30         | Phase A-N / Phase A-B Voltage 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01113   | 138  | 27 | 30         | Phase A-N / Phase A-B Voltage 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01114   | 138  | 28 | 30         | Phase A-N / Phase A-B Voltage 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01115   | 138  | 29 | 30         | Phase A-N / Phase A-B Voltage 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01116   | 138  | 30 | 30         | Phase A-N / Phase A-B Voltage 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01117   | 138  | 31 | 30         | Phase A-N / Phase A-B Voltage 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01118   | 138  | 32 | 30         | Phase A-N / Phase A-B Voltage 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01119   | 138  | 33 | 30         | Phase A-N / Phase A-B Voltage 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01120   | 138  | 34 | 30         | Phase A-N / Phase A-B Voltage 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01121   | 138  | 35 | 30         | Phase A-N / Phase A-B Voltage 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01122   | 138  | 36 | 30         | Phase A-N / Phase A-B Voltage 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01123   | 138  | 37 | 30         | Phase A-N / Phase A-B Voltage 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01124   | 138  | 38 | 30         | Phase A-N / Phase A-B Voltage 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01125   | 138  | 39 | 30         | Phase A-N / Phase A-B Voltage 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01126   | 138  | 40 | 30         | Phase A-N / Phase A-B Voltage 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01127   | 138  | 41 | 30         | Phase A-N / Phase A-B Voltage 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01128   | 138  | 42 | 30         | Phase A-N / Phase A-B Voltage 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01129   | 138  | 43 | 30         | Phase A-N / Phase A-B Voltage 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01130   | 138  | 44 | 30         | Phase A-N / Phase A-B Voltage 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01131   | 138  | 45 | 30         | Phase A-N / Phase A-B Voltage 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01132   | 138  | 46 | 30         | Phase A-N / Phase A-B Voltage 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01133   | 138  | 47 | 30         | Phase A-N / Phase A-B Voltage 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01134   | 138  | 48 | 30         | Phase A-N / Phase A-B Voltage 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01135   | 138  | 49 | 30         | Phase A-N / Phase A-B Voltage 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01136   | 138  | 50 | 30         | Phase A-N / Phase A-B Voltage 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01137   | 138  | 51 | 30         | Phase A-N / Phase A-B Voltage 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01138   | 138  | 52 | 30         | Phase A-N / Phase A-B Voltage 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01139   | 138  | 53 | 30         | Phase A-N / Phase A-B Voltage 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01140   | 138  | 54 | 30         | Phase A-N / Phase A-B Voltage 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01141   | 138  | 55 | 30         | Phase A-N / Phase A-B Voltage 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01142   | 138  | 56 | 30         | Phase A-N / Phase A-B Voltage 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01143   | 138  | 57 | 30         | Phase A-N / Phase A-B Voltage 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01144   | 138  | 58 | 30         | Phase A-N / Phase A-B Voltage 122 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01145   | 138  | 59 | 30         | Phase A-N / Phase A-B Voltage 123 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01146   | 138  | 60 | 30         | Phase A-N / Phase A-B Voltage 124 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01147   | 138  | 61 | 30         | Phase A-N / Phase A-B Voltage 125 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01148   | 138  | 62 | 30         | Phase A-N / Phase A-B Voltage 126 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01149   | 138  | 63 | 30         | Phase A-N / Phase A-B Voltage 127 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01150   | 139  | 0  | 30         | Phase B-N / Phase B-C Voltage 0 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01151   | 139  | 1  | 30         | Phase B-N / Phase B-C Voltage 1 <sup>st</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01152   | 139  | 2  | 30         | Phase B-N / Phase B-C Voltage 2 <sup>nd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01153   | 139  | 3  | 30         | Phase B-N / Phase B-C Voltage 3 <sup>rd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01154   | 139  | 4  | 30         | Phase B-N / Phase B-C Voltage 4 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01155   | 139  | 5  | 30         | Phase B-N / Phase B-C Voltage 5 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01156   | 139  | 6  | 30         | Phase B-N / Phase B-C Voltage 6 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |



| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01157   | 139  | 7  | 30         | Phase B-N / Phase B-C Voltage 7 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01158   | 140  | 0  | 30         | Phase B-N / Phase B-C Voltage 8 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01159   | 140  | 1  | 30         | Phase B-N / Phase B-C Voltage 9 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01160   | 140  | 2  | 30         | Phase B-N / Phase B-C Voltage 10 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01161   | 140  | 3  | 30         | Phase B-N / Phase B-C Voltage 11 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01162   | 140  | 4  | 30         | Phase B-N / Phase B-C Voltage 12 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01163   | 140  | 5  | 30         | Phase B-N / Phase B-C Voltage 13 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01164   | 140  | 6  | 30         | Phase B-N / Phase B-C Voltage 14 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01165   | 140  | 7  | 30         | Phase B-N / Phase B-C Voltage 15 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01166   | 141  | 0  | 30         | Phase B-N / Phase B-C Voltage 16 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01167   | 141  | 1  | 30         | Phase B-N / Phase B-C Voltage 17 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01168   | 141  | 2  | 30         | Phase B-N / Phase B-C Voltage 18 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01169   | 141  | 3  | 30         | Phase B-N / Phase B-C Voltage 19 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01170   | 141  | 4  | 30         | Phase B-N / Phase B-C Voltage 20 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01171   | 141  | 5  | 30         | Phase B-N / Phase B-C Voltage 21 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01172   | 141  | 6  | 30         | Phase B-N / Phase B-C Voltage 22 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01173   | 141  | 7  | 30         | Phase B-N / Phase B-C Voltage 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01174   | 141  | 8  | 30         | Phase B-N / Phase B-C Voltage 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01175   | 141  | 9  | 30         | Phase B-N / Phase B-C Voltage 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01176   | 141  | 10 | 30         | Phase B-N / Phase B-C Voltage 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01177   | 141  | 11 | 30         | Phase B-N / Phase B-C Voltage 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01178   | 141  | 12 | 30         | Phase B-N / Phase B-C Voltage 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01179   | 141  | 13 | 30         | Phase B-N / Phase B-C Voltage 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01180   | 141  | 14 | 30         | Phase B-N / Phase B-C Voltage 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01181   | 141  | 15 | 30         | Phase B-N / Phase B-C Voltage 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01182   | 142  | 0  | 30         | Phase B-N / Phase B-C Voltage 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01183   | 142  | 1  | 30         | Phase B-N / Phase B-C Voltage 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01184   | 142  | 2  | 30         | Phase B-N / Phase B-C Voltage 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01185   | 142  | 3  | 30         | Phase B-N / Phase B-C Voltage 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01186   | 142  | 4  | 30         | Phase B-N / Phase B-C Voltage 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01187   | 142  | 5  | 30         | Phase B-N / Phase B-C Voltage 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01188   | 142  | 6  | 30         | Phase B-N / Phase B-C Voltage 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01189   | 142  | 7  | 30         | Phase B-N / Phase B-C Voltage 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01190   | 142  | 8  | 30         | Phase B-N / Phase B-C Voltage 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01191   | 142  | 9  | 30         | Phase B-N / Phase B-C Voltage 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01192   | 142  | 10 | 30         | Phase B-N / Phase B-C Voltage 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01193   | 142  | 11 | 30         | Phase B-N / Phase B-C Voltage 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01194   | 142  | 12 | 30         | Phase B-N / Phase B-C Voltage 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01195   | 142  | 13 | 30         | Phase B-N / Phase B-C Voltage 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01196   | 142  | 14 | 30         | Phase B-N / Phase B-C Voltage 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01197   | 142  | 15 | 30         | Phase B-N / Phase B-C Voltage 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01198   | 142  | 16 | 30         | Phase B-N / Phase B-C Voltage 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01199   | 142  | 17 | 30         | Phase B-N / Phase B-C Voltage 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01200   | 142  | 18 | 30         | Phase B-N / Phase B-C Voltage 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01201   | 142  | 19 | 30         | Phase B-N / Phase B-C Voltage 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01202   | 142  | 20 | 30         | Phase B-N / Phase B-C Voltage 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01203   | 142  | 21 | 30         | Phase B-N / Phase B-C Voltage 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01204   | 142  | 22 | 30         | Phase B-N / Phase B-C Voltage 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01205   | 142  | 23 | 30         | Phase B-N / Phase B-C Voltage 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01206   | 142  | 24 | 30         | Phase B-N / Phase B-C Voltage 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01207   | 142  | 25 | 30         | Phase B-N / Phase B-C Voltage 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01208   | 142  | 26 | 30         | Phase B-N / Phase B-C Voltage 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01209   | 142  | 27 | 30         | Phase B-N / Phase B-C Voltage 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01210   | 142  | 28 | 30         | Phase B-N / Phase B-C Voltage 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01211   | 142  | 29 | 30         | Phase B-N / Phase B-C Voltage 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01212   | 142  | 30 | 30         | Phase B-N / Phase B-C Voltage 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01213   | 142  | 31 | 30         | Phase B-N / Phase B-C Voltage 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01214   | 143  | 0  | 30         | Phase B-N / Phase B-C Voltage 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01215   | 143  | 1  | 30         | Phase B-N / Phase B-C Voltage 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01216   | 143  | 2  | 30         | Phase B-N / Phase B-C Voltage 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01217   | 143  | 3  | 30         | Phase B-N / Phase B-C Voltage 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01218   | 143  | 4  | 30         | Phase B-N / Phase B-C Voltage 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01219   | 143  | 5  | 30         | Phase B-N / Phase B-C Voltage 69 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01220   | 143  | 6  | 30         | Phase B-N / Phase B-C Voltage 70 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01221   | 143  | 7  | 30         | Phase B-N / Phase B-C Voltage 71 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01222   | 143  | 8  | 30         | Phase B-N / Phase B-C Voltage 72 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01223   | 143  | 9  | 30         | Phase B-N / Phase B-C Voltage 73 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01224   | 143  | 10 | 30         | Phase B-N / Phase B-C Voltage 74 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01225   | 143  | 11 | 30         | Phase B-N / Phase B-C Voltage 75 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01226   | 143  | 12 | 30         | Phase B-N / Phase B-C Voltage 76 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01227   | 143  | 13 | 30         | Phase B-N / Phase B-C Voltage 77 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01228   | 143  | 14 | 30         | Phase B-N / Phase B-C Voltage 78 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01229   | 143  | 15 | 30         | Phase B-N / Phase B-C Voltage 79 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01230   | 143  | 16 | 30         | Phase B-N / Phase B-C Voltage 80 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01231   | 143  | 17 | 30         | Phase B-N / Phase B-C Voltage 81 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01232   | 143  | 18 | 30         | Phase B-N / Phase B-C Voltage 82 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01233   | 143  | 19 | 30         | Phase B-N / Phase B-C Voltage 83 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01234   | 143  | 20 | 30         | Phase B-N / Phase B-C Voltage 84 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01235   | 143  | 21 | 30         | Phase B-N / Phase B-C Voltage 85 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01236   | 143  | 22 | 30         | Phase B-N / Phase B-C Voltage 86 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01237   | 143  | 23 | 30         | Phase B-N / Phase B-C Voltage 87 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01238   | 143  | 24 | 30         | Phase B-N / Phase B-C Voltage 88 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01239   | 143  | 25 | 30         | Phase B-N / Phase B-C Voltage 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01240   | 143  | 26 | 30         | Phase B-N / Phase B-C Voltage 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01241   | 143  | 27 | 30         | Phase B-N / Phase B-C Voltage 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01242   | 143  | 28 | 30         | Phase B-N / Phase B-C Voltage 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01243   | 143  | 29 | 30         | Phase B-N / Phase B-C Voltage 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01244   | 143  | 30 | 30         | Phase B-N / Phase B-C Voltage 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01245   | 143  | 31 | 30         | Phase B-N / Phase B-C Voltage 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01246   | 143  | 32 | 30         | Phase B-N / Phase B-C Voltage 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01247   | 143  | 33 | 30         | Phase B-N / Phase B-C Voltage 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01248   | 143  | 34 | 30         | Phase B-N / Phase B-C Voltage 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01249   | 143  | 35 | 30         | Phase B-N / Phase B-C Voltage 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01250   | 143  | 36 | 30         | Phase B-N / Phase B-C Voltage 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01251   | 143  | 37 | 30         | Phase B-N / Phase B-C Voltage 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01252   | 143  | 38 | 30         | Phase B-N / Phase B-C Voltage 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01253   | 143  | 39 | 30         | Phase B-N / Phase B-C Voltage 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01254   | 143  | 40 | 30         | Phase B-N / Phase B-C Voltage 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01255   | 143  | 41 | 30         | Phase B-N / Phase B-C Voltage 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01256   | 143  | 42 | 30         | Phase B-N / Phase B-C Voltage 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01257   | 143  | 43 | 30         | Phase B-N / Phase B-C Voltage 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01258   | 143  | 44 | 30         | Phase B-N / Phase B-C Voltage 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01259   | 143  | 45 | 30         | Phase B-N / Phase B-C Voltage 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01260   | 143  | 46 | 30         | Phase B-N / Phase B-C Voltage 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01261   | 143  | 47 | 30         | Phase B-N / Phase B-C Voltage 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01262   | 143  | 48 | 30         | Phase B-N / Phase B-C Voltage 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01263   | 143  | 49 | 30         | Phase B-N / Phase B-C Voltage 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01264   | 143  | 50 | 30         | Phase B-N / Phase B-C Voltage 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01265   | 143  | 51 | 30         | Phase B-N / Phase B-C Voltage 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01266   | 143  | 52 | 30         | Phase B-N / Phase B-C Voltage 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01267   | 143  | 53 | 30         | Phase B-N / Phase B-C Voltage 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01268   | 143  | 54 | 30         | Phase B-N / Phase B-C Voltage 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01269   | 143  | 55 | 30         | Phase B-N / Phase B-C Voltage 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01270   | 143  | 56 | 30         | Phase B-N / Phase B-C Voltage 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01271   | 143  | 57 | 30         | Phase B-N / Phase B-C Voltage 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01272   | 143  | 58 | 30         | Phase B-N / Phase B-C Voltage 122 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01273   | 143  | 59 | 30         | Phase B-N / Phase B-C Voltage 123 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01274   | 143  | 60 | 30         | Phase B-N / Phase B-C Voltage 124 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01275   | 143  | 61 | 30         | Phase B-N / Phase B-C Voltage 125 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01276   | 143  | 62 | 30         | Phase B-N / Phase B-C Voltage 126 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01277   | 143  | 63 | 30         | Phase B-N / Phase B-C Voltage 127 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01278   | 144  | 0  | 30         | Phase C-N / Phase C-A Voltage 0 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01279   | 144  | 1  | 30         | Phase C-N / Phase C-A Voltage 1 <sup>st</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01280   | 144  | 2  | 30         | Phase C-N / Phase C-A Voltage 2 <sup>nd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01281   | 144  | 3  | 30         | Phase C-N / Phase C-A Voltage 3 <sup>rd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01282   | 144  | 4  | 30         | Phase C-N / Phase C-A Voltage 4 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01283   | 144  | 5  | 30         | Phase C-N / Phase C-A Voltage 5 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01284   | 144  | 6  | 30         | Phase C-N / Phase C-A Voltage 6 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01285   | 144  | 7  | 30         | Phase C-N / Phase C-A Voltage 7 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01286   | 145  | 0  | 30         | Phase C-N / Phase C-A Voltage 8 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01287   | 145  | 1  | 30         | Phase C-N / Phase C-A Voltage 9 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01288   | 145  | 2  | 30         | Phase C-N / Phase C-A Voltage 10 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01289   | 145  | 3  | 30         | Phase C-N / Phase C-A Voltage 11 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01290   | 145  | 4  | 30         | Phase C-N / Phase C-A Voltage 12 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01291   | 145  | 5  | 30         | Phase C-N / Phase C-A Voltage 13 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01292   | 145  | 6  | 30         | Phase C-N / Phase C-A Voltage 14 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01293   | 145  | 7  | 30         | Phase C-N / Phase C-A Voltage 15 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01294   | 146  | 0  | 30         | Phase C-N / Phase C-A Voltage 16 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01295   | 146  | 1  | 30         | Phase C-N / Phase C-A Voltage 17 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01296   | 146  | 2  | 30         | Phase C-N / Phase C-A Voltage 18 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01297   | 146  | 3  | 30         | Phase C-N / Phase C-A Voltage 19 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01298   | 146  | 4  | 30         | Phase C-N / Phase C-A Voltage 20 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01299   | 146  | 5  | 30         | Phase C-N / Phase C-A Voltage 21 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01300   | 146  | 6  | 30         | Phase C-N / Phase C-A Voltage 22 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01301   | 146  | 7  | 30         | Phase C-N / Phase C-A Voltage 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01302   | 146  | 8  | 30         | Phase C-N / Phase C-A Voltage 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01303   | 146  | 9  | 30         | Phase C-N / Phase C-A Voltage 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01304   | 146  | 10 | 30         | Phase C-N / Phase C-A Voltage 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01305   | 146  | 11 | 30         | Phase C-N / Phase C-A Voltage 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01306   | 146  | 12 | 30         | Phase C-N / Phase C-A Voltage 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01307   | 146  | 13 | 30         | Phase C-N / Phase C-A Voltage 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01308   | 146  | 14 | 30         | Phase C-N / Phase C-A Voltage 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01309   | 146  | 15 | 30         | Phase C-N / Phase C-A Voltage 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01310   | 147  | 0  | 30         | Phase C-N / Phase C-A Voltage 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01311   | 147  | 1  | 30         | Phase C-N / Phase C-A Voltage 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01312   | 147  | 2  | 30         | Phase C-N / Phase C-A Voltage 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01313   | 147  | 3  | 30         | Phase C-N / Phase C-A Voltage 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01314   | 147  | 4  | 30         | Phase C-N / Phase C-A Voltage 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01315   | 147  | 5  | 30         | Phase C-N / Phase C-A Voltage 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01316   | 147  | 6  | 30         | Phase C-N / Phase C-A Voltage 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01317   | 147  | 7  | 30         | Phase C-N / Phase C-A Voltage 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01318   | 147  | 8  | 30         | Phase C-N / Phase C-A Voltage 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01319   | 147  | 9  | 30         | Phase C-N / Phase C-A Voltage 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01320   | 147  | 10 | 30         | Phase C-N / Phase C-A Voltage 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01321   | 147  | 11 | 30         | Phase C-N / Phase C-A Voltage 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01322   | 147  | 12 | 30         | Phase C-N / Phase C-A Voltage 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01323   | 147  | 13 | 30         | Phase C-N / Phase C-A Voltage 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01324   | 147  | 14 | 30         | Phase C-N / Phase C-A Voltage 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01325   | 147  | 15 | 30         | Phase C-N / Phase C-A Voltage 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01326   | 147  | 16 | 30         | Phase C-N / Phase C-A Voltage 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01327   | 147  | 17 | 30         | Phase C-N / Phase C-A Voltage 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01328   | 147  | 18 | 30         | Phase C-N / Phase C-A Voltage 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01329   | 147  | 19 | 30         | Phase C-N / Phase C-A Voltage 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01330   | 147  | 20 | 30         | Phase C-N / Phase C-A Voltage 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01331   | 147  | 21 | 30         | Phase C-N / Phase C-A Voltage 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01332   | 147  | 22 | 30         | Phase C-N / Phase C-A Voltage 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01333   | 147  | 23 | 30         | Phase C-N / Phase C-A Voltage 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01334   | 147  | 24 | 30         | Phase C-N / Phase C-A Voltage 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01335   | 147  | 25 | 30         | Phase C-N / Phase C-A Voltage 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01336   | 147  | 26 | 30         | Phase C-N / Phase C-A Voltage 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01337   | 147  | 27 | 30         | Phase C-N / Phase C-A Voltage 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01338   | 147  | 28 | 30         | Phase C-N / Phase C-A Voltage 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01339   | 147  | 29 | 30         | Phase C-N / Phase C-A Voltage 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01340   | 147  | 30 | 30         | Phase C-N / Phase C-A Voltage 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01341   | 147  | 31 | 30         | Phase C-N / Phase C-A Voltage 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01342   | 148  | 0  | 30         | Phase C-N / Phase C-A Voltage 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01343   | 148  | 1  | 30         | Phase C-N / Phase C-A Voltage 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01344   | 148  | 2  | 30         | Phase C-N / Phase C-A Voltage 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01345   | 148  | 3  | 30         | Phase C-N / Phase C-A Voltage 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01346   | 148  | 4  | 30         | Phase C-N / Phase C-A Voltage 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01347   | 148  | 5  | 30         | Phase C-N / Phase C-A Voltage 69 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01348   | 148  | 6  | 30         | Phase C-N / Phase C-A Voltage 70 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01349   | 148  | 7  | 30         | Phase C-N / Phase C-A Voltage 71 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01350   | 148  | 8  | 30         | Phase C-N / Phase C-A Voltage 72 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01351   | 148  | 9  | 30         | Phase C-N / Phase C-A Voltage 73 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01352   | 148  | 10 | 30         | Phase C-N / Phase C-A Voltage 74 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01353   | 148  | 11 | 30         | Phase C-N / Phase C-A Voltage 75 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01354   | 148  | 12 | 30         | Phase C-N / Phase C-A Voltage 76 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01355   | 148  | 13 | 30         | Phase C-N / Phase C-A Voltage 77 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01356   | 148  | 14 | 30         | Phase C-N / Phase C-A Voltage 78 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01357   | 148  | 15 | 30         | Phase C-N / Phase C-A Voltage 79 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01358   | 148  | 16 | 30         | Phase C-N / Phase C-A Voltage 80 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01359   | 148  | 17 | 30         | Phase C-N / Phase C-A Voltage 81 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01360   | 148  | 18 | 30         | Phase C-N / Phase C-A Voltage 82 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01361   | 148  | 19 | 30         | Phase C-N / Phase C-A Voltage 83 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01362   | 148  | 20 | 30         | Phase C-N / Phase C-A Voltage 84 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01363   | 148  | 21 | 30         | Phase C-N / Phase C-A Voltage 85 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01364   | 148  | 22 | 30         | Phase C-N / Phase C-A Voltage 86 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01365   | 148  | 23 | 30         | Phase C-N / Phase C-A Voltage 87 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01366   | 148  | 24 | 30         | Phase C-N / Phase C-A Voltage 88 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01367   | 148  | 25 | 30         | Phase C-N / Phase C-A Voltage 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01368   | 148  | 26 | 30         | Phase C-N / Phase C-A Voltage 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01369   | 148  | 27 | 30         | Phase C-N / Phase C-A Voltage 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01370   | 148  | 28 | 30         | Phase C-N / Phase C-A Voltage 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01371   | 148  | 29 | 30         | Phase C-N / Phase C-A Voltage 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01372   | 148  | 30 | 30         | Phase C-N / Phase C-A Voltage 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01373   | 148  | 31 | 30         | Phase C-N / Phase C-A Voltage 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01374   | 148  | 32 | 30         | Phase C-N / Phase C-A Voltage 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01375   | 148  | 33 | 30         | Phase C-N / Phase C-A Voltage 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01376   | 148  | 34 | 30         | Phase C-N / Phase C-A Voltage 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01377   | 148  | 35 | 30         | Phase C-N / Phase C-A Voltage 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01378   | 148  | 36 | 30         | Phase C-N / Phase C-A Voltage 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01379   | 148  | 37 | 30         | Phase C-N / Phase C-A Voltage 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01380   | 148  | 38 | 30         | Phase C-N / Phase C-A Voltage 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01381   | 148  | 39 | 30         | Phase C-N / Phase C-A Voltage 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01382   | 148  | 40 | 30         | Phase C-N / Phase C-A Voltage 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01383   | 148  | 41 | 30         | Phase C-N / Phase C-A Voltage 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01384   | 148  | 42 | 30         | Phase C-N / Phase C-A Voltage 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01385   | 148  | 43 | 30         | Phase C-N / Phase C-A Voltage 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01386   | 148  | 44 | 30         | Phase C-N / Phase C-A Voltage 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01387   | 148  | 45 | 30         | Phase C-N / Phase C-A Voltage 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01388   | 148  | 46 | 30         | Phase C-N / Phase C-A Voltage 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01389   | 148  | 47 | 30         | Phase C-N / Phase C-A Voltage 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01390   | 148  | 48 | 30         | Phase C-N / Phase C-A Voltage 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01391   | 148  | 49 | 30         | Phase C-N / Phase C-A Voltage 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01392   | 148  | 50 | 30         | Phase C-N / Phase C-A Voltage 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01393   | 148  | 51 | 30         | Phase C-N / Phase C-A Voltage 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01394   | 148  | 52 | 30         | Phase C-N / Phase C-A Voltage 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01395   | 148  | 53 | 30         | Phase C-N / Phase C-A Voltage 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01396   | 148  | 54 | 30         | Phase C-N / Phase C-A Voltage 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01397   | 148  | 55 | 30         | Phase C-N / Phase C-A Voltage 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01398   | 148  | 56 | 30         | Phase C-N / Phase C-A Voltage 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01399   | 148  | 57 | 30         | Phase C-N / Phase C-A Voltage 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01400   | 148  | 58 | 30         | Phase C-N / Phase C-A Voltage 122 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01401   | 148  | 59 | 30         | Phase C-N / Phase C-A Voltage 123 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01402   | 148  | 60 | 30         | Phase C-N / Phase C-A Voltage 124 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01403   | 148  | 61 | 30         | Phase C-N / Phase C-A Voltage 125 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01404   | 148  | 62 | 30         | Phase C-N / Phase C-A Voltage 126 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01405   | 148  | 63 | 30         | Phase C-N / Phase C-A Voltage 127 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01406   | 149  | 0  | 30         | Phase A Current 0 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01407   | 149  | 1  | 30         | Phase A Current 1 <sup>st</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01408   | 149  | 2  | 30         | Phase A Current 2 <sup>nd</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01409   | 149  | 3  | 30         | Phase A Current 3 <sup>rd</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01410   | 149  | 4  | 30         | Phase A Current 4 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01411   | 149  | 5  | 30         | Phase A Current 5 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01412   | 149  | 6  | 30         | Phase A Current 6 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01413   | 149  | 7  | 30         | Phase A Current 7 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01414   | 150  | 0  | 30         | Phase A Current 8 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01415   | 150  | 1  | 30         | Phase A Current 9 <sup>th</sup> Harmonic Magnitude                 | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01416   | 150  | 2  | 30         | Phase A Current 10 <sup>th</sup> Harmonic Magnitude                | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01417   | 150  | 3  | 30         | Phase A Current 11 <sup>th</sup> Harmonic Magnitude                | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01418   | 150  | 4  | 30         | Phase A Current 12 <sup>th</sup> Harmonic Magnitude                | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01419   | 150  | 5  | 30         | Phase A Current 13 <sup>th</sup> Harmonic Magnitude                | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01420   | 150  | 6  | 30         | Phase A Current 14 <sup>th</sup> Harmonic Magnitude                | +327.67% / -327.68% | 0.01% | F10  | R   |



| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01421   | 150  | 7  | 30         | Phase A Current 15 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01422   | 151  | 0  | 30         | Phase A Current 16 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01423   | 151  | 1  | 30         | Phase A Current 17 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01424   | 151  | 2  | 30         | Phase A Current 18 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01425   | 151  | 3  | 30         | Phase A Current 19 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01426   | 151  | 4  | 30         | Phase A Current 20 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01427   | 151  | 5  | 30         | Phase A Current 21 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01428   | 151  | 6  | 30         | Phase A Current 22 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01429   | 151  | 7  | 30         | Phase A Current 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01430   | 151  | 8  | 30         | Phase A Current 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01431   | 151  | 9  | 30         | Phase A Current 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01432   | 151  | 10 | 30         | Phase A Current 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01433   | 151  | 11 | 30         | Phase A Current 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01434   | 151  | 12 | 30         | Phase A Current 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01435   | 151  | 13 | 30         | Phase A Current 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01436   | 151  | 14 | 30         | Phase A Current 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01437   | 151  | 15 | 30         | Phase A Current 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01438   | 152  | 0  | 30         | Phase A Current 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01439   | 152  | 1  | 30         | Phase A Current 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01440   | 152  | 2  | 30         | Phase A Current 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01441   | 152  | 3  | 30         | Phase A Current 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01442   | 152  | 4  | 30         | Phase A Current 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01443   | 152  | 5  | 30         | Phase A Current 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01444   | 152  | 6  | 30         | Phase A Current 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01445   | 152  | 7  | 30         | Phase A Current 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01446   | 152  | 8  | 30         | Phase A Current 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01447   | 152  | 9  | 30         | Phase A Current 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01448   | 152  | 10 | 30         | Phase A Current 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01449   | 152  | 11 | 30         | Phase A Current 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01450   | 152  | 12 | 30         | Phase A Current 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01451   | 152  | 13 | 30         | Phase A Current 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01452   | 152  | 14 | 30         | Phase A Current 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01453   | 152  | 15 | 30         | Phase A Current 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01454   | 152  | 16 | 30         | Phase A Current 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01455   | 152  | 17 | 30         | Phase A Current 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01456   | 152  | 18 | 30         | Phase A Current 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01457   | 152  | 19 | 30         | Phase A Current 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01458   | 152  | 20 | 30         | Phase A Current 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01459   | 152  | 21 | 30         | Phase A Current 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01460   | 152  | 22 | 30         | Phase A Current 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01461   | 152  | 23 | 30         | Phase A Current 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01462   | 152  | 24 | 30         | Phase A Current 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01463   | 152  | 25 | 30         | Phase A Current 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01464   | 152  | 26 | 30         | Phase A Current 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01465   | 152  | 27 | 30         | Phase A Current 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01466   | 152  | 28 | 30         | Phase A Current 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01467   | 152  | 29 | 30         | Phase A Current 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01468   | 152  | 30 | 30         | Phase A Current 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01469   | 152  | 31 | 30         | Phase A Current 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01470   | 153  | 0  | 30         | Phase A Current 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01471   | 153  | 1  | 30         | Phase A Current 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01472   | 153  | 2  | 30         | Phase A Current 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01473   | 153  | 3  | 30         | Phase A Current 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01474   | 153  | 4  | 30         | Phase A Current 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01475   | 153  | 5  | 30         | Phase A Current 69 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01476   | 153  | 6  | 30         | Phase A Current 70 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01477   | 153  | 7  | 30         | Phase A Current 71 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01478   | 153  | 8  | 30         | Phase A Current 72 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01479   | 153  | 9  | 30         | Phase A Current 73 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01480   | 153  | 10 | 30         | Phase A Current 74 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01481   | 153  | 11 | 30         | Phase A Current 75 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01482   | 153  | 12 | 30         | Phase A Current 76 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01483   | 153  | 13 | 30         | Phase A Current 77 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01484   | 153  | 14 | 30         | Phase A Current 78 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01485   | 153  | 15 | 30         | Phase A Current 79 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01486   | 153  | 16 | 30         | Phase A Current 80 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01487   | 153  | 17 | 30         | Phase A Current 81 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01488   | 153  | 18 | 30         | Phase A Current 82 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01489   | 153  | 19 | 30         | Phase A Current 83 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01490   | 153  | 20 | 30         | Phase A Current 84 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01491   | 153  | 21 | 30         | Phase A Current 85 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01492   | 153  | 22 | 30         | Phase A Current 86 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01493   | 153  | 23 | 30         | Phase A Current 87 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01494   | 153  | 24 | 30         | Phase A Current 88 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01495   | 153  | 25 | 30         | Phase A Current 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01496   | 153  | 26 | 30         | Phase A Current 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01497   | 153  | 27 | 30         | Phase A Current 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01498   | 153  | 28 | 30         | Phase A Current 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01499   | 153  | 29 | 30         | Phase A Current 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01500   | 153  | 30 | 30         | Phase A Current 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01501   | 153  | 31 | 30         | Phase A Current 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01502   | 153  | 32 | 30         | Phase A Current 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01503   | 153  | 33 | 30         | Phase A Current 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01504   | 153  | 34 | 30         | Phase A Current 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01505   | 153  | 35 | 30         | Phase A Current 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01506   | 153  | 36 | 30         | Phase A Current 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01507   | 153  | 37 | 30         | Phase A Current 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01508   | 153  | 38 | 30         | Phase A Current 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01509   | 153  | 39 | 30         | Phase A Current 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01510   | 153  | 40 | 30         | Phase A Current 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01511   | 153  | 41 | 30         | Phase A Current 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01512   | 153  | 42 | 30         | Phase A Current 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01513   | 153  | 43 | 30         | Phase A Current 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01514   | 153  | 44 | 30         | Phase A Current 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01515   | 153  | 45 | 30         | Phase A Current 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01516   | 153  | 46 | 30         | Phase A Current 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01517   | 153  | 47 | 30         | Phase A Current 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01518   | 153  | 48 | 30         | Phase A Current 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01519   | 153  | 49 | 30         | Phase A Current 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01520   | 153  | 50 | 30         | Phase A Current 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01521   | 153  | 51 | 30         | Phase A Current 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01522   | 153  | 52 | 30         | Phase A Current 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01523   | 153  | 53 | 30         | Phase A Current 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01524   | 153  | 54 | 30         | Phase A Current 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01525   | 153  | 55 | 30         | Phase A Current 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01526   | 153  | 56 | 30         | Phase A Current 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01527   | 153  | 57 | 30         | Phase A Current 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01528   | 153  | 58 | 30         | Phase A Current 122 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01529   | 153  | 59 | 30         | Phase A Current 123 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01530   | 153  | 60 | 30         | Phase A Current 124 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01531   | 153  | 61 | 30         | Phase A Current 125 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01532   | 153  | 62 | 30         | Phase A Current 126 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01533   | 153  | 63 | 30         | Phase A Current 127 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01534   | 154  | 0  | 30         | Phase B Current 0 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01535   | 154  | 1  | 30         | Phase B Current 1 <sup>st</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01536   | 154  | 2  | 30         | Phase B Current 2 <sup>nd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01537   | 154  | 3  | 30         | Phase B Current 3 <sup>rd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01538   | 154  | 4  | 30         | Phase B Current 4 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01539   | 154  | 5  | 30         | Phase B Current 5 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01540   | 154  | 6  | 30         | Phase B Current 6 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01541   | 154  | 7  | 30         | Phase B Current 7 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01542   | 155  | 0  | 30         | Phase B Current 8 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01543   | 155  | 1  | 30         | Phase B Current 9 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01544   | 155  | 2  | 30         | Phase B Current 10 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01545   | 155  | 3  | 30         | Phase B Current 11 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01546   | 155  | 4  | 30         | Phase B Current 12 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01547   | 155  | 5  | 30         | Phase B Current 13 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01548   | 155  | 6  | 30         | Phase B Current 14 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01549   | 155  | 7  | 30         | Phase B Current 15 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01550   | 156  | 0  | 30         | Phase B Current 16 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01551   | 156  | 1  | 30         | Phase B Current 17 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01552   | 156  | 2  | 30         | Phase B Current 18 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01553   | 156  | 3  | 30         | Phase B Current 19 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01554   | 156  | 4  | 30         | Phase B Current 20 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01555   | 156  | 5  | 30         | Phase B Current 21 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01556   | 156  | 6  | 30         | Phase B Current 22 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01557   | 156  | 7  | 30         | Phase B Current 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01558   | 156  | 8  | 30         | Phase B Current 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01559   | 156  | 9  | 30         | Phase B Current 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01560   | 156  | 10 | 30         | Phase B Current 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01561   | 156  | 11 | 30         | Phase B Current 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01562   | 156  | 12 | 30         | Phase B Current 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01563   | 156  | 13 | 30         | Phase B Current 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01564   | 156  | 14 | 30         | Phase B Current 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01565   | 156  | 15 | 30         | Phase B Current 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01566   | 157  | 0  | 30         | Phase B Current 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01567   | 157  | 1  | 30         | Phase B Current 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01568   | 157  | 2  | 30         | Phase B Current 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01569   | 157  | 3  | 30         | Phase B Current 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01570   | 157  | 4  | 30         | Phase B Current 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01571   | 157  | 5  | 30         | Phase B Current 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01572   | 157  | 6  | 30         | Phase B Current 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01573   | 157  | 7  | 30         | Phase B Current 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01574   | 157  | 8  | 30         | Phase B Current 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01575   | 157  | 9  | 30         | Phase B Current 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01576   | 157  | 10 | 30         | Phase B Current 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01577   | 157  | 11 | 30         | Phase B Current 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01578   | 157  | 12 | 30         | Phase B Current 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01579   | 157  | 13 | 30         | Phase B Current 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01580   | 157  | 14 | 30         | Phase B Current 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01581   | 157  | 15 | 30         | Phase B Current 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01582   | 157  | 16 | 30         | Phase B Current 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01583   | 157  | 17 | 30         | Phase B Current 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01584   | 157  | 18 | 30         | Phase B Current 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01585   | 157  | 19 | 30         | Phase B Current 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01586   | 157  | 20 | 30         | Phase B Current 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01587   | 157  | 21 | 30         | Phase B Current 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01588   | 157  | 22 | 30         | Phase B Current 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01589   | 157  | 23 | 30         | Phase B Current 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01590   | 157  | 24 | 30         | Phase B Current 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01591   | 157  | 25 | 30         | Phase B Current 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01592   | 157  | 26 | 30         | Phase B Current 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01593   | 157  | 27 | 30         | Phase B Current 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01594   | 157  | 28 | 30         | Phase B Current 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01595   | 157  | 29 | 30         | Phase B Current 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01596   | 157  | 30 | 30         | Phase B Current 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01597   | 157  | 31 | 30         | Phase B Current 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01598   | 158  | 0  | 30         | Phase B Current 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01599   | 158  | 1  | 30         | Phase B Current 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01600   | 158  | 2  | 30         | Phase B Current 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01601   | 158  | 3  | 30         | Phase B Current 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01602   | 158  | 4  | 30         | Phase B Current 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01603   | 158  | 5  | 30         | Phase B Current 69 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01604   | 158  | 6  | 30         | Phase B Current 70 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01605   | 158  | 7  | 30         | Phase B Current 71 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01606   | 158  | 8  | 30         | Phase B Current 72 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01607   | 158  | 9  | 30         | Phase B Current 73 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01608   | 158  | 10 | 30         | Phase B Current 74 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01609   | 158  | 11 | 30         | Phase B Current 75 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01610   | 158  | 12 | 30         | Phase B Current 76 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01611   | 158  | 13 | 30         | Phase B Current 77 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01612   | 158  | 14 | 30         | Phase B Current 78 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01613   | 158  | 15 | 30         | Phase B Current 79 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01614   | 158  | 16 | 30         | Phase B Current 80 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01615   | 158  | 17 | 30         | Phase B Current 81 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01616   | 158  | 18 | 30         | Phase B Current 82 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01617   | 158  | 19 | 30         | Phase B Current 83 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01618   | 158  | 20 | 30         | Phase B Current 84 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01619   | 158  | 21 | 30         | Phase B Current 85 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01620   | 158  | 22 | 30         | Phase B Current 86 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01621   | 158  | 23 | 30         | Phase B Current 87 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01622   | 158  | 24 | 30         | Phase B Current 88 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01623   | 158  | 25 | 30         | Phase B Current 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01624   | 158  | 26 | 30         | Phase B Current 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01625   | 158  | 27 | 30         | Phase B Current 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01626   | 158  | 28 | 30         | Phase B Current 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01627   | 158  | 29 | 30         | Phase B Current 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01628   | 158  | 30 | 30         | Phase B Current 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01629   | 158  | 31 | 30         | Phase B Current 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01630   | 158  | 32 | 30         | Phase B Current 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01631   | 158  | 33 | 30         | Phase B Current 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01632   | 158  | 34 | 30         | Phase B Current 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01633   | 158  | 35 | 30         | Phase B Current 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01634   | 158  | 36 | 30         | Phase B Current 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01635   | 158  | 37 | 30         | Phase B Current 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01636   | 158  | 38 | 30         | Phase B Current 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01637   | 158  | 39 | 30         | Phase B Current 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01638   | 158  | 40 | 30         | Phase B Current 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01639   | 158  | 41 | 30         | Phase B Current 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01640   | 158  | 42 | 30         | Phase B Current 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01641   | 158  | 43 | 30         | Phase B Current 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01642   | 158  | 44 | 30         | Phase B Current 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01643   | 158  | 45 | 30         | Phase B Current 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01644   | 158  | 46 | 30         | Phase B Current 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01645   | 158  | 47 | 30         | Phase B Current 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01646   | 158  | 48 | 30         | Phase B Current 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01647   | 158  | 49 | 30         | Phase B Current 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01648   | 158  | 50 | 30         | Phase B Current 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01649   | 158  | 51 | 30         | Phase B Current 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01650   | 158  | 52 | 30         | Phase B Current 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01651   | 158  | 53 | 30         | Phase B Current 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01652   | 158  | 54 | 30         | Phase B Current 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01653   | 158  | 55 | 30         | Phase B Current 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01654   | 158  | 56 | 30         | Phase B Current 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01655   | 158  | 57 | 30         | Phase B Current 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01656   | 158  | 58 | 30         | Phase B Current 122 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01657   | 158  | 59 | 30         | Phase B Current 123 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01658   | 158  | 60 | 30         | Phase B Current 124 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01659   | 158  | 61 | 30         | Phase B Current 125 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01660   | 158  | 62 | 30         | Phase B Current 126 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01661   | 158  | 63 | 30         | Phase B Current 127 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01662   | 159  | 0  | 30         | Phase C Current 0 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01663   | 159  | 1  | 30         | Phase C Current 1 <sup>st</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01664   | 159  | 2  | 30         | Phase C Current 2 <sup>nd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01665   | 159  | 3  | 30         | Phase C Current 3 <sup>rd</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01666   | 159  | 4  | 30         | Phase C Current 4 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01667   | 159  | 5  | 30         | Phase C Current 5 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01668   | 159  | 6  | 30         | Phase C Current 6 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01669   | 159  | 7  | 30         | Phase C Current 7 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01670   | 160  | 0  | 30         | Phase C Current 8 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01671   | 160  | 1  | 30         | Phase C Current 9 <sup>th</sup> Harmonic Magnitude   | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01672   | 160  | 2  | 30         | Phase C Current 10 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01673   | 160  | 3  | 30         | Phase C Current 11 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01674   | 160  | 4  | 30         | Phase C Current 12 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01675   | 160  | 5  | 30         | Phase C Current 13 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01676   | 160  | 6  | 30         | Phase C Current 14 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01677   | 160  | 7  | 30         | Phase C Current 15 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01678   | 161  | 0  | 30         | Phase C Current 16 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01679   |      | 1  | 30         | Phase C Current 17 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01680   | 161  | 2  | 30         | Phase C Current 18 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01681   | 161  | 3  | 30         | Phase C Current 19 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01682   | 161  | 4  | 30         | Phase C Current 20 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01683   | 161  | 5  | 30         | Phase C Current 21 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01684   | 161  | 6  | 30         | Phase C Current 22 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |



| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01685   | 161  | 7  | 30         | Phase C Current 23 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01686   | 161  | 8  | 30         | Phase C Current 24 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01687   | 161  | 9  | 30         | Phase C Current 25 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01688   | 161  | 10 | 30         | Phase C Current 26 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01689   | 161  | 11 | 30         | Phase C Current 27 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01690   | 161  | 12 | 30         | Phase C Current 28 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01691   | 161  | 13 | 30         | Phase C Current 29 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01692   | 161  | 14 | 30         | Phase C Current 30 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01693   | 161  | 15 | 30         | Phase C Current 31 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01694   | 162  | 0  | 30         | Phase C Current 32 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01695   | 162  | 1  | 30         | Phase C Current 33 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01696   | 162  | 2  | 30         | Phase C Current 34 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01697   | 162  | 3  | 30         | Phase C Current 35 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01698   | 162  | 4  | 30         | Phase C Current 36 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01699   | 162  | 5  | 30         | Phase C Current 37 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01700   | 162  | 6  | 30         | Phase C Current 38 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01701   | 162  | 7  | 30         | Phase C Current 39 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01702   | 162  | 8  | 30         | Phase C Current 40 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01703   | 162  | 9  | 30         | Phase C Current 41 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01704   | 162  | 10 | 30         | Phase C Current 42 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01705   | 162  | 11 | 30         | Phase C Current 43 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01706   | 162  | 12 | 30         | Phase C Current 44 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01707   | 162  | 13 | 30         | Phase C Current 45 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01708   | 162  | 14 | 30         | Phase C Current 46 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01709   | 162  | 15 | 30         | Phase C Current 47 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01710   | 162  | 16 | 30         | Phase C Current 48 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01711   | 162  | 17 | 30         | Phase C Current 49 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01712   | 162  | 18 | 30         | Phase C Current 50 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01713   | 162  | 19 | 30         | Phase C Current 51 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01714   | 162  | 20 | 30         | Phase C Current 52 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01715   | 162  | 21 | 30         | Phase C Current 53 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01716   | 162  | 22 | 30         | Phase C Current 54 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01717   | 162  | 23 | 30         | Phase C Current 55 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------|------|----|------------|---|---------------------|-------|------|-----|
| 01718   | 162  | 24 | 30         | Phase C Current 56 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01719   | 162  | 25 | 30         | Phase C Current 57 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01720   | 162  | 26 | 30         | Phase C Current 58 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01721   | 162  | 27 | 30         | Phase C Current 59 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01722   | 162  | 28 | 30         | Phase C Current 60 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01723   | 162  | 29 | 30         | Phase C Current 61 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01724   | 162  | 30 | 30         | Phase C Current 62 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01725   | 162  | 31 | 30         | Phase C Current 63 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01726   | 163  | 0  | 30         | Phase C Current 64 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01727   | 163  | 1  | 30         | Phase C Current 65 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01728   | 163  | 2  | 30         | Phase C Current 66 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01729   | 163  | 3  | 30         | Phase C Current 67 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01730   | 163  | 4  | 30         | Phase C Current 68 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01731   | 163  | 5  | 30         | Phase C Current 69 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01732   | 163  | 6  | 30         | Phase C Current 70 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01733   | 163  | 7  | 30         | Phase C Current 71 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01734   | 163  | 8  | 30         | Phase C Current 72 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01735   | 163  | 9  | 30         | Phase C Current 73 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01736   | 163  | 10 | 30         | Phase C Current 74 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01737   | 163  | 11 | 30         | Phase C Current 75 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01738   | 163  | 12 | 30         | Phase C Current 76 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01739   | 163  | 13 | 30         | Phase C Current 77 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01740   | 163  | 14 | 30         | Phase C Current 78 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01741   | 163  | 15 | 30         | Phase C Current 79 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01742   | 163  | 16 | 30         | Phase C Current 80 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01743   | 163  | 17 | 30         | Phase C Current 81 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01744   | 163  | 18 | 30         | Phase C Current 82 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01745   | 163  | 19 | 30         | Phase C Current 83 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01746   | 163  | 20 | 30         | Phase C Current 84 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01747   | 163  | 21 | 30         | Phase C Current 85 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01748   | 163  | 22 | 30         | Phase C Current 86 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01749   | 163  | 23 | 30         | Phase C Current 87 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01750   | 163  | 24 | 30         | Phase C Current 88 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|---------|------|----|------------|--|---------------------|-------|------|-----|
| 01751   | 163  | 25 | 30         | Phase C Current 89 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01752   | 163  | 26 | 30         | Phase C Current 90 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01753   | 163  | 27 | 30         | Phase C Current 91 <sup>st</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01754   | 163  | 28 | 30         | Phase C Current 92 <sup>nd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01755   | 163  | 29 | 30         | Phase C Current 93 <sup>rd</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01756   | 163  | 30 | 30         | Phase C Current 94 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01757   | 163  | 31 | 30         | Phase C Current 95 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01758   | 163  | 32 | 30         | Phase C Current 96 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01759   | 163  | 33 | 30         | Phase C Current 97 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01760   | 163  | 34 | 30         | Phase C Current 98 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01761   | 163  | 35 | 30         | Phase C Current 99 <sup>th</sup> Harmonic Magnitude  | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01762   | 163  | 36 | 30         | Phase C Current 100 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01763   | 163  | 37 | 30         | Phase C Current 101 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01764   | 163  | 38 | 30         | Phase C Current 102 <sup>nd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01765   | 163  | 39 | 30         | Phase C Current 103 <sup>rd</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01766   | 163  | 40 | 30         | Phase C Current 104 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01767   | 163  | 41 | 30         | Phase C Current 105 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01768   | 163  | 42 | 30         | Phase C Current 106 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01769   | 163  | 43 | 30         | Phase C Current 107 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01770   | 163  | 44 | 30         | Phase C Current 108 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01771   | 163  | 45 | 30         | Phase C Current 109 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01772   | 163  | 46 | 30         | Phase C Current 110 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01773   | 163  | 47 | 30         | Phase C Current 111 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01774   | 163  | 48 | 30         | Phase C Current 112 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01775   | 163  | 49 | 30         | Phase C Current 113 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01776   | 163  | 50 | 30         | Phase C Current 114 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01777   | 163  | 51 | 30         | Phase C Current 115 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01778   | 163  | 52 | 30         | Phase C Current 116 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01779   | 163  | 53 | 30         | Phase C Current 117 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01780   | 163  | 54 | 30         | Phase C Current 118 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01781   | 163  | 55 | 30         | Phase C Current 119 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01782   | 163  | 56 | 30         | Phase C Current 120 <sup>th</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |
| 01783   | 163  | 57 | 30         | Phase C Current 121 <sup>st</sup> Harmonic Magnitude | +327.67% / -327.68% | 0.01% | F10  | R   |

| Address              | Line | Pt | DNP Obj | Description   | Range                     | Units       | Type | R/W |
|----------------------|------|----|---------|---|---------------------------|-------------|------|-----|
| 01784                | 163  | 58 | 30      | Phase C Current 122 <sup>nd</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 01785                | 163  | 59 | 30      | Phase C Current 123 <sup>rd</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 01786                | 163  | 60 | 30      | Phase C Current 124 <sup>th</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 01787                | 163  | 61 | 30      | Phase C Current 125 <sup>th</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 01788                | 163  | 62 | 30      | Phase C Current 126 <sup>th</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 01789                | 163  | 63 | 30      | Phase C Current 127 <sup>th</sup> Harmonic Magnitude          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| Harmonic Phase Block |      |    |         |   |                           |             |      |     |
| 01790                | 164  | 0  | 30      | Phase A-N / Phase A-B Voltage 0 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01791                | 164  | 1  | 30      | Phase A-N / Phase A-B Voltage 1 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01792                | 164  | 2  | 30      | Phase A-N / Phase A-B Voltage 2 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01793                | 164  | 3  | 30      | Phase A-N / Phase A-B Voltage 3 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01794                | 164  | 4  | 30      | Phase A-N / Phase A-B Voltage 4 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01795                | 164  | 5  | 30      | Phase A-N / Phase A-B Voltage 5 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01796                | 164  | 6  | 30      | Phase A-N / Phase A-B Voltage 6 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01797                | 164  | 7  | 30      | Phase A-N / Phase A-B Voltage 7 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01798                | 165  | 0  | 30      | Phase A-N / Phase A-B Voltage 8 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01799                | 165  | 1  | 30      | Phase A-N / Phase A-B Voltage 9 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01800                | 165  | 2  | 30      | Phase A-N / Phase A-B Voltage 10 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01801                | 165  | 3  | 30      | Phase A-N / Phase A-B Voltage 11 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01802                | 165  | 4  | 30      | Phase A-N / Phase A-B Voltage 12 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01803                | 165  | 5  | 30      | Phase A-N / Phase A-B Voltage 13 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01804                | 165  | 6  | 30      | Phase A-N / Phase A-B Voltage 14 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01805                | 165  | 7  | 30      | Phase A-N / Phase A-B Voltage 15 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01806                | 166  | 0  | 30      | Phase A-N / Phase A-B Voltage 16 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01807                | 166  | 1  | 30      | Phase A-N / Phase A-B Voltage 17 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01808                | 166  | 2  | 30      | Phase A-N / Phase A-B Voltage 18 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01809                | 166  | 3  | 30      | Phase A-N / Phase A-B Voltage 19 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01810                | 166  | 4  | 30      | Phase A-N / Phase A-B Voltage 20 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01811                | 166  | 5  | 30      | Phase A-N / Phase A-B Voltage 21 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01812                | 166  | 6  | 30      | Phase A-N / Phase A-B Voltage 22 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01813                | 166  | 7  | 30      | Phase A-N / Phase A-B Voltage 23 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01814                | 166  | 8  | 30      | Phase A-N / Phase A-B Voltage 24 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01815                | 166  | 9  | 30      | Phase A-N / Phase A-B Voltage 25 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 01816   | 166  | 10 | 30         | Phase A-N / Phase A-B Voltage 26 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01817   | 166  | 11 | 30         | Phase A-N / Phase A-B Voltage 27 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01818   | 166  | 12 | 30         | Phase A-N / Phase A-B Voltage 28 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01819   | 166  | 13 | 30         | Phase A-N / Phase A-B Voltage 29 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01820   | 166  | 14 | 30         | Phase A-N / Phase A-B Voltage 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01821   | 166  | 15 | 30         | Phase A-N / Phase A-B Voltage 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01822   | 167  | 0  | 30         | Phase A-N / Phase A-B Voltage 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01823   | 167  | 1  | 30         | Phase A-N / Phase A-B Voltage 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01824   | 167  | 2  | 30         | Phase A-N / Phase A-B Voltage 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01825   | 167  | 3  | 30         | Phase A-N / Phase A-B Voltage 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01826   | 167  | 4  | 30         | Phase A-N / Phase A-B Voltage 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01827   | 167  | 5  | 30         | Phase A-N / Phase A-B Voltage 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01828   | 167  | 6  | 30         | Phase A-N / Phase A-B Voltage 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01829   | 167  | 7  | 30         | Phase A-N / Phase A-B Voltage 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01830   | 167  | 8  | 30         | Phase A-N / Phase A-B Voltage 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01831   | 167  | 9  | 30         | Phase A-N / Phase A-B Voltage 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01832   | 167  | 10 | 30         | Phase A-N / Phase A-B Voltage 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01833   | 167  | 11 | 30         | Phase A-N / Phase A-B Voltage 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01834   | 167  | 12 | 30         | Phase A-N / Phase A-B Voltage 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01835   | 167  | 13 | 30         | Phase A-N / Phase A-B Voltage 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01836   | 167  | 14 | 30         | Phase A-N / Phase A-B Voltage 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01837   | 167  | 15 | 30         | Phase A-N / Phase A-B Voltage 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01838   | 167  | 16 | 30         | Phase A-N / Phase A-B Voltage 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01839   | 167  | 17 | 30         | Phase A-N / Phase A-B Voltage 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01840   | 167  | 18 | 30         | Phase A-N / Phase A-B Voltage 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01841   | 167  | 19 | 30         | Phase A-N / Phase A-B Voltage 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01842   | 167  | 20 | 30         | Phase A-N / Phase A-B Voltage 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01843   | 167  | 21 | 30         | Phase A-N / Phase A-B Voltage 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01844   | 167  | 22 | 30         | Phase A-N / Phase A-B Voltage 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01845   | 167  | 23 | 30         | Phase A-N / Phase A-B Voltage 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01846   | 167  | 24 | 30         | Phase A-N / Phase A-B Voltage 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01847   | 167  | 25 | 30         | Phase A-N / Phase A-B Voltage 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01848   | 167  | 26 | 30         | Phase A-N / Phase A-B Voltage 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|---------|---|---------------------------|-------------|------|-----|
| 01849   | 167  | 27 | 30      | Phase A-N / Phase A-B Voltage 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01850   | 167  | 28 | 30      | Phase A-N / Phase A-B Voltage 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01851   | 167  | 29 | 30      | Phase A-N / Phase A-B Voltage 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01852   | 167  | 30 | 30      | Phase A-N / Phase A-B Voltage 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01853   | 167  | 31 | 30      | Phase A-N / Phase A-B Voltage 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01854   | 168  | 0  | 30      | Phase A-N / Phase A-B Voltage 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01855   | 168  | 1  | 30      | Phase A-N / Phase A-B Voltage 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01856   | 168  | 2  | 30      | Phase A-N / Phase A-B Voltage 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01857   | 168  | 3  | 30      | Phase A-N / Phase A-B Voltage 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01858   | 168  | 4  | 30      | Phase A-N / Phase A-B Voltage 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01859   | 168  | 5  | 30      | Phase A-N / Phase A-B Voltage 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01860   | 168  | 6  | 30      | Phase A-N / Phase A-B Voltage 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01861   | 168  | 7  | 30      | Phase A-N / Phase A-B Voltage 71 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01862   | 168  | 8  | 30      | Phase A-N / Phase A-B Voltage 72 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01863   | 168  | 9  | 30      | Phase A-N / Phase A-B Voltage 73 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01864   | 168  | 10 | 30      | Phase A-N / Phase A-B Voltage 74 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01865   | 168  | 11 | 30      | Phase A-N / Phase A-B Voltage 75 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01866   | 168  | 12 | 30      | Phase A-N / Phase A-B Voltage 76 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01867   | 168  | 13 | 30      | Phase A-N / Phase A-B Voltage 77 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01868   | 168  | 14 | 30      | Phase A-N / Phase A-B Voltage 78 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01869   | 168  | 15 | 30      | Phase A-N / Phase A-B Voltage 79 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01870   | 168  | 16 | 30      | Phase A-N / Phase A-B Voltage 80 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01871   | 168  | 17 | 30      | Phase A-N / Phase A-B Voltage 81 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01872   | 168  | 18 | 30      | Phase A-N / Phase A-B Voltage 82 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01873   | 168  | 19 | 30      | Phase A-N / Phase A-B Voltage 83 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01874   | 168  | 20 | 30      | Phase A-N / Phase A-B Voltage 84 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01875   | 168  | 21 | 30      | Phase A-N / Phase A-B Voltage 85 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01876   | 168  | 22 | 30      | Phase A-N / Phase A-B Voltage 86 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01877   | 168  | 23 | 30      | Phase A-N / Phase A-B Voltage 87 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01878   | 168  | 24 | 30      | Phase A-N / Phase A-B Voltage 88 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01879   | 168  | 25 | 30      | Phase A-N / Phase A-B Voltage 89 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01880   | 168  | 26 | 30      | Phase A-N / Phase A-B Voltage 90 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01881   | 168  | 27 | 30      | Phase A-N / Phase A-B Voltage 91 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 01882   | 168  | 28 | 30         | Phase A-N / Phase A-B Voltage 92 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01883   | 168  | 29 | 30         | Phase A-N / Phase A-B Voltage 93 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01884   | 168  | 30 | 30         | Phase A-N / Phase A-B Voltage 94 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01885   | 168  | 31 | 30         | Phase A-N / Phase A-B Voltage 95 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01886   | 168  | 32 | 30         | Phase A-N / Phase A-B Voltage 96 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01887   | 168  | 33 | 30         | Phase A-N / Phase A-B Voltage 97 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01888   | 168  | 34 | 30         | Phase A-N / Phase A-B Voltage 98 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01889   | 168  | 35 | 30         | Phase A-N / Phase A-B Voltage 99 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01890   | 168  | 36 | 30         | Phase A-N / Phase A-B Voltage 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01891   | 168  | 37 | 30         | Phase A-N / Phase A-B Voltage 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01892   | 168  | 38 | 30         | Phase A-N / Phase A-B Voltage 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01893   | 168  | 39 | 30         | Phase A-N / Phase A-B Voltage 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01894   | 168  | 40 | 30         | Phase A-N / Phase A-B Voltage 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01895   | 168  | 41 | 30         | Phase A-N / Phase A-B Voltage 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01896   | 168  | 42 | 30         | Phase A-N / Phase A-B Voltage 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01897   | 168  | 43 | 30         | Phase A-N / Phase A-B Voltage 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01898   | 168  | 44 | 30         | Phase A-N / Phase A-B Voltage 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01899   | 168  | 45 | 30         | Phase A-N / Phase A-B Voltage 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01900   | 168  | 46 | 30         | Phase A-N / Phase A-B Voltage 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01901   | 168  | 47 | 30         | Phase A-N / Phase A-B Voltage 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01902   | 168  | 48 | 30         | Phase A-N / Phase A-B Voltage 112 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01903   | 168  | 49 | 30         | Phase A-N / Phase A-B Voltage 113 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01904   | 168  | 50 | 30         | Phase A-N / Phase A-B Voltage 114 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01905   | 168  | 51 | 30         | Phase A-N / Phase A-B Voltage 115 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01906   | 168  | 52 | 30         | Phase A-N / Phase A-B Voltage 116 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01907   | 168  | 53 | 30         | Phase A-N / Phase A-B Voltage 117 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01908   | 168  | 54 | 30         | Phase A-N / Phase A-B Voltage 118 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01909   | 168  | 55 | 30         | Phase A-N / Phase A-B Voltage 119 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01910   | 168  | 56 | 30         | Phase A-N / Phase A-B Voltage 120 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01911   | 168  | 57 | 30         | Phase A-N / Phase A-B Voltage 121 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01912   | 168  | 58 | 30         | Phase A-N / Phase A-B Voltage 122 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01913   | 168  | 59 | 30         | Phase A-N / Phase A-B Voltage 123 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01914   | 168  | 60 | 30         | Phase A-N / Phase A-B Voltage 124 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 01915   | 168  | 61 | 30         | Phase A-N / Phase A-B Voltage 125 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01916   | 168  | 62 | 30         | Phase A-N / Phase A-B Voltage 126 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01917   | 168  | 63 | 30         | Phase A-N / Phase A-B Voltage 127 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01918   | 169  | 0  | 30         | Phase B-N / Phase B-C Voltage 0 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01919   | 169  | 1  | 30         | Phase B-N / Phase B-C Voltage 1 <sup>st</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01920   | 169  | 2  | 30         | Phase B-N / Phase B-C Voltage 2 <sup>nd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01921   | 169  | 3  | 30         | Phase B-N / Phase B-C Voltage 3 <sup>rd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01922   | 169  | 4  | 30         | Phase B-N / Phase B-C Voltage 4 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01923   | 169  | 5  | 30         | Phase B-N / Phase B-C Voltage 5 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01924   | 169  | 6  | 30         | Phase B-N / Phase B-C Voltage 6 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01925   | 169  | 7  | 30         | Phase B-N / Phase B-C Voltage 7 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01926   | 170  | 0  | 30         | Phase B-N / Phase B-C Voltage 8 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01927   | 170  | 1  | 30         | Phase B-N / Phase B-C Voltage 9 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01928   | 170  | 2  | 30         | Phase B-N / Phase B-C Voltage 10 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01929   | 170  | 3  | 30         | Phase B-N / Phase B-C Voltage 11 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01930   | 170  | 4  | 30         | Phase B-N / Phase B-C Voltage 12 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01931   | 170  | 5  | 30         | Phase B-N / Phase B-C Voltage 13 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01932   | 170  | 6  | 30         | Phase B-N / Phase B-C Voltage 14 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01933   | 170  | 7  | 30         | Phase B-N / Phase B-C Voltage 15 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01934   | 171  | 0  | 30         | Phase B-N / Phase B-C Voltage 16 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01935   | 171  | 1  | 30         | Phase B-N / Phase B-C Voltage 17 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01936   | 171  | 2  | 30         | Phase B-N / Phase B-C Voltage 18 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01937   | 171  | 3  | 30         | Phase B-N / Phase B-C Voltage 19 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01938   | 171  | 4  | 30         | Phase B-N / Phase B-C Voltage 20 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01939   | 171  | 5  | 30         | Phase B-N / Phase B-C Voltage 21 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01940   | 171  | 6  | 30         | Phase B-N / Phase B-C Voltage 22 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01941   | 171  | 7  | 30         | Phase B-N / Phase B-C Voltage 23 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01942   | 171  | 8  | 30         | Phase B-N / Phase B-C Voltage 24 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01943   | 171  | 9  | 30         | Phase B-N / Phase B-C Voltage 25 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01944   | 171  | 10 | 30         | Phase B-N / Phase B-C Voltage 26 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01945   | 171  | 11 | 30         | Phase B-N / Phase B-C Voltage 27 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01946   | 171  | 12 | 30         | Phase B-N / Phase B-C Voltage 28 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01947   | 171  | 13 | 30         | Phase B-N / Phase B-C Voltage 29 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |



| Address | Line | Pt | DNP<br>Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 01948   | 171  | 14 | 30         | Phase B-N / Phase B-C Voltage 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01949   | 171  | 15 | 30         | Phase B-N / Phase B-C Voltage 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01950   | 172  | 0  | 30         | Phase B-N / Phase B-C Voltage 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01951   | 172  | 1  | 30         | Phase B-N / Phase B-C Voltage 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01952   | 172  | 2  | 30         | Phase B-N / Phase B-C Voltage 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01953   | 172  | 3  | 30         | Phase B-N / Phase B-C Voltage 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01954   | 172  | 4  | 30         | Phase B-N / Phase B-C Voltage 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01955   | 172  | 5  | 30         | Phase B-N / Phase B-C Voltage 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01956   | 172  | 6  | 30         | Phase B-N / Phase B-C Voltage 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01957   | 172  | 7  | 30         | Phase B-N / Phase B-C Voltage 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01958   | 172  | 8  | 30         | Phase B-N / Phase B-C Voltage 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01959   | 172  | 9  | 30         | Phase B-N / Phase B-C Voltage 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01960   | 172  | 10 | 30         | Phase B-N / Phase B-C Voltage 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01961   | 172  | 11 | 30         | Phase B-N / Phase B-C Voltage 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01962   | 172  | 12 | 30         | Phase B-N / Phase B-C Voltage 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01963   | 172  | 13 | 30         | Phase B-N / Phase B-C Voltage 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01964   | 172  | 14 | 30         | Phase B-N / Phase B-C Voltage 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01965   | 172  | 15 | 30         | Phase B-N / Phase B-C Voltage 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01966   | 172  | 16 | 30         | Phase B-N / Phase B-C Voltage 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01967   | 172  | 17 | 30         | Phase B-N / Phase B-C Voltage 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01968   | 172  | 18 | 30         | Phase B-N / Phase B-C Voltage 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01969   | 172  | 19 | 30         | Phase B-N / Phase B-C Voltage 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01970   | 172  | 20 | 30         | Phase B-N / Phase B-C Voltage 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01971   | 172  | 21 | 30         | Phase B-N / Phase B-C Voltage 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01972   | 172  | 22 | 30         | Phase B-N / Phase B-C Voltage 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01973   | 172  | 23 | 30         | Phase B-N / Phase B-C Voltage 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01974   | 172  | 24 | 30         | Phase B-N / Phase B-C Voltage 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01975   | 172  | 25 | 30         | Phase B-N / Phase B-C Voltage 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01976   | 172  | 26 | 30         | Phase B-N / Phase B-C Voltage 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01977   | 172  | 27 | 30         | Phase B-N / Phase B-C Voltage 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01978   | 172  | 28 | 30         | Phase B-N / Phase B-C Voltage 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01979   | 172  | 29 | 30         | Phase B-N / Phase B-C Voltage 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01980   | 172  | 30 | 30         | Phase B-N / Phase B-C Voltage 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 01981   | 172  | 31 | 30         | Phase B-N / Phase B-C Voltage 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01982   | 173  | 0  | 30         | Phase B-N / Phase B-C Voltage 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01983   | 173  | 1  | 30         | Phase B-N / Phase B-C Voltage 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01984   | 173  | 2  | 30         | Phase B-N / Phase B-C Voltage 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01985   | 173  | 3  | 30         | Phase B-N / Phase B-C Voltage 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01986   | 173  | 4  | 30         | Phase B-N / Phase B-C Voltage 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01987   | 173  | 5  | 30         | Phase B-N / Phase B-C Voltage 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01988   | 173  | 6  | 30         | Phase B-N / Phase B-C Voltage 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01989   | 173  | 7  | 30         | Phase B-N / Phase B-C Voltage 71 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01990   | 173  | 8  | 30         | Phase B-N / Phase B-C Voltage 72 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01991   | 173  | 9  | 30         | Phase B-N / Phase B-C Voltage 73 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01992   | 173  | 10 | 30         | Phase B-N / Phase B-C Voltage 74 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01993   | 173  | 11 | 30         | Phase B-N / Phase B-C Voltage 75 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01994   | 173  | 12 | 30         | Phase B-N / Phase B-C Voltage 76 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01995   | 173  | 13 | 30         | Phase B-N / Phase B-C Voltage 77 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01996   | 173  | 14 | 30         | Phase B-N / Phase B-C Voltage 78 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01997   | 173  | 15 | 30         | Phase B-N / Phase B-C Voltage 79 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01998   | 173  | 16 | 30         | Phase B-N / Phase B-C Voltage 80 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 01999   | 173  | 17 | 30         | Phase B-N / Phase B-C Voltage 81 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02000   | 173  | 18 | 30         | Phase B-N / Phase B-C Voltage 82 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02001   | 173  | 19 | 30         | Phase B-N / Phase B-C Voltage 83 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02002   | 173  | 20 | 30         | Phase B-N / Phase B-C Voltage 84 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02003   | 173  | 21 | 30         | Phase B-N / Phase B-C Voltage 85 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02004   | 173  | 22 | 30         | Phase B-N / Phase B-C Voltage 86 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02005   | 173  | 23 | 30         | Phase B-N / Phase B-C Voltage 87 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02006   | 173  | 24 | 30         | Phase B-N / Phase B-C Voltage 88 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02007   | 173  | 25 | 30         | Phase B-N / Phase B-C Voltage 89 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02008   | 173  | 26 | 30         | Phase B-N / Phase B-C Voltage 90 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02009   | 173  | 27 | 30         | Phase B-N / Phase B-C Voltage 91 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02010   | 173  | 28 | 30         | Phase B-N / Phase B-C Voltage 92 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02011   | 173  | 29 | 30         | Phase B-N / Phase B-C Voltage 93 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02012   | 173  | 30 | 30         | Phase B-N / Phase B-C Voltage 94 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02013   | 173  | 31 | 30         | Phase B-N / Phase B-C Voltage 95 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02014   | 173  | 32 | 30         | Phase B-N / Phase B-C Voltage 96 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02015   | 173  | 33 | 30         | Phase B-N / Phase B-C Voltage 97 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02016   | 173  | 34 | 30         | Phase B-N / Phase B-C Voltage 98 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02017   | 173  | 35 | 30         | Phase B-N / Phase B-C Voltage 99 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02018   | 173  | 36 | 30         | Phase B-N / Phase B-C Voltage 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02019   | 173  | 37 | 30         | Phase B-N / Phase B-C Voltage 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02020   | 173  | 38 | 30         | Phase B-N / Phase B-C Voltage 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02021   | 173  | 39 | 30         | Phase B-N / Phase B-C Voltage 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02022   | 173  | 40 | 30         | Phase B-N / Phase B-C Voltage 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02023   | 173  | 41 | 30         | Phase B-N / Phase B-C Voltage 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02024   | 173  | 42 | 30         | Phase B-N / Phase B-C Voltage 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02025   | 173  | 43 | 30         | Phase B-N / Phase B-C Voltage 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02026   | 173  | 44 | 30         | Phase B-N / Phase B-C Voltage 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02027   | 173  | 45 | 30         | Phase B-N / Phase B-C Voltage 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02028   | 173  | 46 | 30         | Phase B-N / Phase B-C Voltage 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02029   | 173  | 47 | 30         | Phase B-N / Phase B-C Voltage 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02030   | 173  | 48 | 30         | Phase B-N / Phase B-C Voltage 112 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02031   | 173  | 49 | 30         | Phase B-N / Phase B-C Voltage 113 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02032   | 173  | 50 | 30         | Phase B-N / Phase B-C Voltage 114 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02033   | 173  | 51 | 30         | Phase B-N / Phase B-C Voltage 115 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02034   | 173  | 52 | 30         | Phase B-N / Phase B-C Voltage 116 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02035   | 173  | 53 | 30         | Phase B-N / Phase B-C Voltage 117 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02036   | 173  | 54 | 30         | Phase B-N / Phase B-C Voltage 118 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02037   | 173  | 55 | 30         | Phase B-N / Phase B-C Voltage 119 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02038   | 173  | 56 | 30         | Phase B-N / Phase B-C Voltage 120 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02039   | 173  | 57 | 30         | Phase B-N / Phase B-C Voltage 121 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02040   | 173  | 58 | 30         | Phase B-N / Phase B-C Voltage 122 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02041   | 173  | 59 | 30         | Phase B-N / Phase B-C Voltage 123 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02042   | 173  | 60 | 30         | Phase B-N / Phase B-C Voltage 124 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02043   | 173  | 61 | 30         | Phase B-N / Phase B-C Voltage 125 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02044   | 173  | 62 | 30         | Phase B-N / Phase B-C Voltage 126 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02045   | 173  | 63 | 30         | Phase B-N / Phase B-C Voltage 127 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02046   | 174  | 0  | 30         | Phase C-N / Phase C-A Voltage 0 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|---------|---|---------------------------|-------------|------|-----|
| 02047   | 174  | 1  | 30      | Phase C-N / Phase C-A Voltage 1 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02048   | 174  | 2  | 30      | Phase C-N / Phase C-A Voltage 2 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02049   | 174  | 3  | 30      | Phase C-N / Phase C-A Voltage 3 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02050   | 174  | 4  | 30      | Phase C-N / Phase C-A Voltage 4 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02051   | 174  | 5  | 30      | Phase C-N / Phase C-A Voltage 5 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02052   | 174  | 6  | 30      | Phase C-N / Phase C-A Voltage 6 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02053   | 174  | 7  | 30      | Phase C-N / Phase C-A Voltage 7 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02054   | 175  | 0  | 30      | Phase C-N / Phase C-A Voltage 8 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02055   | 175  | 1  | 30      | Phase C-N / Phase C-A Voltage 9 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02056   | 175  | 2  | 30      | Phase C-N / Phase C-A Voltage 10 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02057   | 175  | 3  | 30      | Phase C-N / Phase C-A Voltage 11 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02058   | 175  | 4  | 30      | Phase C-N / Phase C-A Voltage 12 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02059   | 175  | 5  | 30      | Phase C-N / Phase C-A Voltage 13 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02060   | 175  | 6  | 30      | Phase C-N / Phase C-A Voltage 14 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02061   | 175  | 7  | 30      | Phase C-N / Phase C-A Voltage 15 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02062   | 176  | 0  | 30      | Phase C-N / Phase C-A Voltage 16 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02063   | 176  | 1  | 30      | Phase C-N / Phase C-A Voltage 17 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02064   | 176  | 2  | 30      | Phase C-N / Phase C-A Voltage 18 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02065   | 176  | 3  | 30      | Phase C-N / Phase C-A Voltage 19 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02066   | 176  | 4  | 30      | Phase C-N / Phase C-A Voltage 20 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02067   | 176  | 5  | 30      | Phase C-N / Phase C-A Voltage 21 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02068   | 176  | 6  | 30      | Phase C-N / Phase C-A Voltage 22 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02069   | 176  | 7  | 30      | Phase C-N / Phase C-A Voltage 23 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02070   | 176  | 8  | 30      | Phase C-N / Phase C-A Voltage 24 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02071   | 176  | 9  | 30      | Phase C-N / Phase C-A Voltage 25 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02072   | 176  | 10 | 30      | Phase C-N / Phase C-A Voltage 26 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02073   | 176  | 11 | 30      | Phase C-N / Phase C-A Voltage 27 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02074   | 176  | 12 | 30      | Phase C-N / Phase C-A Voltage 28 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02075   | 176  | 13 | 30      | Phase C-N / Phase C-A Voltage 29 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02076   | 176  | 14 | 30      | Phase C-N / Phase C-A Voltage 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02077   | 176  | 15 | 30      | Phase C-N / Phase C-A Voltage 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02078   | 177  | 0  | 30      | Phase C-N / Phase C-A Voltage 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02079   | 177  | 1  | 30      | Phase C-N / Phase C-A Voltage 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|---------|---|---------------------------|-------------|------|-----|
| 02080   | 177  | 2  | 30      | Phase C-N / Phase C-A Voltage 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02081   | 177  | 3  | 30      | Phase C-N / Phase C-A Voltage 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02082   | 177  | 4  | 30      | Phase C-N / Phase C-A Voltage 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02083   | 177  | 5  | 30      | Phase C-N / Phase C-A Voltage 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02084   | 177  | 6  | 30      | Phase C-N / Phase C-A Voltage 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02085   | 177  | 7  | 30      | Phase C-N / Phase C-A Voltage 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02086   | 177  | 8  | 30      | Phase C-N / Phase C-A Voltage 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02087   | 177  | 9  | 30      | Phase C-N / Phase C-A Voltage 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02088   | 177  | 10 | 30      | Phase C-N / Phase C-A Voltage 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02089   | 177  | 11 | 30      | Phase C-N / Phase C-A Voltage 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02090   | 177  | 12 | 30      | Phase C-N / Phase C-A Voltage 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02091   | 177  | 13 | 30      | Phase C-N / Phase C-A Voltage 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02092   | 177  | 14 | 30      | Phase C-N / Phase C-A Voltage 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02093   | 177  | 15 | 30      | Phase C-N / Phase C-A Voltage 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02094   | 177  | 16 | 30      | Phase C-N / Phase C-A Voltage 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02095   | 177  | 17 | 30      | Phase C-N / Phase C-A Voltage 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02096   | 177  | 18 | 30      | Phase C-N / Phase C-A Voltage 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02097   | 177  | 19 | 30      | Phase C-N / Phase C-A Voltage 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02098   | 177  | 20 | 30      | Phase C-N / Phase C-A Voltage 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02099   | 177  | 21 | 30      | Phase C-N / Phase C-A Voltage 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02100   | 177  | 22 | 30      | Phase C-N / Phase C-A Voltage 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02101   | 177  | 23 | 30      | Phase C-N / Phase C-A Voltage 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02102   | 177  | 24 | 30      | Phase C-N / Phase C-A Voltage 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02103   | 177  | 25 | 30      | Phase C-N / Phase C-A Voltage 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02104   | 177  | 26 | 30      | Phase C-N / Phase C-A Voltage 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02105   | 177  | 27 | 30      | Phase C-N / Phase C-A Voltage 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02106   | 177  | 28 | 30      | Phase C-N / Phase C-A Voltage 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02107   | 177  | 29 | 30      | Phase C-N / Phase C-A Voltage 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02108   | 177  | 30 | 30      | Phase C-N / Phase C-A Voltage 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02109   | 177  | 31 | 30      | Phase C-N / Phase C-A Voltage 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02110   | 178  | 0  | 30      | Phase C-N / Phase C-A Voltage 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02111   | 178  | 1  | 30      | Phase C-N / Phase C-A Voltage 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02112   | 178  | 2  | 30      | Phase C-N / Phase C-A Voltage 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP Obj | Description   | Range                     | Units       | Type | R/W |
|---------|------|----|---------|---|---------------------------|-------------|------|-----|
| 02113   | 178  | 3  | 30      | Phase C-N / Phase C-A Voltage 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02114   | 178  | 4  | 30      | Phase C-N / Phase C-A Voltage 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02115   | 178  | 5  | 30      | Phase C-N / Phase C-A Voltage 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02116   | 178  | 6  | 30      | Phase C-N / Phase C-A Voltage 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02117   | 178  | 7  | 30      | Phase C-N / Phase C-A Voltage 71 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02118   | 178  | 8  | 30      | Phase C-N / Phase C-A Voltage 72 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02119   | 178  | 9  | 30      | Phase C-N / Phase C-A Voltage 73 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02120   | 178  | 10 | 30      | Phase C-N / Phase C-A Voltage 74 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02121   | 178  | 11 | 30      | Phase C-N / Phase C-A Voltage 75 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02122   | 178  | 12 | 30      | Phase C-N / Phase C-A Voltage 76 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02123   | 178  | 13 | 30      | Phase C-N / Phase C-A Voltage 77 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02124   | 178  | 14 | 30      | Phase C-N / Phase C-A Voltage 78 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02125   | 178  | 15 | 30      | Phase C-N / Phase C-A Voltage 79 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02126   | 178  | 16 | 30      | Phase C-N / Phase C-A Voltage 80 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02127   | 178  | 17 | 30      | Phase C-N / Phase C-A Voltage 81 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02128   | 178  | 18 | 30      | Phase C-N / Phase C-A Voltage 82 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02129   | 178  | 19 | 30      | Phase C-N / Phase C-A Voltage 83 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02130   | 178  | 20 | 30      | Phase C-N / Phase C-A Voltage 84 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02131   | 178  | 21 | 30      | Phase C-N / Phase C-A Voltage 85 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02132   | 178  | 22 | 30      | Phase C-N / Phase C-A Voltage 86 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02133   | 178  | 23 | 30      | Phase C-N / Phase C-A Voltage 87 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02134   | 178  | 24 | 30      | Phase C-N / Phase C-A Voltage 88 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02135   | 178  | 25 | 30      | Phase C-N / Phase C-A Voltage 89 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02136   | 178  | 26 | 30      | Phase C-N / Phase C-A Voltage 90 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02137   | 178  | 27 | 30      | Phase C-N / Phase C-A Voltage 91 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02138   | 178  | 28 | 30      | Phase C-N / Phase C-A Voltage 92 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02139   | 178  | 29 | 30      | Phase C-N / Phase C-A Voltage 93 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02140   | 178  | 30 | 30      | Phase C-N / Phase C-A Voltage 94 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02141   | 178  | 31 | 30      | Phase C-N / Phase C-A Voltage 95 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02142   | 178  | 32 | 30      | Phase C-N / Phase C-A Voltage 96 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02143   | 178  | 33 | 30      | Phase C-N / Phase C-A Voltage 97 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02144   | 178  | 34 | 30      | Phase C-N / Phase C-A Voltage 98 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02145   | 178  | 35 | 30      | Phase C-N / Phase C-A Voltage 99 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02146   | 178  | 36 | 30         | Phase C-N / Phase C-A Voltage 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02147   | 178  | 37 | 30         | Phase C-N / Phase C-A Voltage 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02148   | 178  | 38 | 30         | Phase C-N / Phase C-A Voltage 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02149   | 178  | 39 | 30         | Phase C-N / Phase C-A Voltage 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02150   | 178  | 40 | 30         | Phase C-N / Phase C-A Voltage 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02151   | 178  | 41 | 30         | Phase C-N / Phase C-A Voltage 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02152   | 178  | 42 | 30         | Phase C-N / Phase C-A Voltage 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02153   | 178  | 43 | 30         | Phase C-N / Phase C-A Voltage 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02154   | 178  | 44 | 30         | Phase C-N / Phase C-A Voltage 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02155   | 178  | 45 | 30         | Phase C-N / Phase C-A Voltage 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02156   | 178  | 46 | 30         | Phase C-N / Phase C-A Voltage 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02157   | 178  | 47 | 30         | Phase C-N / Phase C-A Voltage 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02158   | 178  | 48 | 30         | Phase C-N / Phase C-A Voltage 112 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02159   | 178  | 49 | 30         | Phase C-N / Phase C-A Voltage 113 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02160   | 178  | 50 | 30         | Phase C-N / Phase C-A Voltage 114 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02161   | 178  | 51 | 30         | Phase C-N / Phase C-A Voltage 115 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02162   | 178  | 52 | 30         | Phase C-N / Phase C-A Voltage 116 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02163   | 178  | 53 | 30         | Phase C-N / Phase C-A Voltage 117 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02164   | 178  | 54 | 30         | Phase C-N / Phase C-A Voltage 118 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02165   | 178  | 55 | 30         | Phase C-N / Phase C-A Voltage 119 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02166   | 178  | 56 | 30         | Phase C-N / Phase C-A Voltage 120 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02167   | 178  | 57 | 30         | Phase C-N / Phase C-A Voltage 121 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02168   | 178  | 58 | 30         | Phase C-N / Phase C-A Voltage 122 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02169   | 178  | 59 | 30         | Phase C-N / Phase C-A Voltage 123 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02170   | 178  | 60 | 30         | Phase C-N / Phase C-A Voltage 124 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02171   | 178  | 61 | 30         | Phase C-N / Phase C-A Voltage 125 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02172   | 178  | 62 | 30         | Phase C-N / Phase C-A Voltage 126 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02173   | 178  | 63 | 30         | Phase C-N / Phase C-A Voltage 127 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02174   | 179  | 0  | 30         | Phase A Current 0 <sup>th</sup> Harmonic Phase                 | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02175   | 179  | 1  | 30         | Phase A Current 1 <sup>st</sup> Harmonic Phase                 | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02176   | 179  | 2  | 30         | Phase A Current 2 <sup>nd</sup> Harmonic Phase                 | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02177   | 179  | 3  | 30         | Phase A Current 3 <sup>rd</sup> Harmonic Phase                 | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02178   | 179  | 4  | 30         | Phase A Current 4 <sup>th</sup> Harmonic Phase                 | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02179   | 179  | 5  | 30         | Phase A Current 5 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02180   | 179  | 6  | 30         | Phase A Current 6 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02181   | 179  | 7  | 30         | Phase A Current 7 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02182   | 180  | 0  | 30         | Phase A Current 8 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02183   | 180  | 1  | 30         | Phase A Current 9 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02184   | 180  | 2  | 30         | Phase A Current 10 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02185   | 180  | 3  | 30         | Phase A Current 11 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02186   | 180  | 4  | 30         | Phase A Current 12 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02187   | 180  | 5  | 30         | Phase A Current 13 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02188   | 180  | 6  | 30         | Phase A Current 14 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02189   | 180  | 7  | 30         | Phase A Current 15 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02190   | 181  | 0  | 30         | Phase A Current 16 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02191   | 181  | 1  | 30         | Phase A Current 17 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02192   | 181  | 2  | 30         | Phase A Current 18 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02193   | 181  | 3  | 30         | Phase A Current 19 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02194   | 181  | 4  | 30         | Phase A Current 20 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02195   | 181  | 5  | 30         | Phase A Current 21 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02196   | 181  | 6  | 30         | Phase A Current 22 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02197   | 181  | 7  | 30         | Phase A Current 23 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02198   | 181  | 8  | 30         | Phase A Current 24 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02199   | 181  | 9  | 30         | Phase A Current 25 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02200   | 181  | 10 | 30         | Phase A Current 26 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02201   | 181  | 11 | 30         | Phase A Current 27 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02202   | 181  | 12 | 30         | Phase A Current 28 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02203   | 181  | 13 | 30         | Phase A Current 29 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02204   | 181  | 14 | 30         | Phase A Current 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02205   | 181  | 15 | 30         | Phase A Current 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02206   | 182  | 0  | 30         | Phase A Current 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02207   | 182  | 1  | 30         | Phase A Current 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02208   | 182  | 2  | 30         | Phase A Current 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02209   | 182  | 3  | 30         | Phase A Current 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02210   | 182  | 4  | 30         | Phase A Current 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02211   | 182  | 5  | 30         | Phase A Current 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |



| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02212   | 182  | 6  | 30         | Phase A Current 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02213   | 182  | 7  | 30         | Phase A Current 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02214   | 182  | 8  | 30         | Phase A Current 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02215   | 182  | 9  | 30         | Phase A Current 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02216   | 182  | 10 | 30         | Phase A Current 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02217   | 182  | 11 | 30         | Phase A Current 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02218   | 182  | 12 | 30         | Phase A Current 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02219   | 182  | 13 | 30         | Phase A Current 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02220   | 182  | 14 | 30         | Phase A Current 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02221   | 182  | 15 | 30         | Phase A Current 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02222   | 182  | 16 | 30         | Phase A Current 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02223   | 182  | 17 | 30         | Phase A Current 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02224   | 182  | 18 | 30         | Phase A Current 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02225   | 182  | 19 | 30         | Phase A Current 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02226   | 182  | 20 | 30         | Phase A Current 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02227   | 182  | 21 | 30         | Phase A Current 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02228   | 182  | 22 | 30         | Phase A Current 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02229   | 182  | 23 | 30         | Phase A Current 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02230   | 182  | 24 | 30         | Phase A Current 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02231   | 182  | 25 | 30         | Phase A Current 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02232   | 182  | 26 | 30         | Phase A Current 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02233   | 182  | 27 | 30         | Phase A Current 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02234   | 182  | 28 | 30         | Phase A Current 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02235   | 182  | 29 | 30         | Phase A Current 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02236   | 182  | 30 | 30         | Phase A Current 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02237   | 182  | 31 | 30         | Phase A Current 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02238   | 183  | 0  | 30         | Phase A Current 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02239   | 183  | 1  | 30         | Phase A Current 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02240   | 183  | 2  | 30         | Phase A Current 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02241   | 183  | 3  | 30         | Phase A Current 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02242   | 183  | 4  | 30         | Phase A Current 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02243   | 183  | 5  | 30         | Phase A Current 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02244   | 183  | 6  | 30         | Phase A Current 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                      | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02245   | 183  | 7  | 30         | Phase A Current 71 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02246   | 183  | 8  | 30         | Phase A Current 72 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02247   | 183  | 9  | 30         | Phase A Current 73 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02248   | 183  | 10 | 30         | Phase A Current 74 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02249   | 183  | 11 | 30         | Phase A Current 75 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02250   | 183  | 12 | 30         | Phase A Current 76 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02251   | 183  | 13 | 30         | Phase A Current 77 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02252   | 183  | 14 | 30         | Phase A Current 78 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02253   | 183  | 15 | 30         | Phase A Current 79 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02254   | 183  | 16 | 30         | Phase A Current 80 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02255   | 183  | 17 | 30         | Phase A Current 81 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02256   | 183  | 18 | 30         | Phase A Current 82 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02257   | 183  | 19 | 30         | Phase A Current 83 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02258   | 183  | 20 | 30         | Phase A Current 84 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02259   | 183  | 21 | 30         | Phase A Current 85 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02260   | 183  | 22 | 30         | Phase A Current 86 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02261   | 183  | 23 | 30         | Phase A Current 87 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02262   | 183  | 24 | 30         | Phase A Current 88 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02263   | 183  | 25 | 30         | Phase A Current 89 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02264   | 183  | 26 | 30         | Phase A Current 90 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02265   | 183  | 27 | 30         | Phase A Current 91 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02266   | 183  | 28 | 30         | Phase A Current 92 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02267   | 183  | 29 | 30         | Phase A Current 93 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02268   | 183  | 30 | 30         | Phase A Current 94 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02269   | 183  | 31 | 30         | Phase A Current 95 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02270   | 183  | 32 | 30         | Phase A Current 96 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02271   | 183  | 33 | 30         | Phase A Current 97 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02272   | 183  | 34 | 30         | Phase A Current 98 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02273   | 183  | 35 | 30         | Phase A Current 99 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02274   | 183  | 36 | 30         | Phase A Current 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02275   | 183  | 37 | 30         | Phase A Current 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02276   | 183  | 38 | 30         | Phase A Current 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02277   | 183  | 39 | 30         | Phase A Current 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                      | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02278   | 183  | 40 | 30         | Phase A Current 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02279   | 183  | 41 | 30         | Phase A Current 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02280   | 183  | 42 | 30         | Phase A Current 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02281   | 183  | 43 | 30         | Phase A Current 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02282   | 183  | 44 | 30         | Phase A Current 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02283   | 183  | 45 | 30         | Phase A Current 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02284   | 183  | 46 | 30         | Phase A Current 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02285   | 183  | 47 | 30         | Phase A Current 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02286   | 183  | 48 | 30         | Phase A Current 112 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02287   | 183  | 49 | 30         | Phase A Current 113 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02288   | 183  | 50 | 30         | Phase A Current 114 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02289   | 183  | 51 | 30         | Phase A Current 115 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02290   | 183  | 52 | 30         | Phase A Current 116 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02291   | 183  | 53 | 30         | Phase A Current 117 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02292   | 183  | 54 | 30         | Phase A Current 118 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02293   | 183  | 55 | 30         | Phase A Current 119 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02294   | 183  | 56 | 30         | Phase A Current 120 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02295   | 183  | 57 | 30         | Phase A Current 121 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02296   | 183  | 58 | 30         | Phase A Current 122 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02297   | 183  | 59 | 30         | Phase A Current 123 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02298   | 183  | 60 | 30         | Phase A Current 124 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02299   | 183  | 61 | 30         | Phase A Current 125 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02300   | 183  | 62 | 30         | Phase A Current 126 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02301   | 183  | 63 | 30         | Phase A Current 127 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02302   | 184  | 0  | 30         | Phase B Current 0 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02303   | 184  | 1  | 30         | Phase B Current 1 <sup>st</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02304   | 184  | 2  | 30         | Phase B Current 2 <sup>nd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02305   | 184  | 3  | 30         | Phase B Current 3 <sup>rd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02306   | 184  | 4  | 30         | Phase B Current 4 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02307   | 184  | 5  | 30         | Phase B Current 5 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02308   | 184  | 6  | 30         | Phase B Current 6 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02309   | 184  | 7  | 30         | Phase B Current 7 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02310   | 185  | 0  | 30         | Phase B Current 8 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02311   | 185  | 1  | 30         | Phase B Current 9 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02312   | 185  | 2  | 30         | Phase B Current 10 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02313   | 185  | 3  | 30         | Phase B Current 11 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02314   | 185  | 4  | 30         | Phase B Current 12 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02315   | 185  | 5  | 30         | Phase B Current 13 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02316   | 185  | 6  | 30         | Phase B Current 14 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02317   | 185  | 7  | 30         | Phase B Current 15 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02318   | 186  | 0  | 30         | Phase B Current 16 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02319   | 186  | 1  | 30         | Phase B Current 17 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02320   | 186  | 2  | 30         | Phase B Current 18 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02321   | 186  | 3  | 30         | Phase B Current 19 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02322   | 186  | 4  | 30         | Phase B Current 20 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02323   | 186  | 5  | 30         | Phase B Current 21 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02324   | 186  | 6  | 30         | Phase B Current 22 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02325   | 186  | 7  | 30         | Phase B Current 23 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02326   | 186  | 8  | 30         | Phase B Current 24 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02327   | 186  | 9  | 30         | Phase B Current 25 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02328   | 186  | 10 | 30         | Phase B Current 26 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02329   | 186  | 11 | 30         | Phase B Current 27 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02330   | 186  | 12 | 30         | Phase B Current 28 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02331   | 186  | 13 | 30         | Phase B Current 29 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02332   | 186  | 14 | 30         | Phase B Current 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02333   | 186  | 15 | 30         | Phase B Current 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02334   | 187  | 0  | 30         | Phase B Current 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02335   | 187  | 1  | 30         | Phase B Current 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02336   | 187  | 2  | 30         | Phase B Current 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02337   | 187  | 3  | 30         | Phase B Current 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02338   | 187  | 4  | 30         | Phase B Current 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02339   | 187  | 5  | 30         | Phase B Current 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02340   | 187  | 6  | 30         | Phase B Current 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02341   | 187  | 7  | 30         | Phase B Current 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02342   | 187  | 8  | 30         | Phase B Current 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02343   | 187  | 9  | 30         | Phase B Current 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02344   | 187  | 10 | 30         | Phase B Current 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02345   | 187  | 11 | 30         | Phase B Current 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02346   | 187  | 12 | 30         | Phase B Current 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02347   | 187  | 13 | 30         | Phase B Current 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02348   | 187  | 14 | 30         | Phase B Current 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02349   | 187  | 15 | 30         | Phase B Current 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02350   | 187  | 16 | 30         | Phase B Current 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02351   | 187  | 17 | 30         | Phase B Current 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02352   | 187  | 18 | 30         | Phase B Current 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02353   | 187  | 19 | 30         | Phase B Current 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02354   | 187  | 20 | 30         | Phase B Current 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02355   | 187  | 21 | 30         | Phase B Current 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02356   | 187  | 22 | 30         | Phase B Current 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02357   | 187  | 23 | 30         | Phase B Current 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02358   | 187  | 24 | 30         | Phase B Current 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02359   | 187  | 25 | 30         | Phase B Current 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02360   | 187  | 26 | 30         | Phase B Current 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02361   | 187  | 27 | 30         | Phase B Current 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02362   | 187  | 28 | 30         | Phase B Current 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02363   | 187  | 29 | 30         | Phase B Current 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02364   | 187  | 30 | 30         | Phase B Current 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02365   | 187  | 31 | 30         | Phase B Current 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02366   | 188  | 0  | 30         | Phase B Current 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02367   | 188  | 1  | 30         | Phase B Current 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02368   | 188  | 2  | 30         | Phase B Current 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02369   | 188  | 3  | 30         | Phase B Current 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02370   | 188  | 4  | 30         | Phase B Current 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02371   | 188  | 5  | 30         | Phase B Current 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02372   | 188  | 6  | 30         | Phase B Current 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02373   | 188  | 7  | 30         | Phase B Current 71 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02374   | 188  | 8  | 30         | Phase B Current 72 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02375   | 188  | 9  | 30         | Phase B Current 73 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02376   | 188  | 10 | 30         | Phase B Current 74 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                      | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02377   | 188  | 11 | 30         | Phase B Current 75 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02378   | 188  | 12 | 30         | Phase B Current 76 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02379   | 188  | 13 | 30         | Phase B Current 77 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02380   | 188  | 14 | 30         | Phase B Current 78 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02381   | 188  | 15 | 30         | Phase B Current 79 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02382   | 188  | 16 | 30         | Phase B Current 80 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02383   | 188  | 17 | 30         | Phase B Current 81 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02384   | 188  | 18 | 30         | Phase B Current 82 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02385   | 188  | 19 | 30         | Phase B Current 83 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02386   | 188  | 20 | 30         | Phase B Current 84 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02387   | 188  | 21 | 30         | Phase B Current 85 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02388   | 188  | 22 | 30         | Phase B Current 86 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02389   | 188  | 23 | 30         | Phase B Current 87 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02390   | 188  | 24 | 30         | Phase B Current 88 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02391   | 188  | 25 | 30         | Phase B Current 89 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02392   | 188  | 26 | 30         | Phase B Current 90 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02393   | 188  | 27 | 30         | Phase B Current 91 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02394   | 188  | 28 | 30         | Phase B Current 92 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02395   | 188  | 29 | 30         | Phase B Current 93 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02396   | 188  | 30 | 30         | Phase B Current 94 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02397   | 188  | 31 | 30         | Phase B Current 95 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02398   | 188  | 32 | 30         | Phase B Current 96 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02399   | 188  | 33 | 30         | Phase B Current 97 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02400   | 188  | 34 | 30         | Phase B Current 98 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02401   | 188  | 35 | 30         | Phase B Current 99 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02402   | 188  | 36 | 30         | Phase B Current 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02403   | 188  | 37 | 30         | Phase B Current 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02404   | 188  | 38 | 30         | Phase B Current 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02405   | 188  | 39 | 30         | Phase B Current 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02406   | 188  | 40 | 30         | Phase B Current 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02407   | 188  | 41 | 30         | Phase B Current 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02408   | 188  | 42 | 30         | Phase B Current 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02409   | 188  | 43 | 30         | Phase B Current 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                      | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02410   | 188  | 44 | 30         | Phase B Current 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02411   | 188  | 45 | 30         | Phase B Current 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02412   | 188  | 46 | 30         | Phase B Current 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02413   | 188  | 47 | 30         | Phase B Current 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02414   | 188  | 48 | 30         | Phase B Current 112 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02415   | 188  | 49 | 30         | Phase B Current 113 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02416   | 188  | 50 | 30         | Phase B Current 114 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02417   | 188  | 51 | 30         | Phase B Current 115 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02418   | 188  | 52 | 30         | Phase B Current 116 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02419   | 188  | 53 | 30         | Phase B Current 117 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02420   | 188  | 54 | 30         | Phase B Current 118 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02421   | 188  | 55 | 30         | Phase B Current 119 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02422   | 188  | 56 | 30         | Phase B Current 120 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02423   | 188  | 57 | 30         | Phase B Current 121 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02424   | 188  | 58 | 30         | Phase B Current 122 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02425   | 188  | 59 | 30         | Phase B Current 123 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02426   | 188  | 60 | 30         | Phase B Current 124 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02427   | 188  | 61 | 30         | Phase B Current 125 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02428   | 188  | 62 | 30         | Phase B Current 126 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02429   | 188  | 63 | 30         | Phase B Current 127 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02430   | 189  | 0  | 30         | Phase C Current 0 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02431   | 189  | 1  | 30         | Phase C Current 1 <sup>st</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02432   | 189  | 2  | 30         | Phase C Current 2 <sup>nd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02433   | 189  | 3  | 30         | Phase C Current 3 <sup>rd</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02434   | 189  | 4  | 30         | Phase C Current 4 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02435   | 189  | 5  | 30         | Phase C Current 5 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02436   | 189  | 6  | 30         | Phase C Current 6 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02437   | 189  | 7  | 30         | Phase C Current 7 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02438   | 190  | 0  | 30         | Phase C Current 8 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02439   | 190  | 1  | 30         | Phase C Current 9 <sup>th</sup> Harmonic Phase   | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02440   | 190  | 2  | 30         | Phase C Current 10 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02441   | 190  | 3  | 30         | Phase C Current 11 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02442   | 190  | 4  | 30         | Phase C Current 12 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02443   | 190  | 5  | 30         | Phase C Current 13 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02444   | 190  | 6  | 30         | Phase C Current 14 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02445   | 190  | 7  | 30         | Phase C Current 15 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02446   | 191  | 0  | 30         | Phase C Current 16 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02447   | 191  | 1  | 30         | Phase C Current 17 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02448   | 191  | 2  | 30         | Phase C Current 18 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02449   | 191  | 3  | 30         | Phase C Current 19 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02450   | 191  | 4  | 30         | Phase C Current 20 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02451   | 191  | 5  | 30         | Phase C Current 21 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02452   | 191  | 6  | 30         | Phase C Current 22 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02453   | 191  | 7  | 30         | Phase C Current 23 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02454   | 191  | 8  | 30         | Phase C Current 24 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02455   | 191  | 9  | 30         | Phase C Current 25 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02456   | 191  | 10 | 30         | Phase C Current 26 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02457   | 191  | 11 | 30         | Phase C Current 27 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02458   | 191  | 12 | 30         | Phase C Current 28 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02459   | 191  | 13 | 30         | Phase C Current 29 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02460   | 191  | 14 | 30         | Phase C Current 30 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02461   | 191  | 15 | 30         | Phase C Current 31 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02462   | 192  | 0  | 30         | Phase C Current 32 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02463   | 192  | 1  | 30         | Phase C Current 33 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02464   | 192  | 2  | 30         | Phase C Current 34 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02465   | 192  | 3  | 30         | Phase C Current 35 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02466   | 192  | 4  | 30         | Phase C Current 36 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02467   | 192  | 5  | 30         | Phase C Current 37 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02468   | 192  | 6  | 30         | Phase C Current 38 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02469   | 192  | 7  | 30         | Phase C Current 39 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02470   | 192  | 8  | 30         | Phase C Current 40 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02471   | 192  | 9  | 30         | Phase C Current 41 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02472   | 192  | 10 | 30         | Phase C Current 42 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02473   | 192  | 11 | 30         | Phase C Current 43 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02474   | 192  | 12 | 30         | Phase C Current 44 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02475   | 192  | 13 | 30         | Phase C Current 45 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |



| Address | Line | Pt | DNP<br>Obj | Description                                     | Range                     | Units       | Type | R/W |
|---------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02476   | 192  | 14 | 30         | Phase C Current 46 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02477   | 192  | 15 | 30         | Phase C Current 47 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02478   | 192  | 16 | 30         | Phase C Current 48 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02479   | 192  | 17 | 30         | Phase C Current 49 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02480   | 192  | 18 | 30         | Phase C Current 50 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02481   | 192  | 19 | 30         | Phase C Current 51 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02482   | 192  | 20 | 30         | Phase C Current 52 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02483   | 192  | 21 | 30         | Phase C Current 53 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02484   | 192  | 22 | 30         | Phase C Current 54 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02485   | 192  | 23 | 30         | Phase C Current 55 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02486   | 192  | 24 | 30         | Phase C Current 56 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02487   | 192  | 25 | 30         | Phase C Current 57 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02488   | 192  | 26 | 30         | Phase C Current 58 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02489   | 192  | 27 | 30         | Phase C Current 59 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02490   | 192  | 28 | 30         | Phase C Current 60 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02491   | 192  | 29 | 30         | Phase C Current 61 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02492   | 192  | 30 | 30         | Phase C Current 62 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02493   | 192  | 31 | 30         | Phase C Current 63 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02494   | 193  | 0  | 30         | Phase C Current 64 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02495   | 193  | 1  | 30         | Phase C Current 65 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02496   | 193  | 2  | 30         | Phase C Current 66 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02497   | 193  | 3  | 30         | Phase C Current 67 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02498   | 193  | 4  | 30         | Phase C Current 68 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02499   | 193  | 5  | 30         | Phase C Current 69 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02500   | 193  | 6  | 30         | Phase C Current 70 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02501   | 193  | 7  | 30         | Phase C Current 71 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02502   | 193  | 8  | 30         | Phase C Current 72 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02503   | 193  | 9  | 30         | Phase C Current 73 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02504   | 193  | 10 | 30         | Phase C Current 74 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02505   | 193  | 11 | 30         | Phase C Current 75 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02506   | 193  | 12 | 30         | Phase C Current 76 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02507   | 193  | 13 | 30         | Phase C Current 77 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02508   | 193  | 14 | 30         | Phase C Current 78 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                      | Range                     | Units       | Type | R/W |
|---------|------|----|------------|--|---------------------------|-------------|------|-----|
| 02509   | 193  | 15 | 30         | Phase C Current 79 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02510   | 193  | 16 | 30         | Phase C Current 80 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02511   | 193  | 17 | 30         | Phase C Current 81 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02512   | 193  | 18 | 30         | Phase C Current 82 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02513   | 193  | 19 | 30         | Phase C Current 83 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02514   | 193  | 20 | 30         | Phase C Current 84 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02515   | 193  | 21 | 30         | Phase C Current 85 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02516   | 193  | 22 | 30         | Phase C Current 86 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02517   | 193  | 23 | 30         | Phase C Current 87 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02518   | 193  | 24 | 30         | Phase C Current 88 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02519   | 193  | 25 | 30         | Phase C Current 89 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02520   | 193  | 26 | 30         | Phase C Current 90 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02521   | 193  | 27 | 30         | Phase C Current 91 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02522   | 193  | 28 | 30         | Phase C Current 92 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02523   | 193  | 29 | 30         | Phase C Current 93 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02524   | 193  | 30 | 30         | Phase C Current 94 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02525   | 193  | 31 | 30         | Phase C Current 95 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02526   | 193  | 32 | 30         | Phase C Current 96 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02527   | 193  | 33 | 30         | Phase C Current 97 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02528   | 193  | 34 | 30         | Phase C Current 98 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02529   | 193  | 35 | 30         | Phase C Current 99 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02530   | 193  | 36 | 30         | Phase C Current 100 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02531   | 193  | 37 | 30         | Phase C Current 101 <sup>st</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02532   | 193  | 38 | 30         | Phase C Current 102 <sup>nd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02533   | 193  | 39 | 30         | Phase C Current 103 <sup>rd</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02534   | 193  | 40 | 30         | Phase C Current 104 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02535   | 193  | 41 | 30         | Phase C Current 105 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02536   | 193  | 42 | 30         | Phase C Current 106 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02537   | 193  | 43 | 30         | Phase C Current 107 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02538   | 193  | 44 | 30         | Phase C Current 108 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02539   | 193  | 45 | 30         | Phase C Current 109 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02540   | 193  | 46 | 30         | Phase C Current 110 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02541   | 193  | 47 | 30         | Phase C Current 111 <sup>th</sup> Harmonic Phase | +180 degree / -180 degree | 0.01 degree | F9   | R   |

| Address                   | Line | Pt | DNP<br>Obj | Description                                       | Range                     | Units       | Type | R/W |
|---------------------------|------|----|------------|---|---------------------------|-------------|------|-----|
| 02542                     | 193  | 48 | 30         | Phase C Current 112 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02543                     | 193  | 49 | 30         | Phase C Current 113 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02544                     | 193  | 50 | 30         | Phase C Current 114 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02545                     | 193  | 51 | 30         | Phase C Current 115 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02546                     | 193  | 52 | 30         | Phase C Current 116 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02547                     | 193  | 53 | 30         | Phase C Current 117 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02548                     | 193  | 54 | 30         | Phase C Current 118 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02549                     | 193  | 55 | 30         | Phase C Current 119 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02550                     | 193  | 56 | 30         | Phase C Current 120 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02551                     | 193  | 57 | 30         | Phase C Current 121 <sup>st</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02552                     | 193  | 58 | 30         | Phase C Current 122 <sup>nd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02553                     | 193  | 59 | 30         | Phase C Current 123 <sup>rd</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02554                     | 193  | 60 | 30         | Phase C Current 124 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02555                     | 193  | 61 | 30         | Phase C Current 125 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02556                     | 193  | 62 | 30         | Phase C Current 126 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| 02557                     | 193  | 63 | 30         | Phase C Current 127 <sup>th</sup> Harmonic Phase  | +180 degree / -180 degree | 0.01 degree | F9   | R   |
| THD/K-Factor Block        |      |    |            |   |                           |             |      |     |
| 02558                     | 194  | 0  | 30         | Phase A-N / Phase A-B Voltage THD                 | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02559                     | 195  | 0  | 30         | Phase B-N / Phase B-C Voltage THD                 | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02560                     | 196  | 0  | 30         | Phase C-N / Phase C-A Voltage THD                 | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02561                     | 197  | 0  | 30         | Phase A Current THD                               | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02562                     | 198  | 0  | 30         | Phase B Current THD                               | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02563                     | 199  | 0  | 30         | Phase C Current THD                               | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02564                     | 200  | 0  | 30         | Phase A Current K-Factor                          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02565                     | 201  | 0  | 30         | Phase B Current K-Factor                          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| 02566                     | 202  | 0  | 30         | Phase C Current K-Factor                          | +327.67% / -327.68%       | 0.01%       | F10  | R   |
| Harmonic Time Stamp Block |      |    |            |   |                           |             |      |     |
| 02567-02570               | 203  | 0  | 50         | Phase A-N / Phase A-B Voltage Harmonic Time Stamp | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |
| 02571-02574               | 204  | 0  | 50         | Phase B-N / Phase B-C Voltage Harmonic Time Stamp | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |
| 02575-02578               | 205  | 0  | 50         | Phase C-N / Phase C-A Voltage Harmonic Time Stamp | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |
| 02579-02582               | 206  | 0  | 50         | Phase A Current Harmonic Time Stamp               | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |
| 02583-02586               | 207  | 0  | 50         | Phase B Current Harmonic Time Stamp               | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |
| 02587-02590               | 208  | 0  | 50         | Phase C Current Harmonic Time Stamp               | 12/31/9999 23:59:59.99    | 10 msec     | F3   | R   |

| Address                    | Line | Pt | DNP<br>Obj | Description   | Range                     | Units            | Type | R/W |
|----------------------------|------|----|------------|---|---------------------------|------------------|------|-----|
| Phase Angle Block          |      |    |            |   |                           |                  |      |     |
| 02591-02594                | 209  | 0  | 50         | Phase Angle Block Time Stamp                                  | 12/31/9999 23:59:59.99    | 10 msec          | F3   | R   |
| 02595                      | 210  | 0  | 30         | Phase Angle Phase A-N Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02596                      | 210  | 1  | 30         | Phase Angle Phase B-N Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02597                      | 210  | 2  | 30         | Phase Angle Phase C-N Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02598                      | 211  | 0  | 30         | Phase Angle Phase A Current                                   | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02599                      | 211  | 1  | 30         | Phase Angle Phase B Current                                   | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02600                      | 211  | 2  | 30         | Phase Angle Phase C Current                                   | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02601                      | 212  | 0  | 30         | Phase Angle Phase A-B Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02602                      | 212  | 1  | 30         | Phase Angle Phase B-C Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02603                      | 212  | 2  | 30         | Phase Angle Phase C-A Voltage                                 | +180 degree / -180 degree | 0.01 degree      | F9   | R   |
| 02604                      | 213  | 0  | 30         | Voltage Phase Sequence  |                           |                  | F13  | R   |
| Block Window Average Block |      |    |            |   |                           |                  |      |     |
| 02605-02608                | 214  | 0  | 50         | Block Window Average Block Time Stamp                         | 12/31/9999 23:59:59.99    | 10 msec          | F3   | R   |
| 02609                      | 215  | 0  | 30         | Block Window Average Status                                   |                           |                  | F14  | R   |
| 02610-02611                | 216  | 0  | 30         | Block Window Average VA                                       | +32767 VA / 0 VA          | 1/ 65536 VA sec  | F7   | R   |
| 02612-02613                | 216  | 1  | 30         | Block Window Average VAR                                      | +32767 VAR / -32768 VAR   | 1/ 65536 VAR sec | F7   | R   |
| 02614-02615                | 216  | 2  | 30         | Block Window Average Watt                                     | +32767 W / -32768 W       | 1/ 65536 W sec   | F7   | R   |
| 02616-02617                | 217  | 0  | 30         | Maximum Block Window Average VA                               | +32767 VA / 0 VA          | 1/ 65536 VA sec  | F7   | R   |
| 02618-02619                | 217  | 1  | 30         | Maximum Block Window Average Positive VAR                     | +32767 VAR / 0 VAR        | 1/ 65536 VAR sec | F7   | R   |
| 02620-02621                | 217  | 2  | 30         | Maximum Block Window Average Negative VAR                     | 0 VAR / -32768 VAR        | 1/ 65536 VAR sec | F7   | R   |
| 02622-02623                | 217  | 3  | 30         | Maximum Block Window Average Positive Watt                    | +32767 W / 0 W            | 1/ 65536 W sec   | F7   | R   |
| 02624-02625                | 217  | 4  | 30         | Maximum Block Window Average Negative Watt                    | 0 W / -32768 W            | 1/ 65536 W sec   | F7   | R   |
| 02626-02627                | 218  | 0  | 30         | Minimum Block Window Average VA                               | +32767 VA / 0 VA          | 1/ 65536 VA sec  | F7   | R   |
| 02628-02629                | 218  | 1  | 30         | Minimum Block Window Average Positive VAR                     | +32767 VAR / 0 VAR        | 1/ 65536 VAR sec | F7   | R   |
| 02630-02631                | 218  | 2  | 30         | Minimum Block Window Average Negative VAR                     | 0 VAR / -32768 VAR        | 1/ 65536 VAR sec | F7   | R   |
| 02632-02633                | 218  | 3  | 30         | Minimum Block Window Average Positive Watt                    | +32767 W / 0 W            | 1/ 65536 W sec   | F7   | R   |
| 02634-02635                | 218  | 4  | 30         | Minimum Block Window Average Negative Watt                    | 0 W / -32768 W            | 1/ 65536 W sec   | F7   | R   |
| 02636-02637                | 219  | 0  | 30         | Coincident Block Window Average VAR for Maximum Positive Watt | +32767 VAR / -32768 VAR   | 1/ 65536 VAR sec | F7   | R   |
| 02638-02639                | 219  | 1  | 30         | Coincident Block Window Average VAR for Maximum Negative Watt | +32767 VAR / -32768 VAR   | 1/ 65536 VAR sec | F7   | R   |
| 02640-02641                | 219  | 2  | 30         | Coincident Block Window Average VAR for Minimum Positive Watt | +32767 VAR / -32768 VAR   | 1/ 65536 VAR sec | F7   | R   |
| 02642-02643                | 219  | 3  | 30         | Coincident Block Window Average VAR for Minimum Negative Watt | +32767 VAR / -32768 VAR   | 1/ 65536 VAR sec | F7   | R   |
| 02644-02647                | 220  | 0  | 50         | Maximum Block Window Average VA Time Stamp                    | 12/31/9999 23:59:59.99    | 10 msec          | F3   | R   |

| Address  | Line | Pt | DNP<br>Obj | Description   | Range                   | Units            | Type | R/W |
|--|------|----|------------|---|-------------------------|------------------|------|-----|
| 02648-02651                                    | 220  | 1  | 50         | Maximum Block Window Average Positive VAR Time Stamp            | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02652-02655                                    | 220  | 2  | 50         | Maximum Block Window Average Negative VAR Time Stamp            | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02656-02659                                    | 220  | 3  | 50         | Maximum Block Window Average Positive Watt Time Stamp           | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02660-02663                                    | 220  | 4  | 50         | Maximum Block Window Average Negative Watt Time Stamp           | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02664-02667                                    | 221  | 0  | 50         | Minimum Block Window Average VA Time Stamp                      | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02668-02671                                    | 221  | 1  | 50         | Minimum Block Window Average Positive VAR Time Stamp            | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02672-02675                                    | 221  | 2  | 50         | Minimum Block Window Average Negative VAR Time Stamp            | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02676-02679                                    | 221  | 3  | 50         | Minimum Block Window Average Positive Watt Time Stamp           | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02680-02683                                    | 221  | 4  | 50         | Minimum Block Window Average Negative Watt Time Stamp           | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| Rolling Window/Predictive Rolling Window Block |      |    |            |   |                         |                  |      |     |
| 02684-02687                                    | 222  | 0  | 50         | Rolling Window Average Block Time Stamp                         | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |
| 02688  | 223  | 0  | 30         | Rolling Window Average Status                                   |                         |                  | F14  | R   |
| 02689-02690                                    | 224  | 0  | 30         | Predictive Rolling Window Average VA                            | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 02691-02692                                    | 224  | 1  | 30         | Predictive Rolling Window Average VAR                           | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02693-02694                                    | 224  | 2  | 30         | Predictive Rolling Window Average W                             | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 02695-02696                                    | 225  | 0  | 30         | Rolling Window Average VA                                       | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 02697-02698                                    | 225  | 1  | 30         | Rolling Window Average VAR                                      | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02699-02700                                    | 225  | 2  | 30         | Rolling Window Average W  | +32767 W / -32768 W     | 1/ 65536 W sec   | F7   | R   |
| 02701-02702                                    | 226  | 0  | 30         | Maximum Rolling Window Average VA                               | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 02703-02704                                    | 226  | 1  | 30         | Maximum Rolling Window Average Positive VAR                     | +32767 VAR / 0 VAR      | 1/ 65536 VAR sec | F7   | R   |
| 02705-02706                                    | 226  | 2  | 30         | Maximum Rolling Window Average Negative VAR                     | 0 VAR / -32768 VAR      | 1/ 65536 VAR sec | F7   | R   |
| 02707-02708                                    | 226  | 3  | 30         | Maximum Rolling Window Average Positive Watt                    | +32767 W / 0 W          | 1/ 65536 W sec   | F7   | R   |
| 02709-02710                                    | 226  | 4  | 30         | Maximum Rolling Window Average Negative Watt                    | 0 W / -32768 W          | 1/ 65536 W sec   | F7   | R   |
| 02711-02712                                    | 227  | 0  | 30         | Minimum Rolling Window Average VA                               | +32767 VA / 0 VA        | 1/ 65536 VA sec  | F7   | R   |
| 02713-02714                                    | 227  | 1  | 30         | Minimum Rolling Window Average Positive VAR                     | +32767 VAR / 0 VAR      | 1/ 65536 VAR sec | F7   | R   |
| 02715-02716                                    | 227  | 2  | 30         | Minimum Rolling Window Average Negative VAR                     | 0 VAR / -32768 VAR      | 1/ 65536 VAR sec | F7   | R   |
| 02717-02718                                    | 227  | 3  | 30         | Minimum Rolling Window Average Positive Watt                    | +32767 W / 0 W          | 1/ 65536 W sec   | F7   | R   |
| 02719-02720                                    | 227  | 4  | 30         | Minimum Rolling Window Average Negative Watt                    | 0 W / -32768 W          | 1/ 65536 W sec   | F7   | R   |
| 02721-02722                                    | 228  | 0  | 30         | Coincident Rolling Window Average VAR for Maximum Positive Watt | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02723-02724                                    | 228  | 1  | 30         | Coincident Rolling Window Average VAR for Maximum Negative Watt | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02725-02726                                    | 228  | 2  | 30         | Coincident Rolling Window Average VAR for Minimum Positive Watt | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02727-02728                                    | 228  | 3  | 30         | Coincident Rolling Window Average VAR for Minimum Negative Watt | +32767 VAR / -32768 VAR | 1/ 65536 VAR sec | F7   | R   |
| 02729-02732                                    | 229  | 0  | 50         | Maximum Rolling Window Average VA Time Stamp                    | 12/31/9999 23:59:59.99  | 10 msec          | F3   | R   |

| Address             | Line | Pt    | DNP<br>Obj | Description   | Range                  | Units   | Type | R/W |
|---------------------|------|-------|------------|---|------------------------|---------|------|-----|
| 02733-02736         | 229  | 1     | 50         | Maximum Rolling Window Average Positive VAR Time Stamp  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02737-02740         | 229  | 2     | 50         | Maximum Rolling Window Average Negative VAR Time Stamp  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02741-02744         | 229  | 3     | 50         | Maximum Rolling Window Average Positive Watt Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02745-02748         | 229  | 4     | 50         | Maximum Rolling Window Average Negative Watt Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02749-02752         | 230  | 0     | 50         | Minimum Rolling Window Average VA Time Stamp            | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02753-02756         | 230  | 1     | 50         | Minimum Rolling Window Average Positive VAR Time Stamp  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02757-02760         | 230  | 2     | 50         | Minimum Rolling Window Average Negative VAR Time Stamp  | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02761-02764         | 230  | 3     | 50         | Minimum Rolling Window Average Positive Watt Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 02765-02768         | 230  | 4     | 50         | Minimum Rolling Window Average Negative Watt Time Stamp | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| Limit Block         |      |       |            |   |                        |         |      |     |
| 02769               | 231  | 0-15  | 1          | Limit States, Value 1 Comparisons, 1-16                 |                        |         | F15  | R   |
| 02770               | 231  | 16-31 | 1          | Limit States, Value 1 Comparisons, 17-32                |                        |         | F15  | R   |
| 02771               | 232  | 0-15  | 1          | Limit States, Value 2 Comparisons, 1-16                 |                        |         | F15  | R   |
| 02772               | 232  | 16-31 | 1          | Limit States, Value 2 Comparisons, 17-32                |                        |         | F15  | R   |
| 02773               | 233  | 0-7   | 1          | Low Speed (Internal) Inputs                             |                        |         | F16  | R   |
| Digital Input Block |      |       |            |   |                        |         |      |     |
| 02774               | 234  | 0-7   | 1          | Digital Input States, Module 1                          |                        |         | F17  | R   |
| 02775-02776         | 235  | 0     | 20         | Digital Input Accumulation 1, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02777-02778         | 235  | 1     | 20         | Digital Input Accumulation 2, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02779-02780         | 235  | 2     | 20         | Digital Input Accumulation 3, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02781-02782         | 235  | 3     | 20         | Digital Input Accumulation 4, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02783-02784         | 235  | 4     | 20         | Digital Input Accumulation 5, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02785-02786         | 235  | 5     | 20         | Digital Input Accumulation 6, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02787-02788         | 235  | 6     | 20         | Digital Input Accumulation 7, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02789-02790         | 235  | 7     | 20         | Digital Input Accumulation 8, Module 1                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02791               | 236  | 0-7   | 1          | Digital Input States, Module 2                          |                        |         | F17  | R   |
| 02792-02793         | 237  | 0     | 20         | Digital Input Accumulation 1, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02794-02795         | 237  | 1     | 20         | Digital Input Accumulation 2, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02796-02797         | 237  | 2     | 20         | Digital Input Accumulation 3, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02798-02799         | 237  | 3     | 20         | Digital Input Accumulation 4, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02800-02801         | 237  | 4     | 20         | Digital Input Accumulation 5, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02802-02803         | 237  | 5     | 20         | Digital Input Accumulation 6, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |
| 02804-02805         | 237  | 6     | 20         | Digital Input Accumulation 7, Module 2                  | 4,294,967,295 / 0      |         | F18  | R   |

| Address                    | Line | Pt  | DNP Obj | Description                            | Range                                | Units              | Type | R/W |
|----------------------------|------|-----|---------|--|--------------------------------------|--------------------|------|-----|
| 02806-02807                | 237  | 7   | 20      | Digital Input Accumulation 8, Module 2 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02808                      | 238  | 0-7 | 1       | Digital Input States, Module 3         |                                      |                    | F17  | R   |
| 02809-02810                | 239  | 0   | 20      | Digital Input Accumulation 1, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02811-02812                | 239  | 1   | 20      | Digital Input Accumulation 2, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02813-02814                | 239  | 2   | 20      | Digital Input Accumulation 3, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02815-02816                | 239  | 3   | 20      | Digital Input Accumulation 4, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02817-02818                | 239  | 4   | 20      | Digital Input Accumulation 5, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02819-02820                | 239  | 5   | 20      | Digital Input Accumulation 6, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02821-02822                | 239  | 6   | 20      | Digital Input Accumulation 7, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02823-02824                | 239  | 7   | 20      | Digital Input Accumulation 8, Module 3 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02825                      | 240  | 0-7 | 1       | Digital Input States, Module 4         |                                      |                    | F17  | R   |
| 02826-02827                | 241  | 0   | 20      | Digital Input Accumulation 1, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02828-02829                | 241  | 1   | 20      | Digital Input Accumulation 2, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02830-02831                | 241  | 2   | 20      | Digital Input Accumulation 3, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02832-02833                | 241  | 3   | 20      | Digital Input Accumulation 4, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02834-02835                | 241  | 4   | 20      | Digital Input Accumulation 5, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02836-02837                | 241  | 5   | 20      | Digital Input Accumulation 6, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02838-02839                | 241  | 6   | 20      | Digital Input Accumulation 7, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| 02840-02841                | 241  | 7   | 20      | Digital Input Accumulation 8, Module 4 | 4,294,967,295 / 0                    |                    | F18  | R   |
| Primary Accumulation Block |      |     |         |  |                                      |                    |      |     |
| 02842-02845                | 242  | 0   | 50      | Primary Accumulation Block Time Stamp  | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 02846-02849                | 243  | 0   | 20      | Wathour (Quadrant 1 + 4)               | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F19  | R   |
| 02850-02853                | 243  | 1   | 20      | VAhour (Quadrant 1)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 02854-02857                | 243  | 2   | 20      | VARhour (Quadrant 1)                   | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 02858-02861                | 243  | 3   | 20      | Vahour (Quadrant 4)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 02862-02865                | 243  | 4   | 20      | VARhour (Quadrant 4)                   | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 02866-02869                | 243  | 5   | 20      | Wathour (Quadrant 2 + 3)               | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F19  | R   |
| 02870-02873                | 243  | 6   | 20      | VAhour (Quadrant 2)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 02874-02877                | 243  | 7   | 20      | VARhour (Quadrant 2)                   | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 02878-02881                | 243  | 8   | 20      | Vahour (Quadrant 3)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 02882-02885                | 243  | 9   | 20      | VARhour (Quadrant 3)                   | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 02886-02889                | 244  | 0   | 20      | Wathour (Quadrant 1 + 4)               | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 02890-02893                | 244  | 1   | 20      | VAhour (Quadrant 1)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description                                       | Range                                       | Units              | Type | R/W |
|-------------------------------------|------|----|------------|---|---|--------------------|------|-----|
| 02894-02897                         | 244  | 2  | 20         | VARhour (Quadrant 1)                              | +9,999,999,999,999,999 VAh / 0 VAh          | 1 VA <sub>H</sub>  | F20  | R   |
| 02898-02901                         | 244  | 3  | 20         | Vahour (Quadrant 4)                               | +9,999,999,999,999,999 VAh / 0 VAh          | 1 VA <sub>H</sub>  | F20  | R   |
| 02902-02905                         | 244  | 4  | 20         | VARhour (Quadrant 4)                              | 0 VARh / -9,999,999,999,999,999 VARh        | 1 VAR <sub>H</sub> | F20  | R   |
| 02906-02909                         | 244  | 5  | 20         | Wathour (Quadrant 2 + 3)                          | 0 Wh / -9,999,999,999,999,999 Wh            | 1 W <sub>H</sub>   | F20  | R   |
| 02910-02913                         | 244  | 6  | 20         | VAhour (Quadrant 2)                               | +9,999,999,999,999,999 VAh / 0 VAh          | 1 VA <sub>H</sub>  | F20  | R   |
| 02914-02917                         | 244  | 7  | 20         | VARhour (Quadrant 2)                              | +9,999,999,999,999,999 VARh / 0 VARh        | 1 VAR <sub>H</sub> | F20  | R   |
| 02918-02921                         | 244  | 8  | 20         | Vahour (Quadrant 3)                               | +9,999,999,999,999,999 VAh / 0 VAh          | 1 VA <sub>H</sub>  | F20  | R   |
| 02922-02925                         | 244  | 9  | 20         | VARhour (Quadrant 3)                              | 0 VARh / -9,999,999,999,999,999 VARh        | 1 VAR <sub>H</sub> | F20  | R   |
| 02926-02929                         | 245  | 0  | 20         | I <sup>2</sup> t Phase A                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F19  | R   |
| 02930-02933                         | 245  | 1  | 20         | I <sup>2</sup> t Phase B                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F19  | R   |
| 02934-02937                         | 245  | 2  | 20         | I <sup>2</sup> t Phase C                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F19  | R   |
| 02938-02941                         | 245  | 3  | 20         | V <sup>2</sup> t Phase A                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F19  | R   |
| 02942-02945                         | 245  | 4  | 20         | V <sup>2</sup> t Phase B                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F19  | R   |
| 02946-02949                         | 245  | 5  | 20         | V <sup>2</sup> t Phase C                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F19  | R   |
| 02950-02953                         | 246  | 0  | 20         | I <sup>2</sup> t Phase A                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F20  | R   |
| 02954-02957                         | 246  | 1  | 20         | I <sup>2</sup> t Phase B                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F20  | R   |
| 02958-02961                         | 246  | 2  | 20         | I <sup>2</sup> t Phase C                          | +9,999,999,999,999,999 I <sup>2</sup> t / 0 | 1 I <sup>2</sup> t | F20  | R   |
| 02962-02965                         | 246  | 3  | 20         | V <sup>2</sup> t Phase A                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F20  | R   |
| 02966-02969                         | 246  | 4  | 20         | V <sup>2</sup> t Phase B                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F20  | R   |
| 02970-02973                         | 246  | 5  | 20         | V <sup>2</sup> t Phase C                          | +9,999,999,999,999,999 V <sup>2</sup> t / 0 | 1 V <sup>2</sup> t | F20  | R   |
| Time of Use Period Time Stamp Block |      |    |            |   |   |                    |      |     |
| 02974                               | 247  | 0  | 30         | Time of Use Status                                |   |                    | F14  | R   |
| 02975-02978                         | 248  | 0  | 50         | Time of Use Frozen Start Time                     | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02979-02982                         | 248  | 1  | 50         | Time of Use Frozen End Time                       | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02983-02986                         | 248  | 2  | 50         | Time of Use Prior Month Start Time                | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02987-02990                         | 248  | 3  | 50         | Time of Use Prior Month End Time                  | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02991-02994                         | 248  | 4  | 50         | Time of Use Active Start Time                     | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02995-02998                         | 248  | 5  | 50         | Time of Use Active End Time                       | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 02999-03002                         | 248  | 6  | 50         | Time of Use Current Month Start Time              | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 03003-03006                         | 248  | 7  | 50         | Time of Use Current Month End Time                | 12/31/9999 23:59:59.99                      | 10 msec            | F3   | R   |
| 03007                               | 249  | 0  | 30         | Time of Use Frozen / Prior Month Average Select   |   |                    |      |     |
| 03008                               | 249  | 1  | 30         | Time of Use Active / Current Month Average Select |   |                    |      |     |
| 03009-03010                         | 250  | 0  | 30         | Time of Use Frozen CT Ratio Numerator             |   |                    |      |     |



| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03011-03012                         | 250  | 1  | 30         | Time of Use Frozen CT Ratio Denominator                            |                                      |                    |      |     |
| 03013-03014                         | 250  | 2  | 30         | Time of Use Frozen PT Ratio Numerator                              |                                      |                    |      |     |
| 03015-03016                         | 250  | 3  | 30         | Time of Use Frozen PT Ratio Denominator                            |                                      |                    |      |     |
| 03017-03018                         | 250  | 4  | 30         | Time of Use Prior Month CT Ratio Numerator                         |                                      |                    |      |     |
| 03019-03020                         | 250  | 5  | 30         | Time of Use Prior Month CT Ratio Denominator                       |                                      |                    |      |     |
| 03021-03022                         | 250  | 6  | 30         | Time of Use Prior Month PT Ratio Numerator                         |                                      |                    |      |     |
| 03023-03024                         | 250  | 7  | 30         | Time of Use Prior Month PT Ratio Denominator                       |                                      |                    |      |     |
| 03025-03026                         | 250  | 8  | 30         | Time of Use Active CT Ratio Numerator                              |                                      |                    |      |     |
| 03027-03028                         | 250  | 9  | 30         | Time of Use Active CT Ratio Denominator                            |                                      |                    |      |     |
| 03029-03030                         | 250  | 10 | 30         | Time of Use Active PT Ratio Numerator                              |                                      |                    |      |     |
| 03031-03032                         | 250  | 11 | 30         | Time of Use Active PT Ratio Denominator                            |                                      |                    |      |     |
| 03033-03034                         | 250  | 12 | 30         | Time of Use Current Month CT Ratio Numerator                       |                                      |                    |      |     |
| 03035-03036                         | 250  | 13 | 30         | Time of Use Current Month CT Ratio Denominator                     |                                      |                    |      |     |
| 03037-03038                         | 250  | 14 | 30         | Time of Use Current Month PT Ratio Numerator                       |                                      |                    |      |     |
| 03039-03040                         | 250  | 15 | 30         | Time of Use Current Month PT Ratio Denominator                     |                                      |                    |      |     |
| Time of Use Frozen Register 1 Block |      |    |            |  |                                      |                    |      |     |
| 03041-03044                         | 251  | 0  | 20         | obsolete-TOU Frozen Reg 1 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03045-03048                         | 251  | 1  | 20         | obsolete-TOU Frozen Reg 1 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03049-03052                         | 251  | 2  | 20         | obsolete-TOU Frozen Reg 1 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03053-03056                         | 251  | 3  | 20         | obsolete-TOU Frozen Reg 1 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03057-03060                         | 251  | 4  | 20         | obsolete-TOU Frozen Reg 1 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03061-03064                         | 251  | 5  | 20         | obsolete-TOU Frozen Reg 1 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03065-03068                         | 251  | 6  | 20         | obsolete-TOU Frozen Reg 1 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03069-03072                         | 251  | 7  | 20         | obsolete-TOU Frozen Reg 1 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03073-03076                         | 251  | 8  | 20         | obsolete-TOU Frozen Reg 1 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03077-03080                         | 251  | 9  | 20         | obsolete-TOU Frozen Reg 1 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03081-03082                         | 252  | 0  | 30         | TOU Frozen Reg 1 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03083-03084                         | 252  | 1  | 30         | TOU Frozen Reg 1 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03085-03086                         | 252  | 2  | 30         | TOU Frozen Reg 1 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03087-03088                         | 252  | 3  | 30         | TOU Frozen Reg 1 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03089-03090                         | 253  | 0  | 30         | TOU Frozen Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03091-03092                         | 253  | 1  | 30         | TOU Frozen Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2+3)   | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03093-03096                         | 254  | 0  | 50         | TOU Frozen Reg 1 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03097-03100                         | 254  | 1  | 50         | TOU Frozen Reg 1 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03101-03104                         | 254  | 2  | 50         | TOU Frozen Reg 1 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03105-03108                         | 254  | 3  | 50         | TOU Frozen Reg 1 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Register 2 Block |      |    |            |  |                                      |                    |      |     |
| 03109-03112                         | 255  | 0  | 20         | obsolete-TOU Frozen Reg 2 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03113-03116                         | 255  | 1  | 20         | obsolete-TOU Frozen Reg 2 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03117-03120                         | 255  | 2  | 20         | obsolete-TOU Frozen Reg 2 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03121-03124                         | 255  | 3  | 20         | obsolete-TOU Frozen Reg 2 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03125-03128                         | 255  | 4  | 20         | obsolete-TOU Frozen Reg 2 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03129-03132                         | 255  | 5  | 20         | obsolete-TOU Frozen Reg 2 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03133-03136                         | 255  | 6  | 20         | obsolete-TOU Frozen Reg 2 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03137-03140                         | 255  | 7  | 20         | obsolete-TOU Frozen Reg 2 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03141-03144                         | 255  | 8  | 20         | obsolete-TOU Frozen Reg 2 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03145-03148                         | 255  | 9  | 20         | obsolete-TOU Frozen Reg 2 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03149-03150                         | 256  | 0  | 30         | TOU Frozen Reg 2 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03151-03152                         | 256  | 1  | 30         | TOU Frozen Reg 2 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03153-03154                         | 256  | 2  | 30         | TOU Frozen Reg 2 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03155-03156                         | 256  | 3  | 30         | TOU Frozen Reg 2 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03157-03158                         | 257  | 0  | 30         | TOU Frozen Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03159-03160                         | 257  | 1  | 30         | TOU Frozen Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03161-03164                         | 258  | 0  | 50         | TOU Frozen Reg 2 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03165-03168                         | 258  | 1  | 50         | TOU Frozen Reg 2 Peak Demand Del. Watt (Q 2 + 3) Time Stamp        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03169-03172                         | 258  | 2  | 50         | TOU Frozen Reg 2 Peak Demand Rec. VAR (Q 1 + 2) Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03173-03176                         | 258  | 3  | 50         | TOU Frozen Reg 2 Peak Demand Del. VAR (Q 3 + 4) Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Reg 3 Block      |      |    |            |  |                                      |                    |      |     |
| 03177-03180                         | 259  | 0  | 20         | obsolete-TOU Frozen Reg 3 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03181-03184                         | 259  | 1  | 20         | obsolete-TOU Frozen Reg 3 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03185-03188                         | 259  | 2  | 20         | obsolete-TOU Frozen Reg 3 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03189-03192                         | 259  | 3  | 20         | obsolete-TOU Frozen Reg 3 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03193-03196                         | 259  | 4  | 20         | obsolete-TOU Frozen Reg 3 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03197-03200                         | 259  | 5  | 20         | obsolete-TOU Frozen Reg 3 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03201-03204                         | 259  | 6  | 20         | obsolete-TOU Frozen Reg 3 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03205-03208                         | 259  | 7  | 20         | obsolete-TOU Frozen Reg 3 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description   | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|---|--------------------------------------|--------------------|------|-----|
| 03209-03212                    | 259  | 8  | 20         | obsolete-TOU Frozen Reg 3 VAhour (Quadrant 3)                     | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03213-03216                    | 259  | 9  | 20         | obsolete-TOU Frozen Reg 3 VARhour (Quadrant 3)                    | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03217-03218                    | 260  | 0  | 30         | TOU Frozen Reg 3 Peak Demand Watt (Quadrant 1 + 4)                | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03219-03220                    | 260  | 1  | 30         | TOU Frozen Reg 3 Peak Demand Watt (Quadrant 2 + 3)                | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03221-03222                    | 260  | 2  | 30         | TOU Frozen Reg 3 Peak Demand VAR (Quadrant 1 + 2)                 | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03223-03224                    | 260  | 3  | 30         | TOU Frozen Reg 3 Peak Demand VAR (Quadrant 3 + 4)                 | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03225-03226                    | 261  | 0  | 30         | TOU Frozen Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 +4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03227-03228                    | 261  | 1  | 30         | TOU Frozen Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 +3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03229-03232                    | 262  | 0  | 50         | TOU Frozen Reg 3 Peak Demand Watt (Q 1 + 4) Time Stamp            | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03233-03236                    | 262  | 1  | 50         | TOU Frozen Reg 3 Peak Demand Watt (Q 2 + 3) Time Stamp            | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03237-03240                    | 262  | 2  | 50         | TOU Frozen Reg 3 Peak Demand VAR (Q 1 + 2) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03241-03244                    | 262  | 3  | 50         | TOU Frozen Reg 3 Peak Demand VAR (Q 3 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Reg 4 Block |      |    |            |   |                                      |                    |      |     |
| 03245-03248                    | 263  | 0  | 20         | obsolete-TOU Frozen Reg 4 Received (Quadrant 1 + 4)               | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03249-03252                    | 263  | 1  | 20         | obsolete-TOU Frozen Reg 4 VAhour (Quadrant 1)                     | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03253-03256                    | 263  | 2  | 20         | obsolete-TOU Frozen Reg 4 VARhour (Quadrant 1)                    | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03257-03260                    | 263  | 3  | 20         | obsolete-TOU Frozen Reg 4 VAhour (Quadrant 4)                     | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03261-03264                    | 263  | 4  | 20         | obsolete-TOU Frozen Reg 4 VARhour (Quadrant 4)                    | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03265-03268                    | 263  | 5  | 20         | obsolete-TOU Frozen Reg 4 Watthour (Quadrant 2 + 3)               | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03269-03272                    | 263  | 6  | 20         | obsolete-TOU Frozen Reg 4 VAhour (Quadrant 2)                     | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03273-03276                    | 263  | 7  | 20         | obsolete-TOU Frozen Reg 4 VARhour (Quadrant 2)                    | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03277-03280                    | 263  | 8  | 20         | obsolete-TOU Frozen Reg 4 VAhour (Quadrant 3)                     | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03281-03284                    | 263  | 9  | 20         | obsolete-TOU Frozen Reg 4 VARhour (Quadrant 3)                    | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03285-03286                    | 264  | 0  | 30         | TOU Frozen Reg 4 Peak Demand Watt (Quadrant 1 + 4)                | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03287-03288                    | 264  | 1  | 30         | TOU Frozen Reg 4 Peak Demand Watt (Quadrant 2 + 3)                | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03289-03290                    | 264  | 2  | 30         | TOU Frozen Reg 4 Peak Demand VAR (Quadrant 1 + 2)                 | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03291-03292                    | 264  | 3  | 30         | TOU Frozen Reg 4 Peak Demand VAR (Quadrant 3 + 4)                 | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03293-03294                    | 265  | 0  | 30         | TOU Frozen Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 +4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03295-03296                    | 265  | 1  | 30         | TOU Frozen Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 +3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03297-03300                    | 266  | 0  | 50         | TOU Frozen Reg 4 Peak Demand Watt (Q 1 + 4) Time Stamp            | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03301-03304                    | 266  | 1  | 50         | TOU Frozen Reg 4 Peak Demand Watt (Q 2 + 3) Time Stamp            | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03305-03308                    | 266  | 2  | 50         | TOU Frozen Reg 4 Peak Demand VAR (Q 1 + 2) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03309-03312                    | 266  | 3  | 50         | TOU Frozen Reg 4 Peak Demand VAR (Q 3 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| Time of Use Frozen Reg 5 Block |      |    |            |  |                                      |                    |      |     |
| 03313-03316                    | 267  | 0  | 20         | obsolete-TOU Frozen Reg 5 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03317-03320                    | 267  | 1  | 20         | obsolete-TOU Frozen Reg 5 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03321-03324                    | 267  | 2  | 20         | obsolete-TOU Frozen Reg 5 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03325-03328                    | 267  | 3  | 20         | obsolete-TOU Frozen Reg 5 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03329-03332                    | 267  | 4  | 20         | obsolete-TOU Frozen Reg 5 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03333-03336                    | 267  | 5  | 20         | obsolete-TOU Frozen Reg 5 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03337-03340                    | 267  | 6  | 20         | obsolete-TOU Frozen Reg 5 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03341-03344                    | 267  | 7  | 20         | obsolete-TOU Frozen Reg 5 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03345-03348                    | 267  | 8  | 20         | obsolete-TOU Frozen Reg 5 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03349-03352                    | 267  | 9  | 20         | obsolete-TOU Frozen Reg 5 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03353-03354                    | 268  | 0  | 30         | TOU Frozen Reg 5 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03355-03356                    | 268  | 1  | 30         | TOU Frozen Reg 5 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03357-03358                    | 268  | 2  | 30         | TOU Frozen Reg 5 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03359-03360                    | 268  | 3  | 30         | TOU Frozen Reg 5 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03361-03362                    | 269  | 0  | 30         | TOU Frozen Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03363-03364                    | 269  | 1  | 30         | TOU Frozen Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03365-03368                    | 270  | 0  | 50         | TOU Frozen Reg 5 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03369-03372                    | 270  | 1  | 50         | TOU Frozen Reg 5 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03373-03376                    | 270  | 2  | 50         | TOU Frozen Reg 5 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03377-03380                    | 270  | 3  | 50         | TOU Frozen Reg 5 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Reg 6 Block |      |    |            |  |                                      |                    |      |     |
| 03381-03384                    | 271  | 0  | 20         | obsolete-TOU Frozen Reg 6 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03385-03388                    | 271  | 1  | 20         | obsolete-TOU Frozen Reg 6 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03389-03392                    | 271  | 2  | 20         | obsolete-TOU Frozen Reg 6 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03393-03396                    | 271  | 3  | 20         | obsolete-TOU Frozen Reg 6 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03397-03400                    | 271  | 4  | 20         | obsolete-TOU Frozen Reg 6 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03401-03404                    | 271  | 5  | 20         | obsolete-TOU Frozen Reg 6 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03405-03408                    | 271  | 6  | 20         | obsolete-TOU Frozen Reg 6 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03409-03412                    | 271  | 7  | 20         | obsolete-TOU Frozen Reg 6 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03413-03416                    | 271  | 8  | 20         | obsolete-TOU Frozen Reg 6 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03417-03420                    | 271  | 9  | 20         | obsolete-TOU Frozen Reg 6 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03421-03422                    | 272  | 0  | 30         | TOU Frozen Reg 6 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03423-03424                    | 272  | 1  | 30         | TOU Frozen Reg 6 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03425-03426                    | 272  | 2  | 30         | TOU Frozen Reg 6 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03427-03428                    | 272  | 3  | 30         | TOU Frozen Reg 6 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03429-03430                    | 273  | 0  | 30         | TOU Frozen Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03431-03432                    | 273  | 1  | 30         | TOU Frozen Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03433-03436                    | 274  | 0  | 50         | TOU Frozen Reg 6 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03437-03440                    | 274  | 1  | 50         | TOU Frozen Reg 6 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03441-03444                    | 274  | 2  | 50         | TOU Frozen Reg 6 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03445-03448                    | 274  | 3  | 50         | TOU Frozen Reg 6 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Reg 7 Block |      |    |            |  |                                      |                    |      |     |
| 03449-03452                    | 275  | 0  | 20         | obsolete-TOU Frozen Reg 7 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03453-03456                    | 275  | 1  | 20         | obsolete-TOU Frozen Reg 7 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03457-03460                    | 275  | 2  | 20         | obsolete-TOU Frozen Reg 7 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03461-03464                    | 275  | 3  | 20         | obsolete-TOU Frozen Reg 7 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03465-03468                    | 275  | 4  | 20         | obsolete-TOU Frozen Reg 7 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03469-03472                    | 275  | 5  | 20         | obsolete-TOU Frozen Reg 7 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03473-03476                    | 275  | 6  | 20         | obsolete-TOU Frozen Reg 7 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03477-03480                    | 275  | 7  | 20         | obsolete-TOU Frozen Reg 7 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03481-03484                    | 275  | 8  | 20         | obsolete-TOU Frozen Reg 7 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03485-03488                    | 275  | 9  | 20         | obsolete-TOU Frozen Reg 7 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03489-03490                    | 276  | 0  | 30         | TOU Frozen Reg 7 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03491-03492                    | 276  | 1  | 30         | TOU Frozen Reg 7 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03493-03494                    | 276  | 2  | 30         | TOU Frozen Reg 7 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03495-03496                    | 276  | 3  | 30         | TOU Frozen Reg 7 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03497-03498                    | 277  | 0  | 30         | TOU Frozen Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03499-03500                    | 277  | 1  | 30         | TOU Frozen Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03501-03504                    | 278  | 0  | 50         | TOU Frozen Reg 7 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03505-03508                    | 278  | 1  | 50         | TOU Frozen Reg 7 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03509-03512                    | 278  | 2  | 50         | TOU Frozen Reg 7 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03513-03516                    | 278  | 3  | 50         | TOU Frozen Reg 7 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Reg 8 Block |      |    |            |  |                                      |                    |      |     |
| 03517-03520                    | 279  | 0  | 20         | obsolete-TOU Frozen Reg 8 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03521-03524                    | 279  | 1  | 20         | obsolete-TOU Frozen Reg 8 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03525-03528                    | 279  | 2  | 20         | obsolete-TOU Frozen Reg 8 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03529-03532                    | 279  | 3  | 20         | obsolete-TOU Frozen Reg 8 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03533-03536                    | 279  | 4  | 20         | obsolete-TOU Frozen Reg 8 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03537-03540                    | 279  | 5  | 20         | obsolete-TOU Frozen Reg 8 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03541-03544                    | 279  | 6  | 20         | obsolete-TOU Frozen Reg 8 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03545-03548                    | 279  | 7  | 20         | obsolete-TOU Frozen Reg 8 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03549-03552                    | 279  | 8  | 20         | obsolete-TOU Frozen Reg 8 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03553-03556                    | 279  | 9  | 20         | obsolete-TOU Frozen Reg 8 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03557-03558                    | 280  | 0  | 30         | TOU Frozen Reg 8 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03559-03560                    | 280  | 1  | 30         | TOU Frozen Reg 8 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03561-03562                    | 280  | 2  | 30         | TOU Frozen Reg 8 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03563-03564                    | 280  | 3  | 30         | TOU Frozen Reg 8 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03565-03566                    | 281  | 0  | 30         | TOU Frozen Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03567-03568                    | 281  | 1  | 30         | TOU Frozen Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03569-03572                    | 282  | 0  | 50         | TOU Frozen Reg 8 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03573-03576                    | 282  | 1  | 50         | TOU Frozen Reg 8 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03577-03580                    | 282  | 2  | 50         | TOU Frozen Reg 8 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03581-03584                    | 282  | 3  | 50         | TOU Frozen Reg 8 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Total Block |      |    |            |  |                                      |                    |      |     |
| 03585-03588                    | 283  | 0  | 20         | obsolete-TOU Frozen Total Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03589-03592                    | 283  | 1  | 20         | obsolete-TOU Frozen Total VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03593-03596                    | 283  | 2  | 20         | obsolete-TOU Frozen Total VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03597-03600                    | 283  | 3  | 20         | obsolete-TOU Frozen Total VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03601-03604                    | 283  | 4  | 20         | obsolete-TOU Frozen Total VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03605-03608                    | 283  | 5  | 20         | obsolete-TOU Frozen Total Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03609-03612                    | 283  | 6  | 20         | obsolete-TOU Frozen Total VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03613-03616                    | 283  | 7  | 20         | obsolete-TOU Frozen Total VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03617-03620                    | 283  | 8  | 20         | obsolete-TOU Frozen Total VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03621-03624                    | 283  | 9  | 20         | obsolete-TOU Frozen Total VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03625-03626                    | 284  | 0  | 30         | TOU Frozen Total Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03627-03628                    | 284  | 1  | 30         | TOU Frozen Total Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03629-03630                    | 284  | 2  | 30         | TOU Frozen Total Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03631-03632                    | 284  | 3  | 30         | TOU Frozen Total Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03633-03634                         | 285  | 0  | 30         | TOU Frozen Total Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03635-03636                         | 285  | 1  | 30         | TOU Frozen Total Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03637-03640                         | 286  | 0  | 50         | TOU Frozen Total Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03641-03644                         | 286  | 1  | 50         | TOU Frozen Total Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03645-03648                         | 286  | 2  | 50         | TOU Frozen Total Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03649-03652                         | 286  | 3  | 50         | TOU Frozen Total Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 1 Block |      |    |            |  |                                      |                    |      |     |
| 03653-03656                         | 287  | 0  | 20         | obsolete-TOU Prior Month Reg 1 Watthour (Quadrant 1 + 4)           | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03657-03660                         | 287  | 1  | 20         | obsolete-TOU Prior Month Reg 1 VAhour (Quadrant 1)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03661-03664                         | 287  | 2  | 20         | obsolete-TOU Prior Month Reg 1 VARhour (Quadrant 1)                | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03665-03668                         | 287  | 3  | 20         | obsolete-TOU Prior Month Reg 1 VAhour (Quadrant 4)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03669-03672                         | 287  | 4  | 20         | obsolete-TOU Prior Month Reg 1 VARhour (Quadrant 4)                | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03673-03676                         | 287  | 5  | 20         | obsolete-TOU Prior Month Reg 1 Watthour (Quadrant 2 + 3)           | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03677-03680                         | 287  | 6  | 20         | obsolete-TOU Prior Month Reg 1 VAhour (Quadrant 2)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03681-03684                         | 287  | 7  | 20         | obsolete-TOU Prior Month Reg 1 VARhour (Quadrant 2)                | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03685-03688                         | 287  | 8  | 20         | obsolete-TOU Prior Month Reg 1 VAhour (Quadrant 3)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03689-03692                         | 287  | 9  | 20         | obsolete-TOU Prior Month Reg 1 VARhour (Quadrant 3)                | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03693-03694                         | 288  | 0  | 30         | TOU Prior Month Reg 1 Peak Demand Watt (Quadrant 1 + 4)            | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03695-03696                         | 288  | 1  | 30         | TOU Prior Month Reg 1 Peak Demand Watt (Quadrant 2 + 3)            | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03697-03698                         | 288  | 2  | 30         | TOU Prior Month Reg 1 Peak Demand VAR (Quadrant 1 + 2)             | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03699-03700                         | 288  | 3  | 30         | TOU Prior Month Reg 1 Peak Demand VAR (Quadrant 3 + 4)             | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03701-03702                         | 289  | 0  | 30         | TOU Prior Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1+4)     | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03703-03704                         | 289  | 1  | 30         | TOU Prior Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2+3)     | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03705-03708                         | 290  | 0  | 50         | TOU Prior Month Reg 1 Peak Demand Watt (Q 1 + 4) Time Stamp        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03709-03712                         | 290  | 1  | 50         | TOU Prior Month Reg 1 Peak Demand Watt (Q 2 + 3) Time Stamp        | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03713-03716                         | 290  | 2  | 50         | TOU Prior Month Reg 1 Peak Demand VAR (Q 1 + 2) Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03717-03720                         | 290  | 3  | 50         | TOU Prior Month Reg 1 Peak Demand VAR (Q 3 + 4) Time Stamp         | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 2 Block |      |    |            |  |                                      |                    |      |     |
| 03721-03724                         | 291  | 0  | 20         | obsolete-TOU Prior Month Reg 2 Watthour (Quadrant 1 + 4)           | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03725-03728                         | 291  | 1  | 20         | obsolete-TOU Prior Month Reg 2 VAhour (Quadrant 1)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03729-03732                         | 291  | 2  | 20         | obsolete-TOU Prior Month Reg 2 VARhour (Quadrant 1)                | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03733-03736                         | 291  | 3  | 20         | obsolete-TOU Prior Month Reg 2 VAhour (Quadrant 4)                 | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03737-03740                         | 291  | 4  | 20         | obsolete-TOU Prior Month Reg 2 VARhour (Quadrant 4)                | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                                    | Line | Pt | DNP<br>Obj | Description  | Range                            | Units              | Type | R/W |
|--|------|----|------------|--|----------------------------------|--------------------|------|-----|
| 03741-03744                                | 291  | 5  | 20         | obsolete-TOU Prior Month Reg 2 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03745-03748                                | 291  | 6  | 20         | obsolete-TOU Prior Month Reg 2 VAhour (Quadrant 2)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03749-03752                                | 291  | 7  | 20         | obsolete-TOU Prior Month Reg 2 VARhour (Quadrant 2)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03753-03756                                | 291  | 8  | 20         | obsolete-TOU Prior Month Reg 2 VAhour (Quadrant 3)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03757-03760                                | 291  | 9  | 20         | obsolete-TOU Prior Month Reg 2 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03761-03762                                | 292  | 0  | 30         | TOU Prior Month Reg 2 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 03763-03764                                | 292  | 1  | 30         | TOU Prior Month Reg 2 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 03765-03766                                | 292  | 2  | 30         | TOU Prior Month Reg 2 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03767-03768                                | 292  | 3  | 30         | TOU Prior Month Reg 2 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03769-03770                                | 293  | 0  | 30         | TOU Prior Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 03771-03772                                | 293  | 1  | 30         | TOU Prior Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 03773-03776                                | 294  | 0  | 50         | TOU Prior Month Reg 2 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 03777-03780                                | 294  | 1  | 50         | TOU Prior Month Reg 2 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 03781-03784                                | 294  | 2  | 50         | TOU Prior Month Reg 2 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 03785-03788                                | 294  | 3  | 50         | TOU Prior Month Reg 2 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| <b>Time of Use Prior Month Reg 3 Block</b> |      |    |            |  |                                  |                    |      |     |
| 03789-03792                                | 295  | 0  | 20         | obsolete-TOU Prior Month Reg 3 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03793-03796                                | 295  | 1  | 20         | obsolete-TOU Prior Month Reg 3 VAhour (Quadrant 1)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03797-03800                                | 295  | 2  | 20         | obsolete-TOU Prior Month Reg 3 VARhour (Quadrant 1)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03801-03804                                | 295  | 3  | 20         | obsolete-TOU Prior Month Reg 3 VAhour (Quadrant 4)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03805-03808                                | 295  | 4  | 20         | obsolete-TOU Prior Month Reg 3 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03809-03812                                | 295  | 5  | 20         | obsolete-TOU Prior Month Reg 3 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03813-03816                                | 295  | 6  | 20         | obsolete-TOU Prior Month Reg 3 VAhour (Quadrant 2)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03817-03720                                | 295  | 7  | 20         | obsolete-TOU Prior Month Reg 3 VARhour (Quadrant 2)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03821-03824                                | 295  | 8  | 20         | obsolete-TOU Prior Month Reg 3 VAhour (Quadrant 3)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03825-03828                                | 295  | 9  | 20         | obsolete-TOU Prior Month Reg 3 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03829-03830                                | 296  | 0  | 30         | TOU Prior Month Reg 3 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 03831-03832                                | 296  | 1  | 30         | TOU Prior Month Reg 3 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 03833-03834                                | 296  | 2  | 30         | TOU Prior Month Reg 3 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03835-03836                                | 296  | 3  | 30         | TOU Prior Month Reg 3 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03837-03838                                | 297  | 0  | 30         | TOU Prior Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 03839-03840                                | 297  | 1  | 30         | TOU Prior Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 03841-03844                                | 298  | 0  | 50         | TOU Prior Month Reg 3 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |



| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03845-03848                         | 298  | 1  | 50         | TOU Prior Month Reg 3 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03849-03852                         | 298  | 2  | 50         | TOU Prior Month Reg 3 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03853-03856                         | 298  | 3  | 50         | TOU Prior Month Reg 3 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 4 Block |      |    |            |  |                                      |                    |      |     |
| 03857-03860                         | 299  | 0  | 20         | obsolete-TOU Prior Month Reg 4 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03861-03864                         | 299  | 1  | 20         | obsolete-TOU Prior Month Reg 4 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03865-03868                         | 299  | 2  | 20         | obsolete-TOU Prior Month Reg 4 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03869-03872                         | 299  | 3  | 20         | obsolete-TOU Prior Month Reg 4 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03873-03876                         | 299  | 4  | 20         | obsolete-TOU Prior Month Reg 4 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03877-03880                         | 299  | 5  | 20         | obsolete-TOU Prior Month Reg 4 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03881-03884                         | 299  | 6  | 20         | obsolete-TOU Prior Month Reg 4 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03885-03888                         | 299  | 7  | 20         | obsolete-TOU Prior Month Reg 4 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03889-03892                         | 299  | 8  | 20         | obsolete-TOU Prior Month Reg 4 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03893-03896                         | 299  | 9  | 20         | obsolete-TOU Prior Month Reg 4 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03897-03898                         | 300  | 0  | 30         | TOU Prior Month Reg 4 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03899-03900                         | 300  | 1  | 30         | TOU Prior Month Reg 4 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03901-03902                         | 300  | 2  | 30         | TOU Prior Month Reg 4 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03903-03904                         | 300  | 3  | 30         | TOU Prior Month Reg 4 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03905-03906                         | 301  | 0  | 30         | TOU Prior Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03907-03908                         | 301  | 1  | 30         | TOU Prior Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03909-03912                         | 302  | 0  | 50         | TOU Prior Month Reg 4 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03913-03916                         | 302  | 1  | 50         | TOU Prior Month Reg 4 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03917-03920                         | 302  | 2  | 50         | TOU Prior Month Reg 4 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03921-03924                         | 302  | 3  | 50         | TOU Prior Month Reg 4 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 5 Block |      |    |            |  |                                      |                    |      |     |
| 03925-03928                         | 303  | 0  | 20         | obsolete-TOU Prior Month Reg 5 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03929-03932                         | 303  | 1  | 20         | obsolete-TOU Prior Month Reg 5 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03933-03936                         | 303  | 2  | 20         | obsolete-TOU Prior Month Reg 5 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03937-03940                         | 303  | 3  | 20         | obsolete-TOU Prior Month Reg 5 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03941-03944                         | 303  | 4  | 20         | obsolete-TOU Prior Month Reg 5 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03945-03948                         | 303  | 5  | 20         | obsolete-TOU Prior Month Reg 5 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03949-03852                         | 303  | 6  | 20         | obsolete-TOU Prior Month Reg 5 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03953-03956                         | 303  | 7  | 20         | obsolete-TOU Prior Month Reg 5 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 03957-03960                         | 303  | 8  | 20         | obsolete-TOU Prior Month Reg 5 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 03961-03964                         | 303  | 9  | 20         | obsolete-TOU Prior Month Reg 5 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 03965-03966                         | 304  | 0  | 30         | TOU Prior Month Reg 5 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03967-03968                         | 304  | 1  | 30         | TOU Prior Month Reg 5 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 03969-03970                         | 304  | 2  | 30         | TOU Prior Month Reg 5 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03971-03972                         | 304  | 3  | 30         | TOU Prior Month Reg 5 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 03973-03974                         | 305  | 0  | 30         | TOU Prior Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 03975-03976                         | 305  | 1  | 30         | TOU Prior Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 03977-03980                         | 306  | 0  | 50         | TOU Prior Month Reg 5 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03981-03984                         | 306  | 1  | 50         | TOU Prior Month Reg 5 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03985-03988                         | 306  | 2  | 50         | TOU Prior Month Reg 5 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 03989-03992                         | 306  | 3  | 50         | TOU Prior Month Reg 5 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 6 Block |      |    |            |  |                                      |                    |      |     |
| 03993-03996                         | 307  | 0  | 20         | obsolete-TOU Prior Month Reg 6 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 03997-04000                         | 307  | 1  | 20         | obsolete-TOU Prior Month Reg 6 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04001-04004                         | 307  | 2  | 20         | obsolete-TOU Prior Month Reg 6 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04005-04008                         | 307  | 3  | 20         | obsolete-TOU Prior Month Reg 6 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04009-04012                         | 307  | 4  | 20         | obsolete-TOU Prior Month Reg 6 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04013-04016                         | 307  | 5  | 20         | obsolete-TOU Prior Month Reg 6 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04017-04020                         | 307  | 6  | 20         | obsolete-TOU Prior Month Reg 6 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04021-04024                         | 307  | 7  | 20         | obsolete-TOU Prior Month Reg 6 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04025-04028                         | 307  | 8  | 20         | obsolete-TOU Prior Month Reg 6 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04029-04032                         | 307  | 9  | 20         | obsolete-TOU Prior Month Reg 6 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04033-04034                         | 308  | 0  | 30         | TOU Prior Month Reg 6 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04035-04036                         | 308  | 1  | 30         | TOU Prior Month Reg 6 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04037-04038                         | 308  | 2  | 30         | TOU Prior Month Reg 6 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04039-04040                         | 308  | 3  | 30         | TOU Prior Month Reg 6 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04041-04042                         | 309  | 0  | 30         | TOU Prior Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04043-04044                         | 309  | 1  | 30         | TOU Prior Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04045-04048                         | 310  | 0  | 50         | TOU Prior Month Reg 6 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04049-04052                         | 310  | 1  | 50         | TOU Prior Month Reg 6 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04053-04056                         | 310  | 2  | 50         | TOU Prior Month Reg 6 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04057-04060                         | 310  | 3  | 50         | TOU Prior Month Reg 6 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| Time of Use Prior Month Reg 7 Block |      |    |            |  |                                      |                    |      |     |
| 04061-04064                         | 311  | 0  | 20         | obsolete-TOU Prior Month Reg 7 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04065-04068                         | 311  | 1  | 20         | obsolete-TOU Prior Month Reg 7 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04069-04072                         | 311  | 2  | 20         | obsolete-TOU Prior Month Reg 7 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04073-04076                         | 311  | 3  | 20         | obsolete-TOU Prior Month Reg 7 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04077-04080                         | 311  | 4  | 20         | obsolete-TOU Prior Month Reg 7 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04081-04084                         | 311  | 5  | 20         | obsolete-TOU Prior Month Reg 7 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04085-04088                         | 311  | 6  | 20         | obsolete-TOU Prior Month Reg 7 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04089-04092                         | 311  | 7  | 20         | obsolete-TOU Prior Month Reg 7 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04093-04096                         | 311  | 8  | 20         | obsolete-TOU Prior Month Reg 7 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04097-04100                         | 311  | 9  | 20         | obsolete-TOU Prior Month Reg 7 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04101-04102                         | 312  | 0  | 30         | TOU Prior Month Reg 7 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04103-04104                         | 312  | 1  | 30         | TOU Prior Month Reg 7 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04105-04106                         | 312  | 2  | 30         | TOU Prior Month Reg 7 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04107-04108                         | 312  | 3  | 30         | TOU Prior Month Reg 7 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04109-04110                         | 313  | 0  | 30         | TOU Prior Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04111-04112                         | 313  | 1  | 30         | TOU Prior Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04113-04116                         | 314  | 0  | 50         | TOU Prior Month Reg 7 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04117-04120                         | 314  | 1  | 50         | TOU Prior Month Reg 7 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04121-04124                         | 314  | 2  | 50         | TOU Prior Month Reg 7 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04125-04128                         | 314  | 3  | 50         | TOU Prior Month Reg 7 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Reg 8 Block |      |    |            |  |                                      |                    |      |     |
| 04129-04132                         | 315  | 0  | 20         | obsolete-TOU Prior Month Reg 8 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04133-04136                         | 315  | 1  | 20         | obsolete-TOU Prior Month Reg 8 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04137-04140                         | 315  | 2  | 20         | obsolete-TOU Prior Month Reg 8 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04141-04144                         | 315  | 3  | 20         | obsolete-TOU Prior Month Reg 8 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04145-04148                         | 315  | 4  | 20         | obsolete-TOU Prior Month Reg 8 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04149-04152                         | 315  | 5  | 20         | obsolete-TOU Prior Month Reg 8 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04153-04156                         | 315  | 6  | 20         | obsolete-TOU Prior Month Reg 8 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04157-04160                         | 315  | 7  | 20         | obsolete-TOU Prior Month Reg 8 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04161-04164                         | 315  | 8  | 20         | obsolete-TOU Prior Month Reg 8 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04165-04168                         | 315  | 9  | 20         | obsolete-TOU Prior Month Reg 8 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04169-04170                         | 316  | 0  | 30         | TOU Prior Month Reg 8 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 04171-04172                         | 316  | 1  | 30         | TOU Prior Month Reg 8 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04173-04174                         | 316  | 2  | 30         | TOU Prior Month Reg 8 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04175-04176                         | 316  | 3  | 30         | TOU Prior Month Reg 8 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04177-04178                         | 317  | 0  | 30         | TOU Prior Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04179-04180                         | 317  | 1  | 30         | TOU Prior Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04181-04184                         | 318  | 0  | 50         | TOU Prior Month Reg 8 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04185-04188                         | 318  | 1  | 50         | TOU Prior Month Reg 8 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04189-04192                         | 318  | 2  | 50         | TOU Prior Month Reg 8 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04193-04196                         | 318  | 3  | 50         | TOU Prior Month Reg 8 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Prior Month Total Block |      |    |            |  |                                      |                    |      |     |
| 04197-04200                         | 319  | 0  | 20         | obsolete-TOU Prior Month Total Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04201-04204                         | 319  | 1  | 20         | obsolete-TOU Prior Month Total VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04205-04208                         | 319  | 2  | 20         | obsolete-TOU Prior Month Total VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04209-04212                         | 319  | 3  | 20         | obsolete-TOU Prior Month Total VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04213-04216                         | 319  | 4  | 20         | obsolete-TOU Prior Month Total VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04217-04220                         | 319  | 5  | 20         | obsolete-TOU Prior Month Total Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04221-04224                         | 319  | 6  | 20         | obsolete-TOU Prior Month Total VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04225-04228                         | 319  | 7  | 20         | obsolete-TOU Prior Month Total VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04229-04232                         | 319  | 8  | 20         | obsolete-TOU Prior Month Total VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04233-04236                         | 319  | 9  | 20         | obsolete-TOU Prior Month Total VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04237-04238                         | 320  | 0  | 30         | TOU Prior Month Total Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04239-04240                         | 320  | 1  | 30         | TOU Prior Month Total Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04241-04242                         | 320  | 2  | 30         | TOU Prior Month Total Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04243-04244                         | 320  | 3  | 30         | TOU Prior Month Total Peak Demand Del. VAR (Quadrant 3 + 4)      | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04245-04246                         | 321  | 0  | 30         | TOU Prior Month Total Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04247-04248                         | 321  | 1  | 30         | TOU Prior Month Total Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04249-04252                         | 322  | 0  | 50         | TOU Prior Month Total Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04253-04256                         | 322  | 1  | 50         | TOU Prior Month Total Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04257-04260                         | 322  | 2  | 50         | TOU Prior Month Total Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04261-04264                         | 322  | 3  | 50         | TOU Prior Month Total Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 1 Block      |      |    |            |  |                                      |                    |      |     |
| 04265-04268                         | 323  | 0  | 20         | obsolete-TOU Active Reg 1 Watthour (Quadrant 1 + 4)              | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04269-04272                         | 323  | 1  | 20         | obsolete-TOU Active Reg 1 VAhour (Quadrant 1)                    | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 04273-04276                    | 323  | 2  | 20         | obsolete-TOU Active Reg 1 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04277-04280                    | 323  | 3  | 20         | obsolete-TOU Active Reg 1 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04281-04284                    | 323  | 4  | 20         | obsolete-TOU Active Reg 1 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04285-04288                    | 323  | 5  | 20         | obsolete-TOU Active Reg 1 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04289-04292                    | 323  | 6  | 20         | obsolete-TOU Active Reg 1 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04293-04296                    | 323  | 7  | 20         | obsolete-TOU Active Reg 1 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04297-04300                    | 323  | 8  | 20         | obsolete-TOU Active Reg 1 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04301-04304                    | 323  | 9  | 20         | obsolete-TOU Active Reg 1 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04305-04306                    | 324  | 0  | 30         | TOU Active Reg 1 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04307-04308                    | 324  | 1  | 30         | TOU Active Reg 1 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04309-04310                    | 324  | 2  | 30         | TOU Active Reg 1 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04311-04312                    | 324  | 3  | 30         | TOU Active Reg 1 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04313-04314                    | 325  | 0  | 30         | TOU Active Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04315-04316                    | 325  | 1  | 30         | TOU Active Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04317-04320                    | 326  | 0  | 50         | TOU Active Reg 1 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04321-04324                    | 326  | 1  | 50         | TOU Active Reg 1 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04325-04328                    | 326  | 2  | 50         | TOU Active Reg 1 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04329-04332                    | 326  | 3  | 50         | TOU Active Reg 1 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 2 Block |      |    |            |  |                                      |                    |      |     |
| 04333-04336                    | 327  | 0  | 20         | obsolete-TOU Active Reg 2 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04337-04340                    | 327  | 1  | 20         | obsolete-TOU Active Reg 2 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04341-04344                    | 327  | 2  | 20         | obsolete-TOU Active Reg 2 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04345-04348                    | 327  | 3  | 20         | obsolete-TOU Active Reg 2 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04349-04352                    | 327  | 4  | 20         | obsolete-TOU Active Reg 2 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04353-04356                    | 327  | 5  | 20         | obsolete-TOU Active Reg 2 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04357-04360                    | 327  | 6  | 20         | obsolete-TOU Active Reg 2 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04361-04364                    | 327  | 7  | 20         | obsolete-TOU Active Reg 2 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04365-04368                    | 327  | 8  | 20         | obsolete-TOU Active Reg 2 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04369-04372                    | 327  | 9  | 20         | obsolete-TOU Active Reg 2 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04373-04374                    | 328  | 0  | 30         | TOU Active Reg 2 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04375-04376                    | 328  | 1  | 30         | TOU Active Reg 2 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04377-04378                    | 328  | 2  | 30         | TOU Active Reg 2 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04379-04380                    | 328  | 3  | 30         | TOU Active Reg 2 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 04381-04382                    | 329  | 0  | 30         | TOU Active Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 +4)  | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04383-04384                    | 329  | 1  | 30         | TOU Active Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04385-04388                    | 330  | 0  | 50         | TOU Active Reg 2 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04389-04392                    | 330  | 1  | 50         | TOU Active Reg 2 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04393-04396                    | 330  | 2  | 50         | TOU Active Reg 2 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04397-04400                    | 330  | 3  | 50         | TOU Active Reg 2 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 3 Block |      |    |            |  |                                      |                    |      |     |
| 04401-04404                    | 331  | 0  | 20         | obsolete-TOU Active Reg 3 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04405-04408                    | 331  | 1  | 20         | obsolete-TOU Active Reg 3 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04409-04412                    | 331  | 2  | 20         | obsolete-TOU Active Reg 3 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04413-04416                    | 331  | 3  | 20         | obsolete-TOU Active Reg 3 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04417-04420                    | 331  | 4  | 20         | obsolete-TOU Active Reg 3 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04421-04424                    | 331  | 5  | 20         | obsolete-TOU Active Reg 3 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04425-04428                    | 331  | 6  | 20         | obsolete-TOU Active Reg 3 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04429-04432                    | 331  | 7  | 20         | obsolete-TOU Active Reg 3 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04433-04436                    | 331  | 8  | 20         | obsolete-TOU Active Reg 3 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04437-04440                    | 331  | 9  | 20         | obsolete-TOU Active Reg 3 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04441-04442                    | 332  | 0  | 30         | TOU Active Reg 3 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04443-04444                    | 332  | 1  | 30         | TOU Active Reg 3 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04445-04446                    | 332  | 2  | 30         | TOU Active Reg 3 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04447-04448                    | 332  | 3  | 30         | TOU Active Reg 3 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04449-04450                    | 333  | 0  | 30         | TOU Active Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04451-04452                    | 333  | 1  | 30         | TOU Active Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04453-04456                    | 334  | 0  | 50         | TOU Active Reg 3 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04457-04460                    | 334  | 1  | 50         | TOU Active Reg 3 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04461-04464                    | 334  | 2  | 50         | TOU Active Reg 3 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04465-04468                    | 334  | 3  | 50         | TOU Active Reg 3 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 4 Block |      |    |            |  |                                      |                    |      |     |
| 04469-04472                    | 335  | 0  | 20         | obsolete-TOU Active Reg 4 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04473-04476                    | 335  | 1  | 20         | obsolete-TOU Active Reg 4 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04477-04480                    | 335  | 2  | 20         | obsolete-TOU Active Reg 4 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04481-04484                    | 335  | 3  | 20         | obsolete-TOU Active Reg 4 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04485-04488                    | 335  | 4  | 20         | obsolete-TOU Active Reg 4 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                            | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|----------------------------------|--------------------|------|-----|
| 04489-04492                    | 335  | 5  | 20         | obsolete-TOU Active Reg 4 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04493-04496                    | 335  | 6  | 20         | obsolete-TOU Active Reg 4 VAhour (Quadrant 2)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04497-04500                    | 335  | 7  | 20         | obsolete-TOU Active Reg 4 VARhour (Quadrant 2)                     | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04501-04504                    | 335  | 8  | 20         | obsolete-TOU Active Reg 4 VAhour (Quadrant 3)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04505-04508                    | 335  | 9  | 20         | obsolete-TOU Active Reg 4 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04509-04510                    | 336  | 0  | 30         | TOU Active Reg 4 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 04511-04512                    | 336  | 1  | 30         | TOU Active Reg 4 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 04513-04514                    | 336  | 2  | 30         | TOU Active Reg 4 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04515-04516                    | 336  | 3  | 30         | TOU Active Reg 4 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04517-04518                    | 337  | 0  | 30         | TOU Active Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 04519-04520                    | 337  | 1  | 30         | TOU Active Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 04521-04524                    | 338  | 0  | 50         | TOU Active Reg 4 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 04525-04528                    | 338  | 1  | 50         | TOU Active Reg 4 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 04529-04532                    | 338  | 2  | 50         | TOU Active Reg 4 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 04533-04536                    | 338  | 3  | 50         | TOU Active Reg 4 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| Time of Use Active Reg 5 Block |      |    |            |  |                                  |                    |      |     |
| 04537-04540                    | 339  | 0  | 20         | obsolete-TOU Active Reg 5 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04541-04544                    | 339  | 1  | 20         | obsolete-TOU Active Reg 5 VAhour (Quadrant 1)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04545-04548                    | 339  | 2  | 20         | obsolete-TOU Active Reg 5 VARhour (Quadrant 1)                     | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04549-04552                    | 339  | 3  | 20         | obsolete-TOU Active Reg 5 VAhour (Quadrant 4)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04553-04556                    | 339  | 4  | 20         | obsolete-TOU Active Reg 5 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04557-04560                    | 339  | 5  | 20         | obsolete-TOU Active Reg 5 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04561-04564                    | 339  | 6  | 20         | obsolete-TOU Active Reg 5 VAhour (Quadrant 2)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04565-04568                    | 339  | 7  | 20         | obsolete-TOU Active Reg 5 VARhour (Quadrant 2)                     | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04569-04572                    | 339  | 8  | 20         | obsolete-TOU Active Reg 5 VAhour (Quadrant 3)                      | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04573-04576                    | 339  | 9  | 20         | obsolete-TOU Active Reg 5 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04577-04578                    | 340  | 0  | 30         | TOU Active Reg 5 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 04579-04580                    | 340  | 1  | 30         | TOU Active Reg 5 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 04581-04582                    | 340  | 2  | 30         | TOU Active Reg 5 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04583-04584                    | 340  | 3  | 30         | TOU Active Reg 5 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04585-04586                    | 341  | 0  | 30         | TOU Active Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 04587-04588                    | 341  | 1  | 30         | TOU Active Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 04589-04592                    | 342  | 0  | 50         | TOU Active Reg 5 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 04593-04596                    | 342  | 1  | 50         | TOU Active Reg 5 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04597-04600                    | 342  | 2  | 50         | TOU Active Reg 5 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04601-04604                    | 342  | 3  | 50         | TOU Active Reg 5 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 6 Block |      |    |            |  |                                      |                    |      |     |
| 04605-04608                    | 343  | 0  | 20         | obsolete-TOU Active Reg 6 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04609-04612                    | 343  | 1  | 20         | obsolete-TOU Active Reg 6 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04613-04616                    | 343  | 2  | 20         | obsolete-TOU Active Reg 6 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04617-04620                    | 343  | 3  | 20         | obsolete-TOU Active Reg 6 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04621-04624                    | 343  | 4  | 20         | obsolete-TOU Active Reg 6 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04625-04628                    | 343  | 5  | 20         | obsolete-TOU Active Reg 6 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04629-04632                    | 343  | 6  | 20         | obsolete-TOU Active Reg 6 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04633-04636                    | 343  | 7  | 20         | obsolete-TOU Active Reg 6 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04637-04640                    | 343  | 8  | 20         | obsolete-TOU Active Reg 6 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04641-04644                    | 343  | 9  | 20         | obsolete-TOU Active Reg 6 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04645-04646                    | 344  | 0  | 30         | TOU Active Reg 6 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04647-04648                    | 344  | 1  | 30         | TOU Active Reg 6 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04649-04650                    | 344  | 2  | 30         | TOU Active Reg 6 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04651-04652                    | 344  | 3  | 30         | TOU Active Reg 6 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04653-04654                    | 345  | 0  | 30         | TOU Active Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04655-04656                    | 345  | 1  | 30         | TOU Active Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04657-04660                    | 346  | 0  | 50         | TOU Active Reg 6 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04661-04664                    | 346  | 1  | 50         | TOU Active Reg 6 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04665-04668                    | 346  | 2  | 50         | TOU Active Reg 6 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04669-04672                    | 346  | 3  | 50         | TOU Active Reg 6 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 7 Block |      |    |            |  |                                      |                    |      |     |
| 04673-04676                    | 347  | 0  | 20         | obsolete-TOU Active Reg 7 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04677-04680                    | 347  | 1  | 20         | obsolete-TOU Active Reg 7 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04681-04684                    | 347  | 2  | 20         | obsolete-TOU Active Reg 7 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04685-04688                    | 347  | 3  | 20         | obsolete-TOU Active Reg 7 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04689-04692                    | 347  | 4  | 20         | obsolete-TOU Active Reg 7 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04693-04696                    | 347  | 5  | 20         | obsolete-TOU Active Reg 7 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04697-04700                    | 347  | 6  | 20         | obsolete-TOU Active Reg 7 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04701-04704                    | 347  | 7  | 20         | obsolete-TOU Active Reg 7 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |



| Address                        | Line | Pt | DNP Obj | Description  | Range                                | Units              | Type | R/W |
|--------------------------------|------|----|---------|--|--------------------------------------|--------------------|------|-----|
| 04705-04708                    | 347  | 8  | 20      | obsolete-TOU Active Reg 7 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04709-04712                    | 347  | 9  | 20      | obsolete-TOU Active Reg 7 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04713-04714                    | 348  | 0  | 30      | TOU Active Reg 7 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04715-04716                    | 348  | 1  | 30      | TOU Active Reg 7 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04717-04718                    | 348  | 2  | 30      | TOU Active Reg 7 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04719-04720                    | 348  | 3  | 30      | TOU Active Reg 7 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04721-04722                    | 349  | 0  | 30      | TOU Active Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04723-04724                    | 349  | 1  | 30      | TOU Active Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04725-04728                    | 350  | 0  | 50      | TOU Active Reg 7 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04729-04732                    | 350  | 1  | 50      | TOU Active Reg 7 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04733-04736                    | 350  | 2  | 50      | TOU Active Reg 7 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04737-04740                    | 350  | 3  | 50      | TOU Active Reg 7 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Active Reg 8 Block |      |    |         |  |                                      |                    |      |     |
| 04741-04744                    | 351  | 0  | 20      | obsolete-TOU Active Reg 8 Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04745-04748                    | 351  | 1  | 20      | obsolete-TOU Active Reg 8 VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04749-04752                    | 351  | 2  | 20      | obsolete-TOU Active Reg 8 VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04753-04756                    | 351  | 3  | 20      | obsolete-TOU Active Reg 8 VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04757-04760                    | 351  | 4  | 20      | obsolete-TOU Active Reg 8 VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04761-04764                    | 351  | 5  | 20      | obsolete-TOU Active Reg 8 Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04765-04768                    | 351  | 6  | 20      | obsolete-TOU Active Reg 8 VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04769-04772                    | 351  | 7  | 20      | obsolete-TOU Active Reg 8 VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04773-04776                    | 351  | 8  | 20      | obsolete-TOU Active Reg 8 VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04777-04780                    | 351  | 9  | 20      | obsolete-TOU Active Reg 8 VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04781-04782                    | 352  | 0  | 30      | TOU Active Reg 8 Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04783-04784                    | 352  | 1  | 30      | TOU Active Reg 8 Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04785-04786                    | 352  | 2  | 30      | TOU Active Reg 8 Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04787-04788                    | 352  | 3  | 30      | TOU Active Reg 8 Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04789-04790                    | 353  | 0  | 30      | TOU Active Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04791-04792                    | 353  | 1  | 30      | TOU Active Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04793-04796                    | 354  | 0  | 50      | TOU Active Reg 8 Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04797-04800                    | 354  | 1  | 50      | TOU Active Reg 8 Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04801-04804                    | 354  | 2  | 50      | TOU Active Reg 8 Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04805-04808                    | 354  | 3  | 50      | TOU Active Reg 8 Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |

| Address                               | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|---------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| Time of Use Active Total Block        |      |    |            |  |                                      |                    |      |     |
| 04809-04812                           | 355  | 0  | 20         | obsolete-TOU Active Total Watthour (Quadrant 1 + 4)                | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04813-04816                           | 355  | 1  | 20         | obsolete-TOU Active Total VAhour (Quadrant 1)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04817-04820                           | 355  | 2  | 20         | obsolete-TOU Active Total VARhour (Quadrant 1)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04821-04824                           | 355  | 3  | 20         | obsolete-TOU Active Total VAhour (Quadrant 4)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04825-04828                           | 355  | 4  | 20         | obsolete-TOU Active Total VARhour (Quadrant 4)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04829-04832                           | 355  | 5  | 20         | obsolete-TOU Active Total Watthour (Quadrant 2 + 3)                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04833-04836                           | 355  | 6  | 20         | obsolete-TOU Active Total VAhour (Quadrant 2)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04837-04840                           | 355  | 7  | 20         | obsolete-TOU Active Total VARhour (Quadrant 2)                     | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04841-04844                           | 355  | 8  | 20         | obsolete-TOU Active Total VAhour (Quadrant 3)                      | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04845-04848                           | 355  | 9  | 20         | obsolete-TOU Active Total VARhour (Quadrant 3)                     | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04849-04850                           | 356  | 0  | 30         | TOU Active Total Peak Demand Watt (Quadrant 1 + 4)                 | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04851-04852                           | 356  | 1  | 30         | TOU Active Total Peak Demand Watt (Quadrant 2 + 3)                 | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04853-04854                           | 356  | 2  | 30         | TOU Active Total Peak Demand VAR (Quadrant 1 + 2)                  | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04855-04856                           | 356  | 3  | 30         | TOU Active Total Peak Demand VAR (Quadrant 3 + 4)                  | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04857-04858                           | 357  | 0  | 30         | TOU Active Total Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04859-04860                           | 357  | 1  | 30         | TOU Active Total Coin. Dmd. VAR to Peak Dmd. Watt (Quadrant 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04861-04864                           | 358  | 0  | 50         | TOU Active Total Peak Demand Watt (Q 1 + 4) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04865-04868                           | 358  | 1  | 50         | TOU Active Total Peak Demand Watt (Q 2 + 3) Time Stamp             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04869-04872                           | 358  | 2  | 50         | TOU Active Total Peak Demand VAR (Q 1 + 2) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04873-04876                           | 358  | 3  | 50         | TOU Active Total Peak Demand VAR (Q 3 + 4) Time Stamp              | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 1 Block |      |    |            |  |                                      |                    |      |     |
| 04877-04880                           | 359  | 0  | 20         | obsolete-TOU Current Month Reg 1 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04881-04884                           | 359  | 1  | 20         | obsolete-TOU Current Month Reg 1 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04885-04888                           | 359  | 2  | 20         | obsolete-TOU Current Month Reg 1 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04889-04892                           | 359  | 3  | 20         | obsolete-TOU Current Month Reg 1 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04893-04896                           | 359  | 4  | 20         | obsolete-TOU Current Month Reg 1 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04897-04900                           | 359  | 5  | 20         | obsolete-TOU Current Month Reg 1 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04901-04904                           | 359  | 6  | 20         | obsolete-TOU Current Month Reg 1 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04905-04908                           | 359  | 7  | 20         | obsolete-TOU Current Month Reg 1 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04909-04912                           | 359  | 8  | 20         | obsolete-TOU Current Month Reg 1 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04913-04916                           | 359  | 9  | 20         | obsolete-TOU Current Month Reg 1 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04917-04918                           | 360  | 0  | 30         | TOU Current Month Reg 1 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |

| Address                               | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|---------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 04919-04920                           | 360  | 1  | 30         | TOU Current Month Reg 1 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04921-04922                           | 360  | 2  | 30         | TOU Current Month Reg 1 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04923-04924                           | 360  | 3  | 30         | TOU Current Month Reg 1 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04925-04926                           | 361  | 0  | 30         | TOU Current Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04927-04928                           | 361  | 1  | 30         | TOU Current Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04929-04932                           | 362  | 0  | 50         | TOU Current Month Reg 1 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04933-04936                           | 362  | 1  | 50         | TOU Current Month Reg 1 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04937-04940                           | 362  | 2  | 50         | TOU Current Month Reg 1 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 04941-04944                           | 362  | 3  | 50         | TOU Current Month Reg 1 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 2 Block |      |    |            |  |                                      |                    |      |     |
| 04945-04948                           | 363  | 0  | 20         | obsolete-TOU Current Month Reg 2 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04949-04952                           | 363  | 1  | 20         | obsolete-TOU Current Month Reg 2 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04953-04956                           | 363  | 2  | 20         | obsolete-TOU Current Month Reg 2 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04957-04960                           | 363  | 3  | 20         | obsolete-TOU Current Month Reg 2 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04961-04964                           | 363  | 4  | 20         | obsolete-TOU Current Month Reg 2 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04965-04968                           | 363  | 5  | 20         | obsolete-TOU Current Month Reg 2 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 04969-04972                           | 363  | 6  | 20         | obsolete-TOU Current Month Reg 2 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04973-04976                           | 363  | 7  | 20         | obsolete-TOU Current Month Reg 2 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04977-04980                           | 363  | 8  | 20         | obsolete-TOU Current Month Reg 2 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 04981-04984                           | 363  | 9  | 20         | obsolete-TOU Current Month Reg 2 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 04985-04986                           | 364  | 0  | 30         | TOU Current Month Reg 2 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04987-04988                           | 364  | 1  | 30         | TOU Current Month Reg 2 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 04989-04990                           | 364  | 2  | 30         | TOU Current Month Reg 2 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04991-04992                           | 364  | 3  | 30         | TOU Current Month Reg 2 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 04993-04994                           | 365  | 0  | 30         | TOU Current Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 04995-04996                           | 365  | 1  | 30         | TOU Current Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 04997-05000                           | 366  | 0  | 50         | TOU Current Month Reg 2 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05001-05004                           | 366  | 1  | 50         | TOU Current Month Reg 2 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05005-05008                           | 366  | 2  | 50         | TOU Current Month Reg 2 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05009-05012                           | 366  | 3  | 50         | TOU Current Month Reg 2 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 3 Block |      |    |            |  |                                      |                    |      |     |
| 05013-05016                           | 367  | 0  | 20         | obsolete-TOU Current Month Reg 3 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05017-05020                           | 367  | 1  | 20         | obsolete-TOU Current Month Reg 3 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |

| Address                               | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|---------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 05021-05024                           | 367  | 2  | 20         | obsolete-TOU Current Month Reg 3 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05025-05028                           | 367  | 3  | 20         | obsolete-TOU Current Month Reg 3 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05029-05032                           | 367  | 4  | 20         | obsolete-TOU Current Month Reg 3 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05033-05036                           | 367  | 5  | 20         | obsolete-TOU Current Month Reg 3 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05037-05040                           | 367  | 6  | 20         | obsolete-TOU Current Month Reg 3 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05041-05044                           | 367  | 7  | 20         | obsolete-TOU Current Month Reg 3 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05045-05048                           | 367  | 8  | 20         | obsolete-TOU Current Month Reg 3 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05049-05052                           | 367  | 9  | 20         | obsolete-TOU Current Month Reg 3 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05053-05054                           | 368  | 0  | 30         | TOU Current Month Reg 3 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05055-05056                           | 368  | 1  | 30         | TOU Current Month Reg 3 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05057-05058                           | 368  | 2  | 30         | TOU Current Month Reg 3 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05059-05060                           | 368  | 3  | 30         | TOU Current Month Reg 3 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05061-05062                           | 369  | 0  | 30         | TOU Current Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05063-05064                           | 369  | 1  | 30         | TOU Current Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 05065-05068                           | 370  | 0  | 50         | TOU Current Month Reg 3 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05069-05072                           | 370  | 1  | 50         | TOU Current Month Reg 3 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05073-05076                           | 370  | 2  | 50         | TOU Current Month Reg 3 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05077-05080                           | 370  | 3  | 50         | TOU Current Month Reg 3 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 4 Block |      |    |            |  |                                      |                    |      |     |
| 05081-05084                           | 371  | 0  | 20         | obsolete-TOU Current Month Reg 4 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05085-05088                           | 371  | 1  | 20         | obsolete-TOU Current Month Reg 4 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05059-05092                           | 371  | 2  | 20         | obsolete-TOU Current Month Reg 4 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05093-05096                           | 371  | 3  | 20         | obsolete-TOU Current Month Reg 4 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05097-05100                           | 371  | 4  | 20         | obsolete-TOU Current Month Reg 4 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05101-05104                           | 371  | 5  | 20         | obsolete-TOU Current Month Reg 4 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05105-05108                           | 371  | 6  | 20         | obsolete-TOU Current Month Reg 4 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05109-05112                           | 371  | 7  | 20         | obsolete-TOU Current Month Reg 4 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05113-05116                           | 371  | 8  | 20         | obsolete-TOU Current Month Reg 4 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05117-05120                           | 371  | 9  | 20         | obsolete-TOU Current Month Reg 4 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05121-05122                           | 372  | 0  | 30         | TOU Current Month Reg 4 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05123-05124                           | 372  | 1  | 30         | TOU Current Month Reg 4 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05125-05126                           | 372  | 2  | 30         | TOU Current Month Reg 4 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05127-05128                           | 372  | 3  | 30         | TOU Current Month Reg 4 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |

| Address                               | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|---------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 05129-05130                           | 373  | 0  | 30         | TOU Current Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05131-05132                           | 373  | 1  | 30         | TOU Current Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 05133-05136                           | 374  | 0  | 50         | TOU Current Month Reg 4 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05137-05140                           | 374  | 1  | 50         | TOU Current Month Reg 4 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05141-05144                           | 374  | 2  | 50         | TOU Current Month Reg 4 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05145-05148                           | 374  | 3  | 50         | TOU Current Month Reg 4 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 5 Block |      |    |            |  |                                      |                    |      |     |
| 05149-05152                           | 375  | 0  | 20         | obsolete-TOU Current Month Reg 5 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05153-05156                           | 375  | 1  | 20         | obsolete-TOU Current Month Reg 5 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05157-05160                           | 375  | 2  | 20         | obsolete-TOU Current Month Reg 5 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05161-05164                           | 375  | 3  | 20         | obsolete-TOU Current Month Reg 5 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05165-05168                           | 375  | 4  | 20         | obsolete-TOU Current Month Reg 5 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05169-05172                           | 375  | 5  | 20         | obsolete-TOU Current Month Reg 5 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05173-05176                           | 375  | 6  | 20         | obsolete-TOU Current Month Reg 5 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05177-05180                           | 375  | 7  | 20         | obsolete-TOU Current Month Reg 5 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05181-05184                           | 375  | 8  | 20         | obsolete-TOU Current Month Reg 5 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05185-05188                           | 375  | 9  | 20         | obsolete-TOU Current Month Reg 5 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05189-05190                           | 376  | 0  | 30         | TOU Current Month Reg 5 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05191-05192                           | 376  | 1  | 30         | TOU Current Month Reg 5 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05193-05194                           | 376  | 2  | 30         | TOU Current Month Reg 5 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05195-05196                           | 376  | 3  | 30         | TOU Current Month Reg 5 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05197-05198                           | 377  | 0  | 30         | TOU Current Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05199-05200                           | 377  | 1  | 30         | TOU Current Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 05201-05204                           | 378  | 0  | 50         | TOU Current Month Reg 5 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05205-05208                           | 378  | 1  | 50         | TOU Current Month Reg 5 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05209-05212                           | 378  | 2  | 50         | TOU Current Month Reg 5 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05213-05216                           | 378  | 3  | 50         | TOU Current Month Reg 5 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 6 Block |      |    |            |  |                                      |                    |      |     |
| 05217-05220                           | 379  | 0  | 20         | obsolete-TOU Current Month Reg 6 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05221-05224                           | 379  | 1  | 20         | obsolete-TOU Current Month Reg 6 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05225-05228                           | 379  | 2  | 20         | obsolete-TOU Current Month Reg 6 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05229-05232                           | 379  | 3  | 20         | obsolete-TOU Current Month Reg 6 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05233-05236                           | 379  | 4  | 20         | obsolete-TOU Current Month Reg 6 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                                      | Line | Pt | DNP<br>Obj | Description  | Range                            | Units              | Type | R/W |
|--|------|----|------------|--|----------------------------------|--------------------|------|-----|
| 05237-05240                                  | 379  | 5  | 20         | obsolete-TOU Current Month Reg 6 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05241-05244                                  | 379  | 6  | 20         | obsolete-TOU Current Month Reg 6 VAhour (Quadrant 2)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 052445-05248                                 | 379  | 7  | 20         | obsolete-TOU Current Month Reg 6 VARhour (Quadrant 2)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05249-05252                                  | 379  | 8  | 20         | obsolete-TOU Current Month Reg 6 VAhour (Quadrant 3)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05253-05256                                  | 379  | 9  | 20         | obsolete-TOU Current Month Reg 6 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05257-05258                                  | 380  | 0  | 30         | TOU Current Month Reg 6 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 05259-05260                                  | 380  | 1  | 30         | TOU Current Month Reg 6 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 05261-05262                                  | 380  | 2  | 30         | TOU Current Month Reg 6 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05263-05264                                  | 380  | 3  | 30         | TOU Current Month Reg 6 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05265-05266                                  | 381  | 0  | 30         | TOU Current Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 05267-05268                                  | 381  | 1  | 30         | TOU Current Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 05269-05272                                  | 382  | 0  | 50         | TOU Current Month Reg 6 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 05273-05276                                  | 382  | 1  | 50         | TOU Current Month Reg 6 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 05277-05280                                  | 382  | 2  | 50         | TOU Current Month Reg 6 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| 05281-05284                                  | 382  | 3  | 50         | TOU Current Month Reg 6 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |
| <b>Time of Use Current Month Reg 7 Block</b> |      |    |            |  |                                  |                    |      |     |
| 05285-05288                                  | 383  | 0  | 20         | obsolete-TOU Current Month Reg 7 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05289-05292                                  | 383  | 1  | 20         | obsolete-TOU Current Month Reg 7 VAhour (Quadrant 1)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05293-05296                                  | 383  | 2  | 20         | obsolete-TOU Current Month Reg 7 VARhour (Quadrant 1)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05297-05300                                  | 383  | 3  | 20         | obsolete-TOU Current Month Reg 7 VAhour (Quadrant 4)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05301-05304                                  | 383  | 4  | 20         | obsolete-TOU Current Month Reg 7 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05305-05308                                  | 383  | 5  | 20         | obsolete-TOU Current Month Reg 7 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05309-05312                                  | 383  | 6  | 20         | obsolete-TOU Current Month Reg 7 VAhour (Quadrant 2)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05313-05316                                  | 383  | 7  | 20         | obsolete-TOU Current Month Reg 7 VARhour (Quadrant 2)              | +9,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05317-05320                                  | 383  | 8  | 20         | obsolete-TOU Current Month Reg 7 VAhour (Quadrant 3)               | +9,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05321-05324                                  | 383  | 9  | 20         | obsolete-TOU Current Month Reg 7 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05325-05326                                  | 384  | 0  | 30         | TOU Current Month Reg 7 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt             | 1/ 65536 W sec     | F7   | R   |
| 05327-05328                                  | 384  | 1  | 30         | TOU Current Month Reg 7 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt             | 1/ 65536 W sec     | F7   | R   |
| 05329-05330                                  | 384  | 2  | 30         | TOU Current Month Reg 7 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05331-05332                                  | 384  | 3  | 30         | TOU Current Month Reg 7 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05333-05334                                  | 385  | 0  | 30         | TOU Current Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR           | 1/ 65536 VAR sec   | F7   | R   |
| 05335-05336                                  | 385  | 1  | 30         | TOU Current Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR          | 1/ 65536 VAR sec   | F7   | R   |
| 05337-05340                                  | 386  | 0  | 50         | TOU Current Month Reg 7 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99           | 10 msec            | F3   | R   |

| Address                               | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|---------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 05341-05344                           | 386  | 1  | 50         | TOU Current Month Reg 7 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05345-05348                           | 386  | 2  | 50         | TOU Current Month Reg 7 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05349-05352                           | 386  | 3  | 50         | TOU Current Month Reg 7 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Reg 8 Block |      |    |            |  |                                      |                    |      |     |
| 05353-05356                           | 387  | 0  | 20         | obsolete-TOU Current Month Reg 8 Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05357-05360                           | 387  | 1  | 20         | obsolete-TOU Current Month Reg 8 VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05361-05364                           | 387  | 2  | 20         | obsolete-TOU Current Month Reg 8 VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05365-05368                           | 387  | 3  | 20         | obsolete-TOU Current Month Reg 8 VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05369-05372                           | 387  | 4  | 20         | obsolete-TOU Current Month Reg 8 VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05373-05376                           | 387  | 5  | 20         | obsolete-TOU Current Month Reg 8 Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05377-05380                           | 387  | 6  | 20         | obsolete-TOU Current Month Reg 8 VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05381-05384                           | 387  | 7  | 20         | obsolete-TOU Current Month Reg 8 VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05385-05388                           | 387  | 8  | 20         | obsolete-TOU Current Month Reg 8 VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05389-05392                           | 387  | 9  | 20         | obsolete-TOU Current Month Reg 8 VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05393-05394                           | 388  | 0  | 30         | TOU Current Month Reg 8 Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05395-05396                           | 388  | 1  | 30         | TOU Current Month Reg 8 Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05397-05398                           | 388  | 2  | 30         | TOU Current Month Reg 8 Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05399-05400                           | 388  | 3  | 30         | TOU Current Month Reg 8 Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05401-05402                           | 389  | 0  | 30         | TOU Current Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05403-05404                           | 389  | 1  | 30         | TOU Current Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 05405-05408                           | 390  | 0  | 50         | TOU Current Month Reg 8 Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05409-05412                           | 390  | 1  | 50         | TOU Current Month Reg 8 Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05413-05416                           | 390  | 2  | 50         | TOU Current Month Reg 8 Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05417-05420                           | 390  | 3  | 50         | TOU Current Month Reg 8 Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Current Month Total Block |      |    |            |  |                                      |                    |      |     |
| 05421-05424                           | 391  | 0  | 20         | obsolete-TOU Current Month Total Watthour (Quadrant 1 + 4)         | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05425-05428                           | 391  | 1  | 20         | obsolete-TOU Current Month Total VAhour (Quadrant 1)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05429-05432                           | 391  | 2  | 20         | obsolete-TOU Current Month Total VARhour (Quadrant 1)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05433-05436                           | 391  | 3  | 20         | obsolete-TOU Current Month Total VAhour (Quadrant 4)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05437-05440                           | 391  | 4  | 20         | obsolete-TOU Current Month Total VARhour (Quadrant 4)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05441-05444                           | 391  | 5  | 20         | obsolete-TOU Current Month Total Watthour (Quadrant 2 + 3)         | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 05445-05448                           | 391  | 6  | 20         | obsolete-TOU Current Month Total VAhour (Quadrant 2)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05449-05452                           | 391  | 7  | 20         | obsolete-TOU Current Month Total VARhour (Quadrant 2)              | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description  | Range                                | Units              | Type | R/W |
|-------------------------------------|------|----|------------|--|--------------------------------------|--------------------|------|-----|
| 05453-05456                         | 391  | 8  | 20         | obsolete-TOU Current Month Total VAhour (Quadrant 3)               | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 05457-05460                         | 391  | 9  | 20         | obsolete-TOU Current Month Total VARhour (Quadrant 3)              | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 05461-05462                         | 392  | 0  | 30         | TOU Current Month Total Peak Demand Watt (Quadrant 1 + 4)          | +32767 Watt / 0 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05463-05464                         | 392  | 1  | 30         | TOU Current Month Total Peak Demand Watt (Quadrant 2 + 3)          | 0 Watt / -32768 Watt                 | 1/ 65536 W sec     | F7   | R   |
| 05465-05466                         | 392  | 2  | 30         | TOU Current Month Total Peak Demand VAR (Quadrant 1 + 2)           | +32767 VAR / 0 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05467-05468                         | 392  | 3  | 30         | TOU Current Month Total Peak Demand VAR (Quadrant 3 + 4)           | 0 VAR / -32768 VAR                   | 1/ 65536 VAR sec   | F7   | R   |
| 05469-05470                         | 393  | 0  | 30         | TOU Current Month Total Coin. Dmd. VAR to Peak Dmd. Watt (Q 1 + 4) | +32767 VAR/ -32768 VAR               | 1/ 65536 VAR sec   | F7   | R   |
| 05471-05472                         | 393  | 1  | 30         | TOU Current Month Total Coin. Dmd. VAR to Peak Dmd. Watt (Q 2 + 3) | +32767 VAR / -32768 VAR              | 1/ 65536 VAR sec   | F7   | R   |
| 05473-05476                         | 394  | 0  | 50         | TOU Current Month Total Peak Demand Watt (Q 1 + 4) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05477-05480                         | 394  | 1  | 50         | TOU Current Month Total Peak Demand Watt (Q 2 + 3) Time Stamp      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05481-05484                         | 394  | 2  | 50         | TOU Current Month Total Peak Demand VAR (Q 1 + 2) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 05485-05488                         | 394  | 3  | 50         | TOU Current Month Total Peak Demand VAR (Q 3 + 4) Time Stamp       | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Time of Use Frozen Label Block      |      |    |            |  |                                      |                    |      |     |
| 05489-05496                         | 395  | 0  |            | TOU Frozen Reg 1 Label   |                                      |                    | F2   | R   |
| 05497-05504                         | 395  | 1  |            | TOU Frozen Reg 2 Label   |                                      |                    | F2   | R   |
| 05505-05512                         | 395  | 2  |            | TOU Frozen Reg 3 Label   |                                      |                    | F2   | R   |
| 05513-05520                         | 395  | 3  |            | TOU Frozen Reg 4 Label   |                                      |                    | F2   | R   |
| 05521-05528                         | 395  | 4  |            | TOU Frozen Reg 5 Label   |                                      |                    | F2   | R   |
| 05529-05536                         | 395  | 5  |            | TOU Frozen Reg 6 Label   |                                      |                    | F2   | R   |
| 05537-05544                         | 395  | 6  |            | TOU Frozen Reg 7 Label   |                                      |                    | F2   | R   |
| 05545-05552                         | 395  | 7  |            | TOU Frozen Reg 8 Label   |                                      |                    | F2   | R   |
| Time of Use Prior Month Label Block |      |    |            |  |                                      |                    |      |     |
| 05553-05560                         | 396  | 0  |            | TOU Prior Month Reg 1 Label  |                                      |                    | F2   | R   |
| 05561-05568                         | 396  | 1  |            | TOU Prior Month Reg 2 Label  |                                      |                    | F2   | R   |
| 05569-05576                         | 396  | 2  |            | TOU Prior Month Reg 3 Label  |                                      |                    | F2   | R   |
| 05577-05584                         | 396  | 3  |            | TOU Prior Month Reg 4 Label  |                                      |                    | F2   | R   |
| 05585-05592                         | 396  | 4  |            | TOU Prior Month Reg 5 Label  |                                      |                    | F2   | R   |
| 05593-05600                         | 396  | 5  |            | TOU Prior Month Reg 6 Label  |                                      |                    | F2   | R   |
| 05601-05608                         | 396  | 6  |            | TOU Prior Month Reg 7 Label  |                                      |                    | F2   | R   |
| 05609-05616                         | 396  | 7  |            | TOU Prior Month Reg 8 Label  |                                      |                    | F2   | R   |
| Time of Use Active Label Block      |      |    |            |  |                                      |                    |      |     |
| 05617-05624                         | 397  | 0  |            | TOU Active Reg 1 Label   |                                      |                    | F2   | R   |
| 05625-05632                         | 397  | 1  |            | TOU Active Reg 2 Label   |                                      |                    | F2   | R   |



| Address   | Line | Pt | DNP<br>Obj | Description  | Range                         | Units   | Type | R/W |
|---|------|----|------------|--|-------------------------------|---------|------|-----|
| 05633-05640   | 397  | 2  |            | TOU Active Reg 3 Label   |                               |         | F2   | R   |
| 05641-05648   | 397  | 3  |            | TOU Active Reg 4 Label   |                               |         | F2   | R   |
| 05649-05656   | 397  | 4  |            | TOU Active Reg 5 Label   |                               |         | F2   | R   |
| 05657-05664   | 397  | 5  |            | TOU Active Reg 6 Label   |                               |         | F2   | R   |
| 05665-05672   | 397  | 6  |            | TOU Active Reg 7 Label   |                               |         | F2   | R   |
| 05673-05680   | 397  | 7  |            | TOU Active Reg 8 Label   |                               |         | F2   | R   |
| Time of Use Current Month Label Block                   |      |    |            |  |                               |         |      |     |
| 05681-05688   | 398  | 0  |            | TOU Current Month Reg 1 Label                                      |                               |         | F2   | R   |
| 05689-05696   | 398  | 1  |            | TOU Current Month Reg 2 Label                                      |                               |         | F2   | R   |
| 05697-05704   | 398  | 2  |            | TOU Current Month Reg 3 Label                                      |                               |         | F2   | R   |
| 05705-05712   | 398  | 3  |            | TOU Current Month Reg 4 Label                                      |                               |         | F2   | R   |
| 05713-05720   | 398  | 4  |            | TOU Current Month Reg 5 Label                                      |                               |         | F2   | R   |
| 05721-05728   | 398  | 5  |            | TOU Current Month Reg 6 Label                                      |                               |         | F2   | R   |
| 05729-05736   | 398  | 6  |            | TOU Current Month Reg 7 Label                                      |                               |         | F2   | R   |
| 05737-05744   | 398  | 7  |            | TOU Current Month Reg 8 Label                                      |                               |         | F2   | R   |
| Internal Input Pulse Accumulation Block                 |      |    |            |  |                               |         |      |     |
| 05745-05748   | 399  | 0  | 50         | Internal Input Pulse Accumulation Block Time Stamp                 | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05749-05752   | 400  | 0  | 20         | Pulse Accumulation Internal Input 1                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05753-05756   | 400  | 1  | 20         | Pulse Accumulation Internal Input 2                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05757-05760   | 400  | 2  | 20         | Pulse Accumulation Internal Input 3                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05761-05764   | 400  | 3  | 20         | Pulse Accumulation Internal Input 4                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05765-05768   | 400  | 4  | 20         | Pulse Accumulation Internal Input 5                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05769-05772   | 400  | 5  | 20         | Pulse Accumulation Internal Input 6                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05773-05776   | 400  | 6  | 20         | Pulse Accumulation Internal Input 7                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05777-05780   | 400  | 7  | 20         | Pulse Accumulation Internal Input 8                                | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05781-05784   | 401  | 0  | 20         | Pulse Accumulation Aggregation 1                                   | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05785-05788   | 401  | 1  | 20         | Pulse Accumulation Aggregation 2                                   | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05789-05792   | 401  | 2  | 20         | Pulse Accumulation Aggregation 3                                   | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05793-05796   | 401  | 3  | 20         | Pulse Accumulation Aggregation 4                                   | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| Pulse Accumulation Block Window Average / Maximum Block |      |    |            |  |                               |         |      |     |
| 05797-05800   | 402  | 0  | 50         | Pulse Accumulation Block Window Average / Maximum Block Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05801   | 403  | 0  | 30         | Pulse Accumulation Block Window Average / Maximum Block Status     |                               |         | F14  | R   |
| 05802-05805   | 404  | 0  | 20         | Block Window Average Internal Input 1                              | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |

| Address     | Line | Pt | DNP<br>Obj | Description  | Range                         | Units   | Type | R/W |
|-------------|------|----|------------|--|-------------------------------|---------|------|-----|
| 05806-05809 | 404  | 1  | 20         | Block Window Average Internal Input 2                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05810-05813 | 404  | 2  | 20         | Block Window Average Internal Input 3                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05814-05817 | 404  | 3  | 20         | Block Window Average Internal Input 4                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05818-05821 | 404  | 4  | 20         | Block Window Average Internal Input 5                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05822-05825 | 404  | 5  | 20         | Block Window Average Internal Input 6                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05826-05829 | 404  | 6  | 20         | Block Window Average Internal Input 7                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05830-05833 | 404  | 7  | 20         | Block Window Average Internal Input 8                    | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05834-05837 | 405  | 0  | 20         | Block Window Average Aggregation 1                       | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05838-05841 | 405  | 1  | 20         | Block Window Average Aggregation 2                       | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05842-05845 | 405  | 2  | 20         | Block Window Average Aggregation 3                       | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05846-05849 | 405  | 3  | 20         | Block Window Average Aggregation 4                       | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05850-05853 | 406  | 0  | 20         | Maximum Block Window Average Internal Input 1            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05854-05857 | 406  | 1  | 20         | Maximum Block Window Average Internal Input 2            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05858-05861 | 406  | 2  | 20         | Maximum Block Window Average Internal Input 3            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05862-05865 | 406  | 3  | 20         | Maximum Block Window Average Internal Input 4            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05866-05869 | 406  | 4  | 20         | Maximum Block Window Average Internal Input 5            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05870-05873 | 406  | 5  | 20         | Maximum Block Window Average Internal Input 6            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05874-05877 | 406  | 6  | 20         | Maximum Block Window Average Internal Input 7            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05878-05881 | 406  | 7  | 20         | Maximum Block Window Average Internal Input 8            | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05882-05885 | 407  | 0  | 20         | Maximum Block Window Average Aggregation 1               | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05886-05889 | 407  | 1  | 20         | Maximum Block Window Average Aggregation 2               | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05890-05893 | 407  | 2  | 20         | Maximum Block Window Average Aggregation 3               | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05894-05897 | 407  | 3  | 20         | Maximum Block Window Average Aggregation 4               | +/- 9,223,372,036,854,776,808 | 1 Unit  | F62  | R   |
| 05898-05901 | 408  | 0  | 50         | Maximum Block Window Average Internal Input 1 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05902-05905 | 408  | 1  | 50         | Maximum Block Window Average Internal Input 2 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05906-05909 | 408  | 2  | 50         | Maximum Block Window Average Internal Input 3 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05910-05913 | 408  | 3  | 50         | Maximum Block Window Average Internal Input 4 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05914-05917 | 408  | 4  | 50         | Maximum Block Window Average Internal Input 5 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05918-05921 | 408  | 5  | 50         | Maximum Block Window Average Internal Input 6 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05922-05925 | 408  | 6  | 50         | Maximum Block Window Average Internal Input 7 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05926-05929 | 408  | 7  | 50         | Maximum Block Window Average Internal Input 8 Time Stamp | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05930-05933 | 409  | 0  | 50         | Maximum Block Window Average Aggregation 1 Time Stamp    | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |
| 05934-05937 | 409  | 1  | 50         | Maximum Block Window Average Aggregation 2 Time Stamp    | 12/31/9999 23:59:59.99        | 10 msec | F3   | R   |

| Address            | Line | Pt | DNP<br>Obj | Description   | Range                  | Units        | Type | R/W |
|--------------------|------|----|------------|---|------------------------|--------------|------|-----|
| 05938-05941        | 409  | 2  | 50         | Maximum Block Window Average Aggregation 3 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec      | F3   | R   |
| 05942-05945        | 409  | 3  | 50         | Maximum Block Window Average Aggregation 4 Time Stamp | 12/31/9999 23:59:59.99 | 10 msec      | F3   | R   |
| Temperature        |      |    |            |   |                        |              |      |     |
| 05946              | 410  | 0  | 30         | Nexus® Internal Temperature                           | +3276.7 C / -3276.8 C  | 0.1 degree C | F33  |     |
| Analog Input Block |      |    |            |   |                        |              |      |     |
| 05947              | 411  | 0  | 30         | Analog Input 1, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05948              | 411  | 1  | 30         | Analog Input 2, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05949              | 411  | 2  | 30         | Analog Input 3, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05950              | 411  | 3  | 30         | Analog Input 4, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05951              | 411  | 4  | 30         | Analog Input 5, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05952              | 411  | 5  | 30         | Analog Input 6, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05953              | 411  | 6  | 30         | Analog Input 7, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05954              | 411  | 7  | 30         | Analog Input 8, Module 1                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05955              | 412  | 0  | 30         | Analog Input 1, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05956              | 412  | 1  | 30         | Analog Input 2, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05957              | 412  | 2  | 30         | Analog Input 3, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05958              | 412  | 3  | 30         | Analog Input 4, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05959              | 412  | 4  | 30         | Analog Input 5, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05960              | 412  | 5  | 30         | Analog Input 6, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05961              | 412  | 6  | 30         | Analog Input 7, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05962              | 412  | 7  | 30         | Analog Input 8, Module 2                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05963              | 413  | 0  | 30         | Analog Input 1, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05964              | 413  | 1  | 30         | Analog Input 2, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05965              | 413  | 2  | 30         | Analog Input 3, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05966              | 413  | 3  | 30         | Analog Input 4, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05967              | 413  | 4  | 30         | Analog Input 5, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05968              | 413  | 5  | 30         | Analog Input 6, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05969              | 413  | 6  | 30         | Analog Input 7, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05970              | 413  | 7  | 30         | Analog Input 8, Module 3                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05971              | 414  | 0  | 30         | Analog Input 1, Module 4                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05972              | 414  | 1  | 30         | Analog Input 2, Module 4                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05973              | 414  | 2  | 30         | Analog Input 3, Module 4                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |
| 05974              | 414  | 3  | 30         | Analog Input 4, Module 4                              | +327.67% / -327.68%    | 0.01%        | F10  | R   |

| Address                 | Line | Pt    | DNP<br>Obj | Description                              | Range                  | Units   | Type | R/W |
|-------------------------|------|-------|------------|--|------------------------|---------|------|-----|
| 05975                   | 414  | 4     | 30         | Analog Input 5, Module 4                 | +327.67% / -327.68%    | 0.01%   | F10  | R   |
| 05976                   | 414  | 5     | 30         | Analog Input 6, Module 4                 | +327.67% / -327.68%    | 0.01%   | F10  | R   |
| 05977                   | 414  | 6     | 30         | Analog Input 7, Module 4                 | +327.67% / -327.68%    | 0.01%   | F10  | R   |
| 05978                   | 414  | 7     | 30         | Analog Input 8, Module 4                 | +327.67% / -327.68%    | 0.01%   | F10  | R   |
| Limit Combination Block |      |       |            |  |                        |         |      |     |
| 05979                   | 415  | 0-15  | 1          | Limit States, Combinations, 1-16         |                        |         | F34  | R   |
| 05980                   | 415  | 16-31 | 1          | Limit States, Combinations, 17-32        |                        |         | F34  | R   |
| Relay Logic Block       |      |       |            |  |                        |         |      |     |
| 05981-05984             | 416  | 0     | 50         | Relay Logic Block Time Stamp             | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 05985                   | 417  | 0-15  | 1          | Relay Logic States, Input 1, Relays 1-16 |                        |         | F34  | R   |
| 05986                   | 418  | 0-15  | 1          | Relay Logic States, Input 2, Relays 1-16 |                        |         | F34  | R   |
| 05987                   | 419  | 0-15  | 1          | Relay Logic States, Input 3, Relays 1-16 |                        |         | F34  | R   |
| 05988                   | 420  | 0-15  | 1          | Relay Logic States, Input 4, Relays 1-16 |                        |         | F34  | R   |
| 05989                   | 421  | 0-15  | 1          | Relay Logic States, Input 5, Relays 1-16 |                        |         | F34  | R   |
| 05990                   | 422  | 0-15  | 1          | Relay Logic States, Input 6, Relays 1-16 |                        |         | F34  | R   |
| 05991                   | 423  | 0-15  | 1          | Relay Logic States, Input 7, Relays 1-16 |                        |         | F34  | R   |
| 05992                   | 424  | 0-15  | 1          | Relay Logic States, Input 8, Relays 1-16 |                        |         | F34  | R   |
| 05993                   | 425  | 0-15  | 1          | Relay Logic States, Gate A, Relays 1-16  |                        |         | F34  | R   |
| 05994                   | 426  | 0-15  | 1          | Relay Logic States, Gate B, Relays 1-16  |                        |         | F34  | R   |
| 05995                   | 427  | 0-15  | 1          | Relay Logic States, Gate C, Relays 1-16  |                        |         | F34  | R   |
| 05996                   | 428  | 0-15  | 1          | Relay Logic States, Gate D, Relays 1-16  |                        |         | F34  | R   |
| 05997                   | 429  | 0-15  | 1          | Relay Logic States, Gate E, Relays 1-16  |                        |         | F34  | R   |
| 05998                   | 430  | 0-15  | 1          | Relay Logic States, Gate F, Relays 1-16  |                        |         | F34  | R   |
| 05999                   | 431  | 0-15  | 1          | Relay Logic States, Gate G, Relays 1-16  |                        |         | F34  | R   |
| 06000                   | 432  | 0-1   | 30         | Delay Timer, Relay 1 / Relay 2           |                        |         | F35  | R   |
| 06001                   | 432  | 2-3   | 30         | Delay Timer, Relay 3 / Relay 4           |                        |         | F35  | R   |
| 06002                   | 432  | 4-5   | 30         | Delay Timer, Relay 5 / Relay 6           |                        |         | F35  | R   |
| 06003                   | 432  | 6-7   | 30         | Delay Timer, Relay 7 / Relay 8           |                        |         | F35  | R   |
| 06004                   | 432  | 8-9   | 30         | Delay Timer, Relay 9 / Relay 10          |                        |         | F35  | R   |
| 06005                   | 432  | 10-11 | 30         | Delay Timer, Relay 11 / Relay 12         |                        |         | F35  | R   |
| 06006                   | 432  | 12-13 | 30         | Delay Timer, Relay 13 / Relay 14         |                        |         | F35  | R   |
| 06007                   | 432  | 14-15 | 30         | Delay Timer, Relay 15 / Relay 16         |                        |         | F35  | R   |
| 06008                   | 433  | 0-15  | 1          | Desired Relay States, Relays 1-16        |                        |         | F36  | R   |

| Address                       | Line | Pt   | DNP<br>Obj | Description   | Range                                | Units              | Type | R/W |
|-------------------------------|------|------|------------|---|--------------------------------------|--------------------|------|-----|
| 06009                         | 434  | 0-15 | 1          | Relays Pending Updates, Relays 1-16                     |                                      |                    | F37  | R   |
| 06010                         | 435  | 0-15 | 1          | Shadowed Relay States, Relays 1-16                      |                                      |                    | F38  | R   |
| 06011                         | 436  | 0-15 | 10         | Confirmed Polled Relay States, Relays 1-16              |                                      |                    | F39  | R   |
| 06012                         | 437  | 0-15 | 1          | Valid Flags for Confirmed Relay States, Relays 1-16     |                                      |                    | F40  | R   |
| 06013                         | 438  | 0-15 | 1          | Locked Relays, Relays 1-16                              |                                      |                    | F41  | R   |
| 06014                         | 439  | 0-15 | 1          | Locked Relay States, Relays 1-16                        |                                      |                    | F42  | R   |
| Reset Time Block              |      |      |            |   |                                      |                    |      |     |
| 06015-06018                   | 440  | 0    | 50         | Reset Time Block Time Stamp                             | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 06019-06022                   | 440  | 1    | 50         | Reset Maximum Time Stamp                                | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 06023-06026                   | 440  | 2    | 50         | Reset Minimum Time Stamp                                | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 06027-06030                   | 440  | 3    | 50         | Reset Energy Time Stamp                                 | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 06031-06034                   | 440  | 4    | 50         | Reset Current Month TOU Time Stamp                      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| 06035-06038                   | 440  | 5    | 50         | Reset Pulse Accumulations/Aggregations Time Stamps      | 12/31/9999 23:59:59.99               | 10 msec            | F3   | R   |
| Miscellaneous Flags           |      |      |            |   |                                      |                    |      |     |
| 06039                         | 441  | 0-15 | 1          | Miscellaneous Flags                                     |                                      |                    |      |     |
| Test Mode Block               |      |      |            |   |                                      |                    |      |     |
| 06040-06043                   | 442  | 0    | 50         | Test Mode Block Time Stamp                              | 12/31/9999 23:59:59.99               | 10 msec            | F3   |     |
| 06044-06047                   | 443  | 0    | 50         | Test Mode Start Time                                    | 12/31/9999 23:59:59.99               | 10 msec            | F3   |     |
| 06048-06051                   | 443  | 1    | 50         | Test Mode Current Test Start Time                       | 12/31/9999 23:59:59.99               | 10 msec            | F3   |     |
| 06052                         | 444  | 0    | 30         | Test Mode Block Average Status / Rolling Average Status |                                      |                    | F14  |     |
| 06053-06054                   | 445  | 0    | 30         | Test Mode Block Average Total Watt                      | +32767 W / -32768 W                  | 1/ 65536 W sec     | F7   |     |
| 06055-06056                   | 445  | 1    | 30         | Test Mode Rolling Average Total Watt                    | +32767 W / -32768 W                  | 1/ 65536 W sec     | F7   |     |
| 06057-06060                   | 446  | 0    | 20         | Test Mode Watthour (Q1+4)                               | +9,999,999,999,999,999 Wh / 0 Wh     | 1 W <sub>H</sub>   | F12  |     |
| 06061-06064                   | 446  | 1    | 20         | Test Mode VAhour (Q1)                                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F12  |     |
| 06065-06068                   | 446  | 2    | 20         | Test Mode VARhour (Q1)                                  | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F12  |     |
| 06069-06072                   | 446  | 3    | 20         | Test Mode VAhour (Q4)                                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F12  |     |
| 06073-06076                   | 446  | 4    | 20         | Test Mode VARhour (Q4)                                  | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F12  |     |
| 06077-06080                   | 446  | 5    | 20         | Test Mode Watthour (Q2+3)                               | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F12  |     |
| 06081-06084                   | 446  | 6    | 20         | Test Mode VAhour (Q2)                                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F12  |     |
| 06085-06088                   | 446  | 7    | 20         | Test Mode VARhour (Q2)                                  | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F12  |     |
| 06089-06092                   | 446  | 8    | 20         | Test Mode VAhour (Q3)                                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F12  |     |
| 06093-06096                   | 446  | 9    | 20         | Test Mode VARhour (Q3)                                  | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F12  |     |
| KYZ Output Accumulation Block |      |      |            |   |                                      |                    |      |     |

| Address                        | Line | Pt   | DNP Obj | Description                                    | Range                  | Units    | Type | R/W |
|--------------------------------|------|------|---------|--|------------------------|----------|------|-----|
| 06097-06100                    | 447  | 0    | 50      | KYZ Output Accumulation Block Time Stamp       | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06101-06102                    | 448  | 0    | 20      | KYZ Output Accumulation, Relay 1               | 4,294,967,295 / 0      |          | F18  | R   |
| 06103-06104                    | 448  | 1    | 20      | KYZ Output Accumulation, Relay 2               | 4,294,967,295 / 0      |          | F18  | R   |
| 06105-06106                    | 448  | 2    | 20      | KYZ Output Accumulation, Relay 3               | 4,294,967,295 / 0      |          | F18  | R   |
| 06107-06108                    | 448  | 3    | 20      | KYZ Output Accumulation, Relay 4               | 4,294,967,295 / 0      |          | F18  | R   |
| 06109-06110                    | 448  | 4    | 20      | KYZ Output Accumulation, LED                   | 4,294,967,295 / 0      |          | F18  | R   |
| Input Module Data Status Block |      |      |         |  |                        |          |      |     |
| 06111                          | 449  | 0-3  | 1       | Digital Input Modules Data States              |                        |          | F44  | R   |
| 06112-06113                    | 450  | 0-31 | 1       | Analog Input Modules Data States               |                        |          | F45  | R   |
| Flicker Status Block           |      |      |         |  |                        |          |      |     |
| 06114-06117                    | 451  | 0    | 50      | Flicker Status Block Time Stamp                | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06118-06121                    | 452  | 0    | 50      | Flicker Start Time                             | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06122-06125                    | 452  | 1    | 50      | Flicker End Time                               | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06126                          | 453  | 0    | 30      | Flicker Status                                 |                        |          | F14  | R   |
| Instantaneous Flicker Block    |      |      |         |  |                        |          |      |     |
| 06127-06130                    | 454  | 0    | 50      | Instantaneous Flicker Block Time               | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06131-06132                    | 455  | 0    | 30      | Instantaneous Flicker $V_{AN}$                 | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06133-06134                    | 455  | 1    | 30      | Instantaneous Flicker $V_{BN}$                 | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06135-06136                    | 455  | 2    | 30      | Instantaneous Flicker $V_{CN}$                 | +32767 / 0             | 1/ 65536 | F7   | R   |
| Short Term Flicker Block       |      |      |         |  |                        |          |      |     |
| 06137-06140                    | 456  | 0    | 50      | Short Term Flicker Block Time                  | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06141-06142                    | 457  | 0    | 30      | Short Term Flicker $V_{AN}$                    | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06143-06144                    | 457  | 1    | 30      | Short Term Flicker $V_{BN}$                    | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06145-06146                    | 457  | 2    | 30      | Short Term Flicker $V_{CN}$                    | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06147-06148                    | 458  | 0    | 30      | Maximum Short Term Flicker $V_{AN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06149-06150                    | 458  | 1    | 30      | Maximum Short Term Flicker $V_{BN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06151-06152                    | 458  | 2    | 30      | Maximum Short Term Flicker $V_{CN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06153-06154                    | 459  | 0    | 30      | Minimum Short Term Flicker $V_{AN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06155-06156                    | 459  | 1    | 30      | Minimum Short Term Flicker $V_{BN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06157-06158                    | 459  | 2    | 30      | Minimum Short Term Flicker $V_{CN}$            | +32767 / 0             | 1/ 65536 | F7   | R   |
| 06159-06162                    | 460  | 0    | 50      | Short Term Flicker Interval End Time Stamp     | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06163-06166                    | 461  | 0    | 50      | Maximum Short Term Flicker $V_{AN}$ Time Stamp | 12/31/9999 23:59:59.99 |          | F3   |     |
| 06167-06170                    | 461  | 1    | 50      | Maximum Short Term Flicker $V_{BN}$ Time Stamp | 12/31/9999 23:59:59.99 |          | F3   |     |

| Address                 | Line | Pt | DNP Obj | Description                                    | Range                                | Units     | Type | R/W |
|-------------------------|------|----|---------|--|--------------------------------------|-----------|------|-----|
| 06171-06174             | 461  | 2  | 50      | Maximum Short Term Flicker $V_{CN}$ Time Stamp | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06175-06178             | 462  | 0  | 50      | Minimum Short Term Flicker $V_{AN}$ Time Stamp | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06179-06182             | 462  | 1  | 50      | Minimum Short Term Flicker $V_{BN}$ Time Stamp | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06183-06186             | 462  | 2  | 50      | Minimum Short Term Flicker $V_{CN}$ Time Stamp | 12/31/9999 23:59:59.99               |           | F3   |     |
| Long Term Flicker Block |      |    |         |  |                                      |           |      |     |
| 06187-06190             | 463  | 0  | 50      | Long Term Flicker Block Time                   | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06191-06192             | 464  | 0  | 30      | Long Term Flicker $V_{AN}$                     | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06193-06194             | 464  | 1  | 30      | Long Term Flicker $V_{BN}$                     | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06195-06196             | 464  | 2  | 30      | Long Term Flicker $V_{CN}$                     | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06197-06198             | 465  | 0  | 30      | Maximum Long Term Flicker $V_{AN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06199-06200             | 465  | 1  | 30      | Maximum Long Term Flicker $V_{BN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06201-06202             | 465  | 2  | 30      | Maximum Long Term Flicker $V_{CN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06203-06204             | 466  | 0  | 30      | Minimum Long Term Flicker $V_{AN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06205-06206             | 466  | 1  | 30      | Minimum Long Term Flicker $V_{BN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06207-06208             | 466  | 2  | 30      | Minimum Long Term Flicker $V_{CN}$             | +32767 / 0                           | 1/ 65536  | F7   | R   |
| 06209-06212             | 467  | 0  | 50      | Long Term Flicker Interval End Time Stamp      | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06213-06216             | 468  | 0  | 50      | Maximum Long Term Flicker $V_{AN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06217-06220             | 468  | 1  | 50      | Maximum Long Term Flicker $V_{BN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06221-06224             | 468  | 2  | 50      | Maximum Long Term Flicker $V_{CN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06225-06228             | 469  | 0  | 50      | Minimum Long Term Flicker $V_{AN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06229-06232             | 469  | 1  | 50      | Minimum Long Term Flicker $V_{BN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06233-06236             | 469  | 2  | 50      | Minimum Long Term Flicker $V_{CN}$ Time Stamp  | 12/31/9999 23:59:59.99               |           | F3   |     |
| Additional Energy Block |      |    |         |  |                                      |           |      |     |
| 06237-06240             | 470  | 0  | 50      | Additional Energy Block Time                   | 12/31/9999 23:59:59.99               |           | F3   |     |
| 06241-06244             | 471  | 0  |         | Quadrant 1 Watthour, Secondary                 | +9,999,999,999,999,999 WH / 0 WH     | 1 $W_H$   | F19  | R   |
| 06245-06248             | 471  | 1  |         | Quadrant 4 Watthour, Secondary                 | +9,999,999,999,999,999 WH / 0 WH     | 1 $W_H$   | F19  | R   |
| 06249-06252             | 471  | 2  |         | Quadrant 2 Watthour, Secondary                 | 0 Wh / -9,999,999,999,999,999 Wh     | 1 $W_H$   | F19  | R   |
| 06253-06256             | 471  | 3  |         | Quadrant 3 Watthour, Secondary                 | 0 Wh / -9,999,999,999,999,999 Wh     | 1 $W_H$   | F19  | R   |
| 06257-06260             | 472  | 0  |         | Quadrant 1 Vahour, Secondary                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 $VA_H$  | F19  | R   |
| 06261-06264             | 472  | 1  |         | Quadrant 1 VARhour, Secondary                  | +9,999,999,999,999,999 VARh / 0 VARh | 1 $VAR_H$ | F19  | R   |
| 06265-06268             | 472  | 2  |         | Quadrant 4 Vahour, Secondary                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 $VA_H$  | F19  | R   |
| 06269-06272             | 472  | 3  |         | Quadrant 4 VARhour, Secondary                  | 0 VARh / -9,999,999,999,999,999 VARh | 1 $VAR_H$ | F19  | R   |
| 06273-06276             | 472  | 4  |         | Quadrant 2 Vahour, Secondary                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 $VA_H$  | F19  | R   |

| Address                           | Line | Pt | DNP<br>Obj | Description   | Range                                | Units              | Type | R/W |
|-----------------------------------|------|----|------------|---|--------------------------------------|--------------------|------|-----|
| 06277-06280                       | 472  | 5  |            | Quadrant 2 VARhour, Secondary                               | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 06281-06284                       | 472  | 6  |            | Quadrant 3 Vahour, Secondary                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 06285-06288                       | 472  | 7  |            | Quadrant 3 VARhour, Secondary                               | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 06289-06292                       | 473  | 0  |            | Quadrant 1 Watthour, Primary                                | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F19  | R   |
| 06293-06296                       | 473  | 1  |            | Quadrant 4 Watthour, Primary                                | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F19  | R   |
| 06297-06300                       | 473  | 2  |            | Quadrant 2 Watthour, Primary                                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F19  | R   |
| 06301-06304                       | 473  | 3  |            | Quadrant 3 Watthour, Primary                                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F19  | R   |
| 06305-06308                       | 474  | 0  |            | Total Vahour (Quadrants 1+2+3+4), Primary                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F19  | R   |
| 06309-06312                       | 474  | 1  |            | Positive VARhour (Quadrants 1+2), Primary                   | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 06313-06316                       | 474  | 2  |            | Negative VARhour (Quadrants 3+4), Primary                   | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F19  | R   |
| 06317-06320                       | 475  | 0  | 20         | Quadrant 1 Watthour, Secondary                              | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F20  | R   |
| 06321-06324                       | 475  | 1  | 20         | Quadrant 4 Watthour, Secondary                              | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F20  | R   |
| 06325-06328                       | 475  | 2  | 20         | Quadrant 2 Watthour, Secondary                              | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 06329-06332                       | 475  | 3  | 20         | Quadrant 3 Watthour, Secondary                              | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 06333-06336                       | 476  | 0  | 20         | Quadrant 1 Vahour, Secondary                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 06337-06340                       | 476  | 1  | 20         | Quadrant 1 VARhour, Secondary                               | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 06341-06344                       | 476  | 2  | 20         | Quadrant 4 Vahour, Secondary                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 06345-06348                       | 476  | 3  | 20         | Quadrant 4 VARhour, Secondary                               | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 06349-06352                       | 476  | 4  | 20         | Quadrant 2 Vahour, Secondary                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 06353-06356                       | 476  | 5  | 20         | Quadrant 2 VARhour, Secondary                               | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 06357-06360                       | 476  | 6  | 20         | Quadrant 3 Vahour, Secondary                                | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 06361-06364                       | 476  | 7  | 20         | Quadrant 3 VARhour, Secondary                               | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 06365-06368                       | 477  | 0  | 20         | Quadrant 1 Watthour, Primary                                | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F20  | R   |
| 06369-06372                       | 477  | 1  | 20         | Quadrant 4 Watthour, Primary                                | +9,999,999,999,999,999 WH / 0 WH     | 1 W <sub>H</sub>   | F20  | R   |
| 06373-06376                       | 477  | 2  | 20         | Quadrant 2 Watthour, Primary                                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 06377-06380                       | 477  | 3  | 20         | Quadrant 3 Watthour, Primary                                | 0 Wh / -9,999,999,999,999,999 Wh     | 1 W <sub>H</sub>   | F20  | R   |
| 06381-06384                       | 478  | 0  | 20         | Total Vahour (Quadrants 1+2+3+4), Primary                   | +9,999,999,999,999,999 VAh / 0 VAh   | 1 VA <sub>H</sub>  | F20  | R   |
| 06385-06388                       | 478  | 1  | 20         | Positive VARhour (Quadrants 1+2), Primary                   | +9,999,999,999,999,999 VARh / 0 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| 06389-06392                       | 478  | 2  | 20         | Negative VARhour (Quadrants 3+4), Primary                   | 0 VARh / -9,999,999,999,999,999 VARh | 1 VAR <sub>H</sub> | F20  | R   |
| Energy and Pulses in the Interval |      |    |            |   |                                      |                    |      |     |
| 06393-06396                       | 479  | 0  | 50         | Energy and Pulses in the Interval Block Time Stamp          | 12/31/9999 23:59:59.99               |                    | F3   |     |
| 06397                             | 480  | 0  | 30         | Total Vahour (Quadrants 1+2+3+4) in the Interval, Secondary | 65,535 / 0                           | 1 VA <sub>H</sub>  | F57  | R   |
| 06398                             | 480  | 1  | 30         | Positive VARhour (Quadrants 1+2) in the Interval, Secondary | 65,535 / 0                           | 1 VAR <sub>H</sub> | F57  | R   |



| Address     | Line | Pt | DNP<br>Obj | Description  | Range             | Units              | Type | R/W |
|-------------|------|----|------------|--|-------------------|--------------------|------|-----|
| 06399       | 480  | 2  | 30         | Negative VARhour (Quadrants 3+4) in the Interval, Secondary  | 65,535 / 0        | 1 VAR <sub>H</sub> | F57  | R   |
| 06400       | 480  | 3  | 30         | Positive Watthour (Quadrants 1+4) in the Interval, Secondary | 65,535 / 0        | 1 W <sub>H</sub>   | F57  | R   |
| 06401       | 480  | 4  | 30         | Negative Watthour (Quadrants 2+3) in the Interval, Secondary | 65,535 / 0        | 1 W <sub>H</sub>   | F57  | R   |
| 06402-06403 | 481  | 0  | 30         | Positive Watthour (Quadrants 1+4) in the Interval, Primary   | 4,294,967,295 / 0 | 1 W <sub>H</sub>   | F18  | R   |
| 06404-06405 | 481  | 1  | 30         | Quadrant 1 Vahour in the Interval, Primary                   | 4,294,967,295 / 0 | 1 VA <sub>H</sub>  | F18  | R   |
| 06406-06407 | 481  | 2  | 30         | Quadrant 1 VARhour in the Interval, Primary                  | 4,294,967,295 / 0 | 1 VAR <sub>H</sub> | F18  | R   |
| 06408-06409 | 481  | 3  | 30         | Quadrant 4 Vahour in the Interval, Primary                   | 4,294,967,295 / 0 | 1 VA <sub>H</sub>  | F18  | R   |
| 06410-06411 | 481  | 4  | 30         | Quadrant 4 VARhour in the Interval, Primary                  | 4,294,967,295 / 0 | 1 VAR <sub>H</sub> | F18  | R   |
| 06412-06413 | 481  | 5  | 30         | Negative Watthour (Quadrants 2+3) in the Interval, Primary   | 4,294,967,295 / 0 | 1 W <sub>H</sub>   | F18  | R   |
| 06414-06415 | 481  | 6  | 30         | Quadrant 2 Vahour in the Interval, Primary                   | 4,294,967,295 / 0 | 1 VA <sub>H</sub>  | F18  | R   |
| 06416-06417 | 481  | 7  | 30         | Quadrant 2 VARhour in the Interval, Primary                  | 4,294,967,295 / 0 | 1 VAR <sub>H</sub> | F18  | R   |
| 06418-06419 | 481  | 8  | 30         | Quadrant 3 Vahour in the Interval, Primary                   | 4,294,967,295 / 0 | 1 VA <sub>H</sub>  | F18  | R   |
| 06420-06421 | 481  | 9  | 30         | Quadrant 3 VARhour in the Interval, Primary                  | 4,294,967,295 / 0 | 1 VAR <sub>H</sub> | F18  | R   |
| 06422-06423 | 482  | 0  | 30         | I <sup>2</sup> t Phase A in the Interval, Primary            | 4,294,967,295 / 0 | 1 I <sup>2</sup> t | F18  | R   |
| 06424-06425 | 482  | 1  | 30         | I <sup>2</sup> t Phase B in the Interval, Primary            | 4,294,967,295 / 0 | 1 I <sup>2</sup> t | F18  | R   |
| 06426-06427 | 482  | 2  | 30         | I <sup>2</sup> t Phase C in the Interval, Primary            | 4,294,967,295 / 0 | 1 I <sup>2</sup> t | F18  | R   |
| 06428-06429 | 482  | 3  | 30         | V <sup>2</sup> t Phase A in the interval, Primary            | 4,294,967,295 / 0 | 1 V <sup>2</sup> t | F18  | R   |
| 06430-06431 | 482  | 4  | 30         | V <sup>2</sup> t Phase B in the Interval, Primary            | 4,294,967,295 / 0 | 1 V <sup>2</sup> t | F18  | R   |
| 06432-06433 | 482  | 5  | 30         | V <sup>2</sup> t Phase C in the Interval, Primary            | 4,294,967,295 / 0 | 1 V <sup>2</sup> t | F18  | R   |
| 06434-06435 | 483  | 0  | 30         | Pulse Accumulation, Internal Input 1 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 09436-06437 | 483  | 1  | 30         | Pulse Accumulation, Internal Input 2 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06438-06439 | 483  | 2  | 30         | Pulse Accumulation, Internal Input 3 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06440-06441 | 483  | 3  | 30         | Pulse Accumulation, Internal Input 4 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06442-06443 | 483  | 4  | 30         | Pulse Accumulation, Internal Input 5 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06444-06445 | 483  | 5  | 30         | Pulse Accumulation, Internal Input 6 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06446-06447 | 483  | 6  | 30         | Pulse Accumulation, Internal Input 7 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06448-06449 | 483  | 7  | 30         | Pulse Accumulation, Internal Input 8 in the Interval, Scaled | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06450-06451 | 484  | 0  | 30         | Pulse Aggregation 1 in the Interval, Scaled                  | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06452-06453 | 484  | 1  | 30         | Pulse Aggregation 2 in the Interval, Scaled                  | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06454-06455 | 484  | 2  | 30         | Pulse Aggregation 3 in the Interval, Scaled                  | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06456-06457 | 484  | 3  | 30         | Pulse Aggregation 4 in the Interval, Scaled                  | 4,294,967,295 / 0 | 1 Unit             | F18  | R   |
| 06458       | 485  | 0  | 30         | Quadrant 1 Watthour in the Interval, Secondary               | 65,535 / 0        | 1 W <sub>H</sub>   | F57  | R   |
| 06459       | 485  | 1  | 30         | Quadrant 4 Watthour in the Interval, Secondary               | 65,535 / 0        | 1 W <sub>H</sub>   | F57  | R   |

| Address                              | Line | Pt | DNP Obj | Description  | Range                  | Units              | Type | R/W |
|--------------------------------------|------|----|---------|--|------------------------|--------------------|------|-----|
| 06460                                | 485  | 2  | 30      | Quadrant 2 Watthour in the Interval, Secondary             | 65,535 / 0             | 1 W <sub>H</sub>   | F57  | R   |
| 06461                                | 485  | 3  | 30      | Quadrant 3 Watthour in the Interval, Secondary             | 65,535 / 0             | 1 W <sub>H</sub>   | F57  | R   |
| 06462                                | 486  | 0  | 30      | Quadrant 1 Vahour in the Interval, Secondary               | 65,535 / 0             | 1 VA <sub>H</sub>  | F57  | R   |
| 06463                                | 486  | 1  | 30      | Quadrant 1 VARhour in the Interval, Secondary              | 65,535 / 0             | 1 VAR <sub>H</sub> | F57  | R   |
| 06464                                | 486  | 2  | 30      | Quadrant 4 Vahour in the Interval, Secondary               | 65,535 / 0             | 1 VA <sub>H</sub>  | F57  | R   |
| 06465                                | 486  | 3  | 30      | Quadrant 4 VARhour in the Interval, Secondary              | 65,535 / 0             | 1 VAR <sub>H</sub> | F57  | R   |
| 06466                                | 486  | 4  | 30      | Quadrant 2 Vahour in the Interval, Secondary               | 65,535 / 0             | 1 VA <sub>H</sub>  | F57  | R   |
| 06467                                | 486  | 5  | 30      | Quadrant 2 VARhour in the Interval, Secondary              | 65,535 / 0             | 1 VAR <sub>H</sub> | F57  | R   |
| 06468                                | 486  | 6  | 30      | Quadrant 3 Vahour in the Interval, Secondary               | 65,535 / 0             | 1 VA <sub>H</sub>  | F57  | R   |
| 06469                                | 486  | 7  | 30      | Quadrant 3 VARhour in the Interval, Secondary              | 65,535 / 0             | 1 VAR <sub>H</sub> | F57  | R   |
| 06470-06471                          | 487  | 0  | 30      | Quadrant 1 Watthour in the Interval, Primary               | 4,294,967,295 / 0      | 1 W <sub>H</sub>   | F18  | R   |
| 06472-06473                          | 487  | 1  | 30      | Quadrant 4 Watthour in the Interval, Primary               | 4,294,967,295 / 0      | 1 W <sub>H</sub>   | F18  | R   |
| 06474-06475                          | 487  | 2  | 30      | Quadrant 2 Watthour in the Interval, Primary               | 4,294,967,295 / 0      | 1 W <sub>H</sub>   | F18  | R   |
| 06476-06477                          | 487  | 3  | 30      | Quadrant 3 Watthour in the Interval, Primary               | 4,294,967,295 / 0      | 1 W <sub>H</sub>   | F18  | R   |
| 06478-06479                          | 488  | 0  | 30      | Total Vahour (Quadrants 1+2+3+4) in the Interval, Primary  | 4,294,967,295 / 0      | 1 VA <sub>H</sub>  | F18  | R   |
| 06480-06481                          | 488  | 1  | 30      | Positive VARhour (Quadrants 1+2) in the Interval, Primary  | 4,294,967,295 / 0      | 1 VAR <sub>H</sub> | F18  | R   |
| 06482-06483                          | 488  | 2  | 30      | Negative VARhour (Quadrants 3+4) in the Interval, Primary  | 4,294,967,295 / 0      | 1 VAR <sub>H</sub> | F18  | R   |
| 06484                                | 489  | 0  | 30      | KYZ Pulse Output in the Interval, Relay 1                  | 65,535 / 0             | 1 pulse            | F57  | R   |
| 06485                                | 489  | 1  | 30      | KYZ Pulse Output in the Interval, Relay 2                  | 65,535 / 0             | 1 pulse            | F57  | R   |
| 06486                                | 489  | 2  | 30      | KYZ Pulse Output in the Interval, Relay 3                  | 65,535 / 0             | 1 pulse            | F57  | R   |
| 06487                                | 489  | 3  | 30      | KYZ Pulse Output in the Interval, Relay 4                  | 65,535 / 0             | 1 pulse            | F57  | R   |
| 06488                                | 489  | 4  | 30      | KYZ Pulse Output in the Interval, IR LED                   | 65,535 / 0             | 1 pulse            | F57  | R   |
| Flicker Countdown Block              |      |    |         |  |                        |                    |      |     |
| 06489                                | 490  | 0  | 30      | Short Term Flicker Countdown                               | 65,535 / 0             | 1 second           | F56  | R   |
| 06490                                | 490  | 1  | 30      | Long Term Flicker Countdown                                | 65,535 / 0             | 1 second           | F56  | R   |
| Cumulative Demand Block              |      |    |         |  |                        |                    |      |     |
| 06491-06494                          | 491  | 0  | 50      | Cumulative Demand Block Time Stamp                         | 12/31/9999 23:59:59.99 |                    | F3   | R   |
| 06495-06496                          | 492  | 0  | 30      | Positive Watt (Quadrants 1+4) Cumulative Demand            | 4,294,967,295 / 0      |                    | F18  | R   |
| 06497-06498                          | 492  | 1  | 30      | Negative Watt (Quadrants 2+3) Cumulative Demand            | 4,294,967,295 / 0      |                    | F18  | R   |
| 06499-06500                          | 493  | 0  | 30      | Positive Watt (Quadrants 1+4) Continuous Cumulative Demand | 4,294,967,295 / 0      |                    | F18  | R   |
| 06501-06502                          | 493  | 1  | 30      | Negative Watt (Quadrants 2+3) Continuous Cumulative Demand | 4,294,967,295 / 0      |                    | F18  | R   |
| Time of Use Active Cumulative Demand |      |    |         |  |                        |                    |      |     |
| 06503-06504                          | 494  | 0  | 30      | TOU Active Reg1 Cumulative Demand Q1 + Q4 Watt             | 4,294,967,295 / 0      |                    | F18  | R   |

| Address                                     | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|---|------|----|------------|---|-------------------|-------|------|-----|
| 06505-06506                                 | 494  | 1  | 30         | TOU Active Reg1 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06507-06508                                 | 494  | 2  | 30         | TOU Active Reg2 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06509-06510                                 | 494  | 3  | 30         | TOU Active Reg2 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06511-06512                                 | 494  | 4  | 30         | TOU Active Reg3 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06513-06514                                 | 494  | 5  | 30         | TOU Active Reg3 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06515-06516                                 | 494  | 6  | 30         | TOU Active Reg4 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06517-06518                                 | 494  | 7  | 30         | TOU Active Reg4 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06519-06520                                 | 494  | 8  | 30         | TOU Active Reg5 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06521-06522                                 | 494  | 9  | 30         | TOU Active Reg5 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06523-06524                                 | 494  | 10 | 30         | TOU Active Reg6 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06525-06526                                 | 494  | 11 | 30         | TOU Active Reg6 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06527-06528                                 | 494  | 12 | 30         | TOU Active Reg7 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06529-06530                                 | 494  | 13 | 30         | TOU Active Reg7 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06531-06532                                 | 494  | 14 | 30         | TOU Active Reg8 Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06533-06534                                 | 494  | 15 | 30         | TOU Active Reg8 Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06535-06536                                 | 494  | 16 | 30         | TOU Active Total Cumulative Demand Q1 + Q4 Watt       | 4,294,967,295 / 0 |       | F18  | R   |
| 06537-06538                                 | 494  | 17 | 30         | TOU Active Total Cumulative Demand Q2 + Q3 Watt       | 4,294,967,295 / 0 |       | F18  | R   |
| Time of Use Current Month Cumulative Demand |      |    |            |   |                   |       |      |     |
| 06539-06540                                 | 495  | 0  | 30         | TOU Current Month Reg1 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06541-06542                                 | 495  | 1  | 30         | TOU Current Month Reg1 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06543-06544                                 | 495  | 2  | 30         | TOU Current Month Reg2 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06545-06546                                 | 495  | 3  | 30         | TOU Current Month Reg2 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06547-06548                                 | 495  | 4  | 30         | TOU Current Month Reg3 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06549-06550                                 | 495  | 5  | 30         | TOU Current Month Reg3 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06551-06552                                 | 495  | 6  | 30         | TOU Current Month Reg4 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06553-06554                                 | 495  | 7  | 30         | TOU Current Month Reg4 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06555-06556                                 | 495  | 8  | 30         | TOU Current Month Reg5 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06557-06558                                 | 495  | 9  | 30         | TOU Current Month Reg5 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06559-06560                                 | 495  | 10 | 30         | TOU Current Month Reg6 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06561-06562                                 | 495  | 11 | 30         | TOU Current Month Reg6 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06563-06564                                 | 495  | 12 | 30         | TOU Current Month Reg7 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06565-06566                                 | 495  | 13 | 30         | TOU Current Month Reg7 Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06567-06568                                 | 495  | 14 | 30         | TOU Current Month Reg8 Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |

| Address  | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|--|------|----|------------|--|-------------------|-------|------|-----|
| 06569-06570  | 495  | 15 | 30         | TOU Current Month Reg8 Cumulative Demand Q2 + Q3 Watt            | 4,294,967,295 / 0 |       | F18  | R   |
| 06571-06572  | 495  | 16 | 30         | TOU Current Month Total Cumulative Demand Q1 + Q4 Watt           | 4,294,967,295 / 0 |       | F18  | R   |
| 06573-06574  | 495  | 17 | 30         | TOU Current Month Total Cumulative Demand Q2 + Q3 Watt           | 4,294,967,295 / 0 |       | F18  | R   |
| Time of Use Active Continuous Cumulative Demand        |      |    |            |  |                   |       |      |     |
| 06575-06576  | 496  | 0  | 30         | TOU Active Reg1 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06577-06578  | 496  | 1  | 30         | TOU Active Reg1 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06579-06580  | 496  | 2  | 30         | TOU Active Reg2 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06581-06582  | 496  | 3  | 30         | TOU Active Reg2 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06583-06584  | 496  | 4  | 30         | TOU Active Reg3 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06585-06586  | 496  | 5  | 30         | TOU Active Reg3 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06587-06588  | 496  | 6  | 30         | TOU Active Reg4 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06589-06590  | 496  | 7  | 30         | TOU Active Reg4 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06591-06592  | 496  | 8  | 30         | TOU Active Reg5 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06593-06594  | 496  | 9  | 30         | TOU Active Reg5 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06595-06596  | 496  | 10 | 30         | TOU Active Reg6 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06597-06598  | 496  | 11 | 30         | TOU Active Reg6 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06599-06600  | 496  | 12 | 30         | TOU Active Reg7 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06601-06602  | 496  | 13 | 30         | TOU Active Reg7 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06603-06604  | 496  | 14 | 30         | TOU Active Reg8 Continuous Cumulative Demand Q1 + Q4 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06605-06606  | 496  | 15 | 30         | TOU Active Reg8 Continuous Cumulative Demand Q2 + Q3 Watt        | 4,294,967,295 / 0 |       | F18  | R   |
| 06607-06608  | 496  | 16 | 30         | TOU Active Total Continuous Cumulative Demand Q1 + Q4 Watt       | 4,294,967,295 / 0 |       | F18  | R   |
| 06609-06610  | 496  | 17 | 30         | TOU Active Total Continuous Cumulative Demand Q2 + Q3 Watt       | 4,294,967,295 / 0 |       | F18  | R   |
| Time of Use Current Month Continuous Cumulative Demand |      |    |            |  |                   |       |      |     |
| 06611-06612  | 497  | 0  | 30         | TOU Current Month Reg1 Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06613-06614  | 497  | 1  | 30         | TOU Current Month Reg1 Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06615-06616  | 497  | 2  | 30         | TOU Current Month Reg2 Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06617-06618  | 497  | 3  | 30         | TOU Current Month Reg2 Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06619-06620  | 497  | 4  | 30         | TOU Current Month Reg3 Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06621-06622  | 497  | 5  | 30         | TOU Current Month Reg3 Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06623-06624  | 497  | 6  | 30         | TOU Current Month Reg4 Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06625-06626  | 497  | 7  | 30         | TOU Current Month Reg4 Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06627-06628  | 497  | 8  | 30         | TOU Current Month Reg5 Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0 |       | F18  | R   |
| 06629-06630  | 497  | 9  | 30         | TOU Current Month Reg5 Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0 |       | F18  | R   |

| Address                   | Line | Pt  | DNP<br>Obj | Description   | Range                    | Units           | Type | R/W |
|---------------------------|------|-----|------------|---|--------------------------|-----------------|------|-----|
| 06631-06632               | 497  | 10  | 30         | TOU Current Month Reg6 Continuous Cumulative Demand Q1 + Q4 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06633-06634               | 497  | 11  | 30         | TOU Current Month Reg6 Continuous Cumulative Demand Q2 + Q3 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06635-06636               | 497  | 12  | 30         | TOU Current Month Reg7 Continuous Cumulative Demand Q1 + Q4 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06637-06638               | 497  | 13  | 30         | TOU Current Month Reg7 Continuous Cumulative Demand Q2 + Q3 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06639-06640               | 497  | 14  | 30         | TOU Current Month Reg8 Continuous Cumulative Demand Q1 + Q4 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06641-06642               | 497  | 15  | 30         | TOU Current Month Reg8 Continuous Cumulative Demand Q2 + Q3 Watt  | 4,294,967,295 / 0        |                 | F18  | R   |
| 06643-06644               | 497  | 16  | 30         | TOU Current Month Total Continuous Cumulative Demand Q1 + Q4 Watt | 4,294,967,295 / 0        |                 | F18  | R   |
| 06645-06646               | 497  | 17  | 30         | TOU Current Month Total Continuous Cumulative Demand Q2 + Q3 Watt | 4,294,967,295 / 0        |                 | F18  | R   |
| Log Index Block           |      |     |            |   |                          |                 |      |     |
| 06647                     | 498  | 0   | 30         | First Index Reset Log   | 65535 / 0                |                 | F63  | R   |
| 06648                     | 498  | 1   | 30         | First Index Historical Log 1                                      | 65535 / 0                |                 | F63  | R   |
| 06649                     | 498  | 2   | 30         | First Index Historical Log 2                                      | 65535 / 0                |                 | F63  | R   |
| 06650                     | 498  | 3   | 30         | First Index Sequence of Events Log                                | 65535 / 0                |                 | F63  | R   |
| 06651                     | 498  | 4   | 30         | First Index Digital Input Log                                     | 65535 / 0                |                 | F63  | R   |
| 06652                     | 498  | 5   | 30         | First Index Digital Output Log                                    | 65535 / 0                |                 | F63  | R   |
| 06653                     | 498  | 6   | 30         | First Index Flicker Log   | 65535 / 0                |                 | F63  | R   |
| 06654                     | 498  | 7   | 30         | First Index Waveform Log  | 65535 / 0                |                 | F63  | R   |
| 06655                     | 498  | 8   | 30         | First Index PQ Log  | 65535 / 0                |                 | F63  | R   |
| 06656                     | 499  | 0   | 30         | Last Index Reset Log  | 65535 / 0                |                 | F63  | R   |
| 06657                     | 499  | 1   | 30         | Last Index Historical Log 1                                       | 65535 / 0                |                 | F63  | R   |
| 06658                     | 499  | 2   | 30         | Last Index Historical Log 2                                       | 65535 / 0                |                 | F63  | R   |
| 06659                     | 499  | 3   | 30         | Last Index Sequence of Events Log                                 | 65535 / 0                |                 | F63  | R   |
| 06660                     | 499  | 4   | 30         | Last Index Digital Input Log                                      | 65535 / 0                |                 | F63  | R   |
| 06661                     | 499  | 5   | 30         | Last Index Digital Output Log                                     | 65535 / 0                |                 | F63  | R   |
| 06662                     | 499  | 6   | 30         | Last Index Flicker Log  | 65535 / 0                |                 | F63  | R   |
| 06663                     | 499  | 7   | 30         | Last Index Waveform Log   | 65535 / 0                |                 | F63  | R   |
| 06664                     | 499  | 8   | 30         | Last Index PQ Log   | 65535 / 0                |                 | F63  | R   |
| Uncompensated and Q Block |      |     |            |   |                          |                 |      |     |
| 06665-06670               | 500  | 0-2 | 30         | Uncompensated One second Phase A-C VA                             | +32767 VA / 0 VA         | 1/65536 VA sec  | F7   |     |
| 06671-06672               | 501  | 0   | 30         | Uncompensated One second VA                                       | +32767 VA / 0 VA         | 1/65536 VA sec  | F7   |     |
| 06673-06678               | 502  | 0-2 | 30         | Uncompensated One second Phase A-C VAR                            | +32767 VAR / - 32768 VAR | 1/65536 VAR sec | F7   |     |
| 06679-06680               | 503  | 0   | 30         | Uncompensated One second VAR                                      | +32767 VAR / - 32768 VAR | 1/65536 VAR sec | F7   |     |
| 06681-06686               | 504  | 0-2 | 30         | Uncompensated One second Phase A-C W                              | +32767 W / - 32768 W     | 1/65536 W sec   | F7   |     |

| Address     | Line | Pt  | DNP<br>Obj | Description                                      | Range                               | Units         | Type | R/W |
|-------------|------|-----|------------|--|-------------------------------------|---------------|------|-----|
| 06687-06688 | 505  | 0   | 30         | Uncompensated One second W                       | +32767 W / - 32768 W                | 1/65536 W sec | F7   |     |
| 06689-06692 | 506  | 0   | 20         | Uncompensated VAh, secondary BCD                 | 9,999,999,999,999,999 VAh / 0 VAh   | 1 VAh         | F11  |     |
| 06693-06700 | 506  | 1-2 | 20         | Uncompensated +/- VARh, secondary BCD            | 9,999,999,999,999,999 VARh / 0 VARh | 1 VARh        | F11  |     |
| 06701-06708 | 506  | 3-4 | 20         | Uncompensated +/- Wh, secondary BCD              | 9,999,999,999,999,999 Wh / 0 Wh     | 1 Wh          | F11  |     |
| 06709-06728 | 507  | 0-4 | 20         | Uncompensated Energy, secondary, binary          | 9,999,999,999,999,999 / 0           | 1             | F12  |     |
| 06729-06748 | 508  | 0-4 | 20         | Uncompensated Energy, primary BCD                | 9,999,999,999,999,999 / 0           | 1             | F19  |     |
| 06749-06768 | 509  | 0-4 | 20         | Uncompensated Energy, primary binary             | 9,999,999,999,999,999 / 0           | 1             | F20  |     |
| 06769-06773 | 510  | 0-4 | 30         | Uncompensated Energy in the Interval, secondary  | 65,535 / 0                          | 1             | F47  |     |
| 06774-06783 | 511  | 0-4 | 30         | Uncompensated Energy in the Interval, primary    | 4,294,967,295 / 0                   | 1             | F18  |     |
| 06784-06789 | 512  | 0-2 | 30         | One second Phase A-C Q                           | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06790-06791 | 513  | 0   | 30         | One second Q                                     | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06792-06793 | 514  | 0   | 30         | Thermal Average Q                                | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06794-06797 | 515  | 0-1 | 30         | Maximum Thermal Average +/- Q                    | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06798-06801 | 516  | 0-1 | 30         | Minimum Thermal Average +/- Q                    | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06802-06809 | 517  | 0-1 | 50         | Maximum Thermal Average +/- Q Time Stamps        | 12/31/9999 23:59:59.99              |               | F3   |     |
| 06810-06817 | 518  | 0-1 | 50         | Minimum Thermal Average +/- Q Time Stamps        | 12/31/9999 23:59:59.99              |               | F3   |     |
| 06818-06825 | 519  | 0-1 | 20         | +/- Qh, secondary BCD                            | 9,999,999,999,999,999 Qh / 0 Qh     | 1 Qh          | F11  |     |
| 06826-06833 | 520  | 0-1 | 20         | +/- Qh, secondary binary                         | 9,999,999,999,999,999 Qh / 0 Qh     | 1 Qh          | F12  |     |
| 06834-06841 | 521  | 0-1 | 20         | +/- Qh, primary BCD                              | 9,999,999,999,999,999 Qh / 0 Qh     | 1 Qh          | F19  |     |
| 06842-06849 | 522  | 0-1 | 20         | +/- Qh, primary binary                           | 9,999,999,999,999,999 Qh / 0 Qh     | 1 Qh          | F20  |     |
| 06850-06851 | 523  | 0-1 | 30         | +/- Qh in the Interval, secondary                | 65,535 / 0                          | 1             | F47  |     |
| 06852-06855 | 524  | 0-1 | 30         | +/- Qh in the Interval, primary                  | 4,294,967,295 / 0                   | 1             | F18  |     |
| 06856-06857 | 525  | 0   | 30         | Block Window Average Q                           | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06858-06861 | 526  | 0-1 | 30         | Maximum Block Window Average +/- Q               | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06862-06865 | 527  | 0-1 | 30         | Minimum Block Window Average +/- Q               | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06866-06873 | 528  | 0-1 | 50         | Maximum Block Window Average +/- Q Time Stamps   | 12/31/9999 23:59:59.99              |               | F3   |     |
| 06874-06881 | 529  | 0-1 | 50         | Minimum Block Window Average +/- Q Time Stamps   | 12/31/9999 23:59:59.99              |               | F3   |     |
| 06882-06883 | 530  | 0   | 30         | Rolling Window Average Q                         | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06884-06887 | 531  | 0-1 | 30         | Maximum Rolling Window Average +/- Q             | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06888-06891 | 532  | 0-1 | 30         | Minimum Rolling Window Average +/- Q             | +32767 Q / -32768 Q                 | 1/65536 Q sec | F7   |     |
| 06892-06899 | 533  | 0-1 | 50         | Maximum Rolling Window Average +/- Q Time Stamps | 12/31/9999 23:59:59.99              |               | F3   |     |
| 06900-06907 | 534  | 0-1 | 50         | Minimum Rolling Window Average +/- Q Time Stamps | 12/31/9999 23:59:59.99              |               | F3   |     |

Scaled Energy Block

| Address     | Line | Pt  | DNP<br>Obj | Description   | Range                                 | Units                                       | Type | R/W |
|-------------|------|-----|------------|---|---------------------------------------|---|------|-----|
| 06908-06911 | 535  | 0   | 50         | Scaled Energy Block Timestamp                         | 12/31/9999 23:59:59.99                |   | F3   |     |
| 06912-06913 | 536  | 0   | 20         | Total VAh (Quadrant 1+2+3+4) Scaled Primary           | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06914-06915 | 536  | 1   | 20         | Positive VARh (Quadrant 1+2) Scaled Primary           | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06916-06917 | 536  | 2   | 20         | Negative VARh (Quadrant 3+4) Scaled Primary           | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06918-06919 | 537  | 0   | 20         | Positive Wh (Quadrant 1+4) Scaled Primary             | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06920-06921 | 537  | 1   | 20         | Quadrant 1 VAh Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06922-06923 | 537  | 2   | 20         | Quadrant 1 VARh Scaled Primary                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06924-06925 | 537  | 3   | 20         | Quadrant 4 VAh Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06926-06927 | 537  | 4   | 20         | Quadrant 4 VARh Scaled Primary                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06928-06929 | 537  | 5   | 20         | Negative Wh (Quadrant 2+3) Scaled Primary             | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06930-06931 | 537  | 6   | 20         | Quadrant 2 VAh Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06932-06933 | 537  | 7   | 20         | Quadrant 2 VARh Scaled Primary                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06934-06935 | 537  | 8   | 20         | Quadrant 3 VAh Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06936-06937 | 537  | 9   | 20         | Quadrant 3 VARh Scaled Primary                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06938-06939 | 538  | 0   | 20         | I2t Phase A Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06940-06941 | 538  | 1   | 20         | I2t Phase B Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06942-06943 | 538  | 2   | 20         | I2t Phase C Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06944-06945 | 538  | 3   | 20         | V2t Phase A Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06946-06947 | 538  | 4   | 20         | V2t Phase B Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06948-06949 | 538  | 5   | 20         | V2t Phase C Scaled Primary                            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06950-06951 | 539  | 0   | 20         | Quadrant 1 Wh Scaled Primary                          | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06952-06953 | 539  | 1   | 20         | Quadrant 4 Wh Scaled Primary                          | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06954-06955 | 539  | 2   | 20         | Quadrant 2 Wh Scaled Primary                          | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06956-06957 | 539  | 3   | 20         | Quadrant 3 Wh Scaled Primary                          | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06958-06959 | 450  | 0   | 20         | Uncompensated Total VAh, Scaled Primary               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06960-06963 | 540  | 1-2 | 20         | Uncompensated +/- VARh Scaled Primary                 | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06964-06967 | 540  | 3-4 | 20         | Uncompensated +/- Wh Scaled Primary                   | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06968-06971 | 541  | 0-1 | 20         | +/- Qh Scaled Primary                                 | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06972-06973 | 542  | 0   | 20         | Test Mode Positive Wh (Quadrant 1+4) Scaled Secondary | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06974-06975 | 542  | 1   | 20         | Test Mode Quadrant 1 VAh Scaled Secondary             | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06976-06977 | 542  | 2   | 20         | Test Mode Quadrant 1 VARh Scaled Primary              | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06978-06979 | 542  | 3   | 20         | Test Mode Quadrant 4 VAh Scaled Secondary             | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06980-06981 | 542  | 4   | 20         | Test Mode Quadrant 4 VARh Scaled Secondary            | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |

| Address     | Line    | Pt  | DNP Obj | Description  | Range                                 | Units                                       | Type | R/W |
|-------------|---------|-----|---------|--|---------------------------------------|---|------|-----|
| 06982-06983 | 542     | 5   | 20      | Test Mode Negative Wh (Quadrant 2+3) Scaled Secondary        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06984-06985 | 542     | 6   | 20      | Test Mode Quadrant 2 VAh Scaled Secondary                    | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06986-06987 | 542     | 7   | 20      | Test Mode Quadrant 2 VARh Scaled Secondary                   | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06988-06989 | 542     | 8   | 20      | Test Mode Quadrant 3 VAh Scaled Secondary                    | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06990-06991 | 542     | 9   | 20      | Test Mode Quadrant 3 VARh Scaled Secondary                   | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 06992-07007 | 543     | 0-7 | 20      | Pulse Accumulation Inputs 1-8, Scaled                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07008-07015 | 544     | 0-3 | 20      | Pulse Aggregations 1-4, Scaled                               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07016-07017 | 545     | 0   | 20      | TOU Frozen Reg1 Positive Wh (Quadrant 1+4) Scaled Primary    | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07018-07019 | 545     | 1   | 20      | TOU Frozen Reg1 Quadrant 1 VAh Scaled Primary                | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07020-07021 | 545     | 2   | 20      | TOU Frozen Reg1 Quadrant 1 VARh Scaled Primary               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07022-07023 | 545     | 3   | 20      | TOU Frozen Reg1 Quadrant 4 VAh Scaled Primary                | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07024-07025 | 545     | 4   | 20      | TOU Frozen Reg1 Quadrant 4 VARh Scaled Primary               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07026-07027 | 545     | 5   | 20      | TOU Frozen Reg1 Negative Wh (Quadrant 2+3) Scaled Primary    | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07028-07029 | 545     | 6   | 20      | TOU Frozen Reg1 Quadrant 2 VAh Scaled Primary                | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07030-07031 | 545     | 7   | 20      | TOU Frozen Reg1 Quadrant 2 VARh Scaled Primary               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07032-07033 | 545     | 8   | 20      | TOU Frozen Reg1 Quadrant 3 VAh Scaled Primary                | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07034-07035 | 545     | 9   | 20      | TOU Frozen Reg1 Quadrant 3 VARh Scaled Primary               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07036-07055 | 546     | 0-9 | 20      | TOU Frozen Reg2 Energy Scaled Primary                        | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07056-07175 | 547-552 | 0-9 | 20      | TOU Frozen Reg3-Reg8 Energy Scaled Primary                   | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07176-07195 | 553     | 0-9 | 20      | TOU Frozen Total Energy Scaled Primary                       | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07196-07375 | 554-562 | 0-9 | 20      | TOU Prior Month Reg1-Reg8 & Total Energy Scaled Primary      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07376-07555 | 563-571 | 0-9 | 20      | TOU Active Reg1-Reg8 & Total Energy Scaled Primary           | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07556-07735 | 572-580 | 0-9 | 20      | TOU Current Month Reg1-Reg8 & Total Energy Scaled Primary    | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07736-07740 | 581     | 0-9 | 30      | TOU Frozen Scaled Energy Settings                            |                                       |   | F65  |     |
| 07741-07745 | 582     | 0-9 | 30      | TOU Prior Month Scaled Energy Settings                       |                                       |   | F65  |     |
| 07746-07747 | 583     | 0   | 30      | Total VAh (Quadrant 1+2+3+4) in the Interval, Scaled Primary | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07748-07749 | 583     | 1   | 30      | Positive VARh (Quadrant 1+2) in the Interval, Scaled Primary | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07750-07751 | 583     | 2   | 30      | Negative VARh (Quadrant 3+4) in the Interval, Scaled Primary | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07752-07753 | 584     | 0   | 30      | Positive Wh (Quadrant 1+4) in the Interval, Scaled Primary   | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |



| Address                          | Line | Pt  | DNP<br>Obj | Description   | Range                                 | Units                                       | Type | R/W |
|----------------------------------|------|-----|------------|---|---------------------------------------|---|------|-----|
| 07754-07755                      | 584  | 1   | 30         | Quadrant 1 VAh in the Interval, Scaled Primary                      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07756-07757                      | 584  | 2   | 30         | Quadrant 1 VARh in the Interval, Scaled Primary                     | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07758-07759                      | 584  | 3   | 30         | Quadrant 4 VAh in the Interval, Scaled Primary                      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07760-07761                      | 584  | 4   | 30         | Quadrant 4 VARh in the Interval, Scaled Primary                     | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07762-07763                      | 584  | 5   | 30         | Negative Wh (Quadrant 2+3) in the Interval, Scaled Primary          | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07764-07765                      | 584  | 6   | 30         | Quadrant 2 VAh in the Interval, Scaled Primary                      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07766-07767                      | 584  | 7   | 30         | Quadrant 2 VARh in the Interval, Scaled Primary                     | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07768-07769                      | 584  | 8   | 30         | Quadrant 3 VAh in the Interval, Scaled Primary                      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07770-07771                      | 584  | 9   | 30         | Quadrant 3 VARh in the Interval, Scaled Primary                     | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07772-07773                      | 585  | 0   | 30         | I2t Phase A in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07774-07775                      | 585  | 1   | 30         | I2t Phase B in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07776-07777                      | 585  | 2   | 30         | I2t Phase C in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07778-07779                      | 585  | 3   | 30         | V2t Phase A in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07780-07781                      | 585  | 4   | 30         | V2t Phase B in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07782-07783                      | 585  | 5   | 30         | V2t Phase C in the Interval, Scaled Primary                         | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07784-07785                      | 586  | 0   | 30         | Quadrant 1 Wh in the Interval, Scaled Primary                       | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07786-07787                      | 586  | 1   | 30         | Quadrant 4 Wh in the Interval, Scaled Primary                       | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07788-07789                      | 586  | 2   | 30         | Quadrant 2 Wh in the Interval, Scaled Primary                       | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07790-07791                      | 586  | 3   | 30         | Quadrant 3 Wh in the Interval, Scaled Primary                       | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07792-07793                      | 587  | 0   | 30         | Uncompensated Total VAh (Q 1+2+3+4) in the Interval, Scaled Primary | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07794-07797                      | 587  | 1-2 | 30         | Uncompensated +/- VARh in the Interval, Scaled Primary              | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07798-07801                      | 587  | 3-4 | 30         | Uncompensated +/- Wh in the Interval, Scaled Primary                | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07802-07805                      | 588  | 0-1 | 30         | +/- Qh in the Interval, Scaled Primary                              | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07806-07821                      | 589  | 0-7 | 30         | Pulse Accumulation Inputs 1-8 in the Interval, Scaled               | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| 07822-07829                      | 590  | 0-3 | 30         | Pulse Aggregations 1-4 in the Interval, Scaled                      | variable (9999 through 999999999 / 0) | variable 10 <sup>6</sup> - 10 <sup>-7</sup> | F64  |     |
| Total Average Power Factor Block |      |     |            |   |                                       |   |      |     |
| 07830-07833                      | 591  | 0   | 50         | Total Average Power Factor Block Timestamp                          | 12/31/9999 23:59:59.99                |   | F3   | R   |
| 07834                            | 592  | 0   | 30         | Total Average Power Factor Q14                                      | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |
| 07835                            | 592  | 1   | 30         | Total Average Power Factor Q23                                      | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |
| 07836                            | 593  | 0   | 30         | Maximum Total Average Power Factor Q14                              | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |
| 07837                            | 593  | 1   | 30         | Maximum Total Average Power Factor Q23                              | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |
| 07838                            | 594  | 0   | 30         | Minimum Total Average Power Factor Q14                              | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |
| 07839                            | 594  | 1   | 30         | Minimum Total Average Power Factor Q23                              | 1.000 / 0                             | 0.001 PF                                    | F8   | R   |

| Address                              | Line | Pt | DNP<br>Obj | Description                                      | Range                  | Units   | Type | R/W |
|--------------------------------------|------|----|------------|--|------------------------|---------|------|-----|
| 07840-07843                          | 595  | 0  | 50         | Maximum Total Average Power Factor Q14 Timestamp | 12/31/9999 23:59:59.99 |         | F3   | R   |
| 07844-07847                          | 595  | 1  | 50         | Maximum Total Average Power Factor Q23 Timestamp | 12/31/9999 23:59:59.99 |         | F3   | R   |
| 07848-07851                          | 596  | 0  | 50         | Minimum Total Average Power Factor Q14 Timestamp | 12/31/9999 23:59:59.99 |         | F3   | R   |
| 07852-07855                          | 596  | 1  | 50         | Minimum Total Average Power Factor Q23 Timestamp | 12/31/9999 23:59:59.99 |         | F3   | R   |
| 07856-07859                          | 597  | 0  | 50         | Total Average Power Factor Reset Timestamp       | 12/31/9999 23:59:59.99 |         | F3   | R   |
| Reset Active TOU Time Stamp          |      |    |            |  |                        |         |      |     |
| 07860-07863                          | 598  | 0  | 50         | Reset Active TOU Time Stamp                      | 12/31/9999 23:59:59.99 |         | F3   | R   |
| Scratchpad Block                     |      |    |            |  |                        |         |      |     |
| 08193-08320                          |      |    |            | Scratchpad Registers                             |                        |         |      |     |
| Master Device Data Blocks            |      |    |            |  |                        |         |      |     |
| 08449-08512                          |      |    |            | Master Device Data, Port 4 (I/O)                 | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 08513-08576                          |      |    |            | Master Device Data, Port 3                       | 9999                   | 1 year  | F21  | R   |
| 08577-08640                          |      |    |            | Master Device Data, Port 2                       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 08641-08704                          |      |    |            | Master Device Data, Port 1 (232/485)             | 9999                   | 1 year  | F21  | R   |
| Customized Modbus Block              |      |    |            |  |                        |         |      |     |
| 12289-14336                          |      |    |            | Customized Modbus Readings                       |                        |         |      | R   |
| Enhanced Factory Settings Block      |      |    |            |  |                        |         |      |     |
| 16385-24576                          |      |    |            | Undefined  |                        |         |      | R   |
| Enhanced Programmable Settings Block |      |    |            |  |                        |         |      |     |
| 24577-32768                          |      |    |            | Undefined  |                        |         |      | R   |
| Time of Use Calendar Header Block    |      |    |            |  |                        |         |      |     |
| 34817-34820                          |      |    |            | TOU Calendar Year 1 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34821                                |      |    |            | TOU Calendar Year 1 Calendar Year                | 9999                   | 1 year  | F21  | R   |
| 34822-34825                          |      |    |            | TOU Calendar Year 2 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34826                                |      |    |            | TOU Calendar Year 2 Calendar Year                | 9999                   | 1 year  | F21  | R   |
| 34827-34830                          |      |    |            | TOU Calendar Year 3 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34831                                |      |    |            | TOU Calendar Year 3 Calendar Year                | 9999                   | 1 year  | F21  | R   |
| 34832-34835                          |      |    |            | TOU Calendar Year 4 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34836                                |      |    |            | TOU Calendar Year 4 Calendar Year                | 9999                   | 1 year  | F21  | R   |
| 34837-34840                          |      |    |            | TOU Calendar Year 5 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34841                                |      |    |            | TOU Calendar Year 5 Calendar Year                | 9999                   | 1 year  | F21  | R   |
| 34842-34845                          |      |    |            | TOU Calendar Year 6 Modification Time Stamp      | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34846                                |      |    |            | TOU Calendar Year 6 Calendar Year                | 9999                   | 1 year  | F21  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description  | Range                  | Units   | Type | R/W |
|-------------------------------|------|----|------------|--|------------------------|---------|------|-----|
| 34847-34850                   |      |    |            | TOU Calendar Year 7 Modification Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34851                         |      |    |            | TOU Calendar Year 7 Calendar Year                  | 9999                   | 1 year  | F21  | R   |
| 34852-34855                   |      |    |            | TOU Calendar Year 8 Modification Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34856                         |      |    |            | TOU Calendar Year 8 Calendar Year                  | 9999                   | 1 year  | F21  | R   |
| 34857-34860                   |      |    |            | TOU Calendar Year 9 Modification Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34861                         |      |    |            | TOU Calendar Year 9 Calendar Year                  | 9999                   | 1 year  | F21  | R   |
| 34862-34865                   |      |    |            | TOU Calendar Year 10 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34866                         |      |    |            | TOU Calendar Year 10 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34867-34870                   |      |    |            | TOU Calendar Year 11 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34871                         |      |    |            | TOU Calendar Year 11 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34872-34875                   |      |    |            | TOU Calendar Year 12 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34876                         |      |    |            | TOU Calendar Year 12 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34877-34880                   |      |    |            | TOU Calendar Year 13 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34881                         |      |    |            | TOU Calendar Year 13 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34882-34885                   |      |    |            | TOU Calendar Year 14 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34886                         |      |    |            | TOU Calendar Year 14 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34887-34890                   |      |    |            | TOU Calendar Year 15 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34891                         |      |    |            | TOU Calendar Year 15 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34892-34895                   |      |    |            | TOU Calendar Year 16 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34896                         |      |    |            | TOU Calendar Year 16 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34897-34900                   |      |    |            | TOU Calendar Year 17 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34901                         |      |    |            | TOU Calendar Year 17 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34902-34905                   |      |    |            | TOU Calendar Year 18 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34906                         |      |    |            | TOU Calendar Year 18 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34907-34910                   |      |    |            | TOU Calendar Year 19 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34911                         |      |    |            | TOU Calendar Year 19 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34912-34915                   |      |    |            | TOU Calendar Year 20 Modification Time Stamp       | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 34916                         |      |    |            | TOU Calendar Year 20 Calendar Year                 | 9999                   | 1 year  | F21  | R   |
| 34917                         |      |    |            | TOU Calendar Year Selection                        |                        |         | F31  | R/W |
| 34918                         |      |    |            | TOU Calendar Header Status / Year Selection Status |                        |         | F32  | R   |
| Time of Use Calendar Block    |      |    |            |  |                        |         |      |     |
| Time of Use Calendar Window 1 |      |    |            |  |                        |         |      |     |
| 34919-34922                   |      |    |            | TOU Calendar Year 1 Modification Time Stamp        | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range       | Units  | Type | R/W |
|---------|------|----|------------|---|-------------|--------|------|-----|
| 34923   |      |    |            | TOU Calendar Year 1 Calendar Year                         | 9999        | 1 year | F21  | R   |
| 34924   |      |    |            | TOU Calendar Year 1 Jan 1 / Jan 2 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34925   |      |    |            | TOU Calendar Year 1 Jan 3 / Jan 4 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34926   |      |    |            | TOU Calendar Year 1 Jan 5 / Jan 6 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34927   |      |    |            | TOU Calendar Year 1 Jan 7 / Jan 8 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34928   |      |    |            | TOU Calendar Year 1 Jan 9 / Jan 10 Profile                | 15-15 / 0-0 |        | F22  | R   |
| 34929   |      |    |            | TOU Calendar Year 1 Jan 11 / Jan 12 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34930   |      |    |            | TOU Calendar Year 1 Jan 13 / Jan 14 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34931   |      |    |            | TOU Calendar Year 1 Jan 15 / Jan 16 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34932   |      |    |            | TOU Calendar Year 1 Jan 17 / Jan 18 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34933   |      |    |            | TOU Calendar Year 1 Jan 19 / Jan 20 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34934   |      |    |            | TOU Calendar Year 1 Jan 21 / Jan 22 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34935   |      |    |            | TOU Calendar Year 1 Jan 23 / Jan 24 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34936   |      |    |            | TOU Calendar Year 1 Jan 25 / Jan 26 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34937   |      |    |            | TOU Calendar Year 1 Jan 27 / Jan 28 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34938   |      |    |            | TOU Calendar Year 1 Jan 29 / Jan 30 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34939   |      |    |            | TOU Calendar Year 1 Jan 31 / Feb 1 Profile                | 15-15 / 0-0 |        | F22  | R   |
| 34940   |      |    |            | TOU Calendar Year 1 Feb 2 / Feb 3 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34941   |      |    |            | TOU Calendar Year 1 Feb 4 / Feb 5 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34942   |      |    |            | TOU Calendar Year 1 Feb 6 / Feb 7 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34943   |      |    |            | TOU Calendar Year 1 Feb 8 / Feb 9 Profile                 | 15-15 / 0-0 |        | F22  | R   |
| 34944   |      |    |            | TOU Calendar Year 1 Feb 10 / Feb 11 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34945   |      |    |            | TOU Calendar Year 1 Feb 12 / Feb 13 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34946   |      |    |            | TOU Calendar Year 1 Feb 14 / Feb 15 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34947   |      |    |            | TOU Calendar Year 1 Feb 16 / Feb 17 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34948   |      |    |            | TOU Calendar Year 1 Feb 18 / Feb 19 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34949   |      |    |            | TOU Calendar Year 1 Feb 20 / Feb 21 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34950   |      |    |            | TOU Calendar Year 1 Feb 22 / Feb 23 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34951   |      |    |            | TOU Calendar Year 1 Feb 24 / Feb 25 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34952   |      |    |            | TOU Calendar Year 1 Feb 26 / Feb 27 Profile               | 15-15 / 0-0 |        | F22  | R   |
| 34953   |      |    |            | TOU Calendar Year 1 Feb 28 / Mar 1 (Feb 28) Profile       | 15-15 / 0-0 |        | F22  | R   |
| 34954   |      |    |            | TOU Calendar Year 1 Mar 2 (Mar 1) / Mar 3 (Mar 2) Profile | 15-15 / 0-0 |        | F22  | R   |
| 34955   |      |    |            | TOU Calendar Year 1 Mar 4 (Mar 3) / Mar 5 (Mar 4) Profile | 15-15 / 0-0 |        | F22  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range       | Units | Type | R/W |
|---------|------|----|------------|---|-------------|-------|------|-----|
| 34956   |      |    |            | TOU Calendar Year 1 Mar 6 (Mar 5) / Mar 7 (Mar 6) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34957   |      |    |            | TOU Calendar Year 1 Mar 8 (Mar 7) / Mar 9 (Mar 8) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34958   |      |    |            | TOU Calendar Year 1 Mar 10 (Mar 9) / Mar 11 (Mar 10) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 34959   |      |    |            | TOU Calendar Year 1 Mar 13 (Mar 11) / Mar 13 (Mar 12) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34960   |      |    |            | TOU Calendar Year 1 Mar 14 (Mar 13) / Mar 15 (Mar 14) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34961   |      |    |            | TOU Calendar Year 1 Mar 16 (Mar 15) / Mar 17 (Mar 16) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34962   |      |    |            | TOU Calendar Year 1 Mar 18 (Mar 17) / Mar 19 (Mar 18) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34963   |      |    |            | TOU Calendar Year 1 Mar 20 (Mar 19) / Mar 21 (Mar 20) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34964   |      |    |            | TOU Calendar Year 1 Mar 22 (Mar 21) / Mar 23 (Mar 22) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34965   |      |    |            | TOU Calendar Year 1 Mar 24 (Mar 23) / Mar 25 (Mar 24) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34966   |      |    |            | TOU Calendar Year 1 Mar 26 (Mar 25) / Mar 27 (Mar 26) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34967   |      |    |            | TOU Calendar Year 1 Mar 28 (Mar 27) / Mar 29 (Mar 28) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34968   |      |    |            | TOU Calendar Year 1 Mar 30 (Mar 29) / Mar 31 (Mar 30) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34969   |      |    |            | TOU Calendar Year 1 Apr 1 (Mar 31) / Apr 2 (Apr 1) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 34970   |      |    |            | TOU Calendar Year 1 Apr 3 (Apr 2) / Apr 4 (Apr 3) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34971   |      |    |            | TOU Calendar Year 1 Apr 5 (Apr 4) / Apr 6 (Apr 5) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34972   |      |    |            | TOU Calendar Year 1 Apr 7 (Apr 6) / Apr 8 (Apr 7) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34973   |      |    |            | TOU Calendar Year 1 Apr 9 (Apr 8) / Apr 10 (Apr 9) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 34974   |      |    |            | TOU Calendar Year 1 Apr 11 (Apr 10) / Apr 12 (Apr 11) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34975   |      |    |            | TOU Calendar Year 1 Apr 13 (Apr 12) / Apr 14 (Apr 13) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34976   |      |    |            | TOU Calendar Year 1 Apr 15 (Apr 14) / Apr 16 (Apr 15) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34977   |      |    |            | TOU Calendar Year 1 Apr 17 (Apr 16) / Apr 18 (Apr 17) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34978   |      |    |            | TOU Calendar Year 1 Apr 19 (Apr 18) / Apr 20 (Apr 19) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34979   |      |    |            | TOU Calendar Year 1 Apr 21 (Apr 20) / Apr 22 (Apr 21) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34980   |      |    |            | TOU Calendar Year 1 Apr 23 (Apr 22) / Apr 24 (Apr 23) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34981   |      |    |            | TOU Calendar Year 1 Apr 25 (Apr 24) / Apr 26 (Apr 25) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34982   |      |    |            | TOU Calendar Year 1 Apr 27 (Apr 26) / Apr 28 (Apr 27) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34983   |      |    |            | TOU Calendar Year 1 Apr 29 (Apr 28) / Apr 30 (Apr 29) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34984   |      |    |            | TOU Calendar Year 1 May 1 (Apr 30) / May 2 (May 1) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 34985   |      |    |            | TOU Calendar Year 1 May 3 (May 2) / May 4 (May 3) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34986   |      |    |            | TOU Calendar Year 1 May 5 (May 4) / May 6 (May 5) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34987   |      |    |            | TOU Calendar Year 1 May 7 (May 6) / May 8 (May 7) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 34988   |      |    |            | TOU Calendar Year 1 May 9 (May 8) / May 10 (May 9) Profile    | 15-15 / 0-0 |       | F22  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range       | Units | Type | R/W |
|---------|------|----|------------|---|-------------|-------|------|-----|
| 34989   |      |    |            | TOU Calendar Year 1 May 11 (May 10) / May 12 (May 11) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34990   |      |    |            | TOU Calendar Year 1 May 13 (May 12) / May 14 (May 13) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34991   |      |    |            | TOU Calendar Year 1 May 15 (May 14) / May 16 (May 15) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34992   |      |    |            | TOU Calendar Year 1 May 17 (May 16) / May 18 (May 17) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34993   |      |    |            | TOU Calendar Year 1 May 19 (May 18) / May 20 (May 19) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34994   |      |    |            | TOU Calendar Year 1 May 21 (May 20) / May 22 (May 21) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34995   |      |    |            | TOU Calendar Year 1 May 23 (May 22) / May 24 (May 23) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34996   |      |    |            | TOU Calendar Year 1 May 25 (May 24) / May 26 (May 25) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34997   |      |    |            | TOU Calendar Year 1 May 27 (May 26) / May 28 (May 27) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34998   |      |    |            | TOU Calendar Year 1 May 29 (May 28) / May 30 (May 29) Profile | 15-15 / 0-0 |       | F22  | R   |
| 34999   |      |    |            | TOU Calendar Year 1 May 31 (May 30) / Jun 1 (May 31) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35000   |      |    |            | TOU Calendar Year 1 Jun 2 (Jun 1) / Jun 3 (Jun 2) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35001   |      |    |            | TOU Calendar Year 1 Jun 4 (Jun 3) / Jun 5 (Jun 4) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35002   |      |    |            | TOU Calendar Year 1 Jun 6 (Jun 5) / Jun 7 (Jun 6) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35003   |      |    |            | TOU Calendar Year 1 Jun 8 (Jun 7) / Jun 9 (Jun 8) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35004   |      |    |            | TOU Calendar Year 1 Jun 10 (Jun 9) / Jun 11 (Jun 10) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35005   |      |    |            | TOU Calendar Year 1 Jun 13 (Jun 11) / Jun 13 (Jun 12) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35006   |      |    |            | TOU Calendar Year 1 Jun 14 (Jun 13) / Jun 15 (Jun 14) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35007   |      |    |            | TOU Calendar Year 1 Jun 16 (Jun 15) / Jun 17 (Jun 16) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35008   |      |    |            | TOU Calendar Year 1 Jun 18 (Jun 17) / Jun 19 (Jun 18) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35009   |      |    |            | TOU Calendar Year 1 Jun 20 (Jun 19) / Jun 21 (Jun 20) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35010   |      |    |            | TOU Calendar Year 1 Jun 22 (Jun 21) / Jun 23 (Jun 22) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35011   |      |    |            | TOU Calendar Year 1 Jun 24 (Jun 23) / Jun 25 (Jun 24) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35012   |      |    |            | TOU Calendar Year 1 Jun 26 (Jun 25) / Jun 27 (Jun 26) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35013   |      |    |            | TOU Calendar Year 1 Jun 28 (Jun 27) / Jun 29 (Jun 28) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35014   |      |    |            | TOU Calendar Year 1 Jun 30 (Jun 29) / Jul 1 (Jun 30) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35015   |      |    |            | TOU Calendar Year 1 Jul 2 (Jul 1) / Jul 3 (Jul 2) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35016   |      |    |            | TOU Calendar Year 1 Jul 4 (Jul 3) / Jul 5 (Jul 4) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35017   |      |    |            | TOU Calendar Year 1 Jul 6 (Jul 5) / Jul 7 (Jul 6) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35018   |      |    |            | TOU Calendar Year 1 Jul 8 (Jul 7) / Jul 9 (Jul 8) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35019   |      |    |            | TOU Calendar Year 1 Jul 10 (Jul 9) / Jul 11 (Jul 10) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35020   |      |    |            | TOU Calendar Year 1 Jul 13 (Jul 11) / Jul 13 (Jul 12) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35021   |      |    |            | TOU Calendar Year 1 Jul 14 (Jul 13) / Jul 15 (Jul 14) Profile | 15-15 / 0-0 |       | F22  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description   | Range       | Units | Type | R/W |
|-------------------------------|------|----|------------|---|-------------|-------|------|-----|
| 35022                         |      |    |            | TOU Calendar Year 1 Jul 16 (Jul 15) / Jul 17 (Jul 16) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35023                         |      |    |            | TOU Calendar Year 1 Jul 18 (Jul 17) / Jul 19 (Jul 18) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35024                         |      |    |            | TOU Calendar Year 1 Jul 20 (Jul 19) / Jul 21 (Jul 20) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35025                         |      |    |            | TOU Calendar Year 1 Jul 22 (Jul 21) / Jul 23 (Jul 22) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35026                         |      |    |            | TOU Calendar Year 1 Jul 24 (Jul 23) / Jul 25 (Jul 24) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35027                         |      |    |            | TOU Calendar Year 1 Jul 26 (Jul 25) / Jul 27 (Jul 26) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35028                         |      |    |            | TOU Calendar Year 1 Jul 28 (Jul 27) / Jul 29 (Jul 28) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35029                         |      |    |            | TOU Calendar Year 1 Jul 30 (Jul 29) / Jul 31 (Jul 30) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35030                         |      |    |            | TOU Calendar Year 1 Aug 1 (Jul 31) / Aug 2 (Aug 1) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 35031                         |      |    |            | TOU Calendar Year 1 Aug 3 (Aug 2) / Aug 4 (Aug 3) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35032                         |      |    |            | TOU Calendar Year 1 Aug 5 (Aug 4) / Aug 6 (Aug 5) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35033                         |      |    |            | TOU Calendar Year 1 Aug 7 (Aug 6) / Aug 8 (Aug 7) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35034                         |      |    |            | TOU Calendar Year 1 Aug 9 (Aug 8) / Aug 10 (Aug 9) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 35035                         |      |    |            | TOU Calendar Year 1 Aug 11 (Aug 10) / Aug 12 (Aug 11) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35036                         |      |    |            | TOU Calendar Year 1 Aug 13 (Aug 12) / Aug 14 (Aug 13) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35037                         |      |    |            | TOU Calendar Year 1 Aug 15 (Aug 14) / Aug 16 (Aug 15) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35038                         |      |    |            | TOU Calendar Year 1 Aug 17 (Aug 16) / Aug 18 (Aug 17) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35039                         |      |    |            | TOU Calendar Year 1 Aug 19 (Aug 18) / Aug 20 (Aug 19) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35040                         |      |    |            | TOU Calendar Year 1 Aug 21 (Aug 20) / Aug 22 (Aug 21) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35041                         |      |    |            | TOU Calendar Year 1 Aug 23 (Aug 22) / Aug 24 (Aug 23) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35042                         |      |    |            | TOU Calendar Year 1 Aug 25 (Aug 24) / Aug 26 (Aug 25) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35043                         |      |    |            | TOU Calendar Year 1 Aug 27 (Aug 26) / Aug 28 (Aug 27) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35044                         |      |    |            | TOU Calendar Year 1 Aug 29 (Aug 28) / Aug 30 (Aug 29) Profile | 15-15 / 0-0 |       | F22  | R   |
| Time of Use Calendar Window 2 |      |    |            |   |             |       |      |     |
| 35045                         |      |    |            | TOU Calendar Year 1 Aug 31 (Aug 30) / Sep 1 (Aug 31) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35046                         |      |    |            | TOU Calendar Year 1 Sep 2 (Sep 1) / Sep 3 (Sep 2) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35047                         |      |    |            | TOU Calendar Year 1 Sep 4 (Sep 3) / Sep 5 (Sep 4) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35048                         |      |    |            | TOU Calendar Year 1 Sep 6 (Sep 5) / Sep 7 (Sep 6) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35049                         |      |    |            | TOU Calendar Year 1 Sep 8 (Sep 7) / Sep 9 (Sep 8) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35050                         |      |    |            | TOU Calendar Year 1 Sep 10 (Sep 9) / Sep 11 (Sep 10) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35051                         |      |    |            | TOU Calendar Year 1 Sep 13 (Sep 11) / Sep 13 (Sep 12) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35052                         |      |    |            | TOU Calendar Year 1 Sep 14 (Sep 13) / Sep 15 (Sep 14) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35053                         |      |    |            | TOU Calendar Year 1 Sep 16 (Sep 15) / Sep 17 (Sep 16) Profile | 15-15 / 0-0 |       | F22  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range       | Units | Type | R/W |
|---------|------|----|------------|---|-------------|-------|------|-----|
| 35054   |      |    |            | TOU Calendar Year 1 Sep 18 (Sep 17) / Sep 19 (Sep 18) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35055   |      |    |            | TOU Calendar Year 1 Sep 20 (Sep 19) / Sep 21 (Sep 20) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35056   |      |    |            | TOU Calendar Year 1 Sep 22 (Sep 21) / Sep 23 (Sep 22) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35057   |      |    |            | TOU Calendar Year 1 Sep 24 (Sep 23) / Sep 25 (Sep 24) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35058   |      |    |            | TOU Calendar Year 1 Sep 26 (Sep 25) / Sep 27 (Sep 26) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35059   |      |    |            | TOU Calendar Year 1 Sep 28 (Sep 27) / Sep 29 (Sep 28) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35060   |      |    |            | TOU Calendar Year 1 Sep 30 (Sep 29) / Oct 1 (Sep 30) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35061   |      |    |            | TOU Calendar Year 1 Oct 2 (Oct 1) / Oct 3 (Oct 2) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35062   |      |    |            | TOU Calendar Year 1 Oct 4 (Oct 3) / Oct 5 (Oct 4) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35063   |      |    |            | TOU Calendar Year 1 Oct 6 (Oct 5) / Oct 7 (Oct 6) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35064   |      |    |            | TOU Calendar Year 1 Oct 8 (Oct 7) / Oct 9 (Oct 8) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35065   |      |    |            | TOU Calendar Year 1 Oct 10 (Oct 9) / Oct 11 (Oct 10) Profile  | 15-15 / 0-0 |       | F22  | R   |
| 35066   |      |    |            | TOU Calendar Year 1 Oct 13 (Oct 11) / Oct 13 (Oct 12) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35067   |      |    |            | TOU Calendar Year 1 Oct 14 (Oct 13) / Oct 15 (Oct 14) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35068   |      |    |            | TOU Calendar Year 1 Oct 16 (Oct 15) / Oct 17 (Oct 16) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35069   |      |    |            | TOU Calendar Year 1 Oct 18 (Oct 17) / Oct 19 (Oct 18) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35070   |      |    |            | TOU Calendar Year 1 Oct 20 (Oct 19) / Oct 21 (Oct 20) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35071   |      |    |            | TOU Calendar Year 1 Oct 22 (Oct 21) / Oct 23 (Oct 22) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35072   |      |    |            | TOU Calendar Year 1 Oct 24 (Oct 23) / Oct 25 (Oct 24) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35073   |      |    |            | TOU Calendar Year 1 Oct 26 (Oct 25) / Oct 27 (Oct 26) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35074   |      |    |            | TOU Calendar Year 1 Oct 28 (Oct 27) / Oct 29 (Oct 28) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35075   |      |    |            | TOU Calendar Year 1 Oct 30 (Oct 29) / Oct 31 (Oct 30) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35076   |      |    |            | TOU Calendar Year 1 Nov 1 (Oct 31) / Nov 2 (Nov 1) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 35077   |      |    |            | TOU Calendar Year 1 Nov 3 (Nov 2) / Nov 4 (Nov 3) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35078   |      |    |            | TOU Calendar Year 1 Nov 5 (Nov 4) / Nov 6 (Nov 5) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35079   |      |    |            | TOU Calendar Year 1 Nov 7 (Nov 6) / Nov 8 (Nov 7) Profile     | 15-15 / 0-0 |       | F22  | R   |
| 35080   |      |    |            | TOU Calendar Year 1 Nov 9 (Nov 8) / Nov 10 (Nov 9) Profile    | 15-15 / 0-0 |       | F22  | R   |
| 35081   |      |    |            | TOU Calendar Year 1 Nov 11 (Nov 10) / Nov 12 (Nov 11) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35082   |      |    |            | TOU Calendar Year 1 Nov 13 (Nov 12) / Nov 14 (Nov 13) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35083   |      |    |            | TOU Calendar Year 1 Nov 15 (Nov 14) / Nov 16 (Nov 15) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35084   |      |    |            | TOU Calendar Year 1 Nov 17 (Nov 16) / Nov 18 (Nov 17) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35085   |      |    |            | TOU Calendar Year 1 Nov 19 (Nov 18) / Nov 20 (Nov 19) Profile | 15-15 / 0-0 |       | F22  | R   |
| 35086   |      |    |            | TOU Calendar Year 1 Nov 21 (Nov 20) / Nov 22 (Nov 21) Profile | 15-15 / 0-0 |       | F22  | R   |



| Address | Line | Pt | DNP<br>Obj | Description  | Range           | Units | Type | R/W |
|---------|------|----|------------|--|-----------------|-------|------|-----|
| 35087   |      |    |            | TOU Calendar Year 1 Nov 23 (Nov 22) / Nov 24 (Nov 23) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35088   |      |    |            | TOU Calendar Year 1 Nov 25 (Nov 24) / Nov 26 (Nov 25) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35089   |      |    |            | TOU Calendar Year 1 Nov 27 (Nov 26) / Nov 28 (Nov 27) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35090   |      |    |            | TOU Calendar Year 1 Nov 29 (Nov 28) / Nov 30 (Nov 29) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35091   |      |    |            | TOU Calendar Year 1 Dec 1 (Nov 31) / Dec 2 (Dec 1) Profile             | 15-15 / 0-0     |       | F22  | R   |
| 35092   |      |    |            | TOU Calendar Year 1 Dec 3 (Dec 2) / Dec 4 (Dec 3) Profile              | 15-15 / 0-0     |       | F22  | R   |
| 35093   |      |    |            | TOU Calendar Year 1 Dec 5 (Dec 4) / Dec 6 (Dec 5) Profile              | 15-15 / 0-0     |       | F22  | R   |
| 35094   |      |    |            | TOU Calendar Year 1 Dec 7 (Dec 6) / Dec 8 (Dec 7) Profile              | 15-15 / 0-0     |       | F22  | R   |
| 35095   |      |    |            | TOU Calendar Year 1 Dec 9 (Dec 8) / Dec 10 (Dec 9) Profile             | 15-15 / 0-0     |       | F22  | R   |
| 35096   |      |    |            | TOU Calendar Year 1 Dec 11 (Dec 10) / Dec 12 (Dec 11) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35097   |      |    |            | TOU Calendar Year 1 Dec 13 (Dec 12) / Dec 14 (Dec 13) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35098   |      |    |            | TOU Calendar Year 1 Dec 15 (Dec 14) / Dec 16 (Dec 15) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35099   |      |    |            | TOU Calendar Year 1 Dec 17 (Dec 16) / Dec 18 (Dec 17) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35100   |      |    |            | TOU Calendar Year 1 Dec 19 (Dec 18) / Dec 20 (Dec 19) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35101   |      |    |            | TOU Calendar Year 1 Dec 21 (Dec 20) / Dec 22 (Dec 21) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35102   |      |    |            | TOU Calendar Year 1 Dec 23 (Dec 22) / Dec 24 (Dec 23) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35103   |      |    |            | TOU Calendar Year 1 Dec 25 (Dec 24) / Dec 26 (Dec 25) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35104   |      |    |            | TOU Calendar Year 1 Dec 27 (Dec 26) / Dec 28 (Dec 27) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35105   |      |    |            | TOU Calendar Year 1 Dec 29 (Dec 28) / Dec 30 (Dec 29) Profile          | 15-15 / 0-0     |       | F22  | R   |
| 35106   |      |    |            | TOU Calendar Year 1 Dec 31 (Dec 30) / (Dec 31) Profile                 | 15-15 / 0-0     |       | F22  | R   |
| 35107   |      |    |            | TOU Calendar Year 1 Profile 1 Status                                   |                 |       | F23  | R   |
| 35108   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35109   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35110   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35111   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35112   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35113   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35114   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35115   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35116   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35117   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35118   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35119   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|---------|------|----|------------|--|-------------------|-------|------|-----|
| 35120   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35121   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35122   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35123   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35124   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35125   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35126   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35127   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35128   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35129   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35130   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35131   |      |    |            | TOU Calendar Year 1 Profile 1 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35132   |      |    |            | TOU Calendar Year 1 Profile 2 Status                                   |                   |       | F23  | R   |
| 35133   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35134   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35135   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35136   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35137   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35138   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35139   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35140   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35141   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35142   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35143   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35144   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35145   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35146   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35147   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35148   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35149   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35150   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35151   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35152   |      |    |            | TOU Calendar Year 1 Profile 2 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|-------------------------------|------|----|------------|--|-------------------|-------|------|-----|
| 35153                         |      |    |            | TOU Calendar Year 1 Profile 2 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35154                         |      |    |            | TOU Calendar Year 1 Profile 2 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35155                         |      |    |            | TOU Calendar Year 1 Profile 2 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35156                         |      |    |            | TOU Calendar Year 1 Profile 2 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35157                         |      |    |            | TOU Calendar Year 1 Profile 3 Status                                   |                   |       | F23  | R   |
| 35158                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35159                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35160                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35161                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35162                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35163                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35164                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35165                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35166                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35167                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35168                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35169                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35170                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| Time of Use Calendar Window 3 |      |    |            |  |                   |       |      |     |
| 35171                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35172                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35173                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35174                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35175                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35176                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35177                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35178                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35179                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35180                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35181                         |      |    |            | TOU Calendar Year 1 Profile 3 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35182                         |      |    |            | TOU Calendar Year 1 Profile 4 Status                                   |                   |       | F23  | R   |
| 35183                         |      |    |            | TOU Calendar Year 1 Profile 4 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35184                         |      |    |            | TOU Calendar Year 1 Profile 4 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|---------|------|----|------------|--|-------------------|-------|------|-----|
| 35185   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35186   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35187   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35188   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35189   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35190   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35191   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35192   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35193   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35194   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35195   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35196   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35197   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35198   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35199   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35200   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35201   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35202   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35203   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35204   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35205   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35206   |      |    |            | TOU Calendar Year 1 Profile 4 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35207   |      |    |            | TOU Calendar Year 1 Profile 5 Status                                   |                   |       | F23  | R   |
| 35208   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35209   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35210   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35211   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35212   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35213   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35214   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35215   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35216   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35217   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|---------|------|----|------------|--|-------------------|-------|------|-----|
| 35218   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35219   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35220   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35221   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35222   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35223   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35224   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35225   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35226   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35227   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35228   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35229   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35230   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35231   |      |    |            | TOU Calendar Year 1 Profile 5 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35232   |      |    |            | TOU Calendar Year 1 Profile 6 Status                                   |                   |       | F23  | R   |
| 35233   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35234   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35235   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35236   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35237   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35238   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35239   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35240   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35241   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35242   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35243   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35244   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35245   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35246   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35247   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35248   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35249   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35250   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|---------|------|----|------------|--|-------------------|-------|------|-----|
| 35251   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35252   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35253   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35254   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35255   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35256   |      |    |            | TOU Calendar Year 1 Profile 6 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35257   |      |    |            | TOU Calendar Year 1 Profile 7 Status                                   |                   |       | F23  | R   |
| 35258   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35259   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35260   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35261   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35262   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35263   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35264   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35265   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35266   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35267   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35268   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35269   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35270   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35271   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35272   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35273   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35274   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35275   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35276   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35277   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35278   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35279   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35280   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35281   |      |    |            | TOU Calendar Year 1 Profile 7 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35282   |      |    |            | TOU Calendar Year 1 Profile 8 Status                                   |                   |       | F23  | R   |
| 35283   |      |    |            | TOU Calendar Year 1 Profile 8 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description  | Range             | Units | Type | R/W |
|-------------------------------|------|----|------------|--|-------------------|-------|------|-----|
| 35284                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35285                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35286                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35287                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35288                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35289                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35290                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35291                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35292                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35293                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35294                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35295                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35296                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| Time of Use Calendar Window 4 |      |    |            |  |                   |       |      |     |
| 35297                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35298                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35299                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35300                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35301                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35302                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35303                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35304                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35305                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35306                         |      |    |            | TOU Calendar Year 1 Profile 8 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35307                         |      |    |            | TOU Calendar Year 1 Profile 9 Status                                   |                   |       | F23  | R   |
| 35308                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35309                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35310                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35311                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35312                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35313                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35314                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35315                         |      |    |            | TOU Calendar Year 1 Profile 9 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|---------|------|----|------------|---|-------------------|-------|------|-----|
| 35316   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 08:00, 08:15, 08:30 & 08:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35317   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 09:00, 09:15, 09:30 & 09:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35318   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 10:00, 10:15, 10:30 & 10:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35319   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 11:00, 11:15, 11:30 & 11:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35320   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 12:00, 12:15, 12:30 & 12:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35321   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 13:00, 13:15, 13:30 & 13:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35322   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 14:00, 14:15, 14:30 & 14:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35323   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 15:00, 15:15, 15:30 & 15:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35324   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 16:00, 16:15, 16:30 & 16:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35325   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 17:00, 17:15, 17:30 & 17:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35326   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 18:00, 18:15, 18:30 & 18:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35327   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 19:00, 19:15, 19:30 & 19:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35328   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 20:00, 20:15, 20:30 & 20:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35329   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 21:00, 21:15, 21:30 & 21:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35330   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 22:00, 22:15, 22:30 & 22:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35331   |      |    |            | TOU Calendar Year 1 Profile 9 Register for 23:00, 23:15, 23:30 & 23:45  | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35332   |      |    |            | TOU Calendar Year 1 Profile 10 Status                                   |                   |       | F23  | R   |
| 35333   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35334   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35335   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35336   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35337   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35338   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35339   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35340   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35341   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35342   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35343   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35344   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35345   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35346   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35347   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35348   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |



| Address | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|---------|------|----|------------|---|-------------------|-------|------|-----|
| 35349   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35350   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35351   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35352   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35353   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35354   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35355   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35356   |      |    |            | TOU Calendar Year 1 Profile 10 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35357   |      |    |            | TOU Calendar Year 1 Profile 11 Status                                   |                   |       | F23  | R   |
| 35358   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35359   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35360   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35361   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35362   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35363   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35364   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35365   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35366   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35367   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35368   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35369   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35370   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35371   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35372   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35373   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35374   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35375   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35376   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35377   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35378   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35379   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35380   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35381   |      |    |            | TOU Calendar Year 1 Profile 11 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range           | Units | Type | R/W |
|---------|------|----|------------|---|-----------------|-------|------|-----|
| 35382   |      |    |            | TOU Calendar Year 1 Profile 12 Status                                   |                 |       | F23  | R   |
| 35383   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35384   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35385   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35386   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35387   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35388   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35389   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35390   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35391   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35392   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35393   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35394   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35395   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35396   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35397   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35398   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35399   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35400   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35401   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35402   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35403   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35404   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35405   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35406   |      |    |            | TOU Calendar Year 1 Profile 12 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35407   |      |    |            | TOU Calendar Year 1 Profile 13 Status                                   |                 |       | F23  | R   |
| 35408   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35409   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35410   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35411   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35412   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35413   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35414   |      |    |            | TOU Calendar Year 1 Profile 13 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|-------------------------------|------|----|------------|---|-------------------|-------|------|-----|
| 35415                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35416                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35417                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35418                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35419                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35420                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35421                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35422                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| Time of Use Calendar Window 5 |      |    |            |   |                   |       |      |     |
| 35423                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35424                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35425                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35426                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35427                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35428                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35429                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35430                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35431                         |      |    |            | TOU Calendar Year 1 Profile 13 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35432                         |      |    |            | TOU Calendar Year 1 Profile 14 Status                                   |                   |       | F23  | R   |
| 35433                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35434                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35435                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35436                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35437                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35438                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35439                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35440                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35441                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35442                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35443                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35444                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35445                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35446                         |      |    |            | TOU Calendar Year 1 Profile 14 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|---------|------|----|------------|---|-------------------|-------|------|-----|
| 35447   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35448   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35449   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35450   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35451   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35452   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35453   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35454   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35455   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35456   |      |    |            | TOU Calendar Year 1 Profile 14 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35457   |      |    |            | TOU Calendar Year 1 Profile 15 Status                                   |                   |       | F23  | R   |
| 35458   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35459   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35460   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35461   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35462   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35463   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35464   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35465   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35466   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35467   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35468   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35469   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35470   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35471   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35472   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35473   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35474   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35475   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35476   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35477   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35478   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35479   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |

| Address | Line | Pt | DNP<br>Obj | Description   | Range             | Units | Type | R/W |
|---------|------|----|------------|---|-------------------|-------|------|-----|
| 35480   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35481   |      |    |            | TOU Calendar Year 1 Profile 15 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35482   |      |    |            | TOU Calendar Year 1 Profile 16 Status                                   |                   |       | F23  | R   |
| 35483   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 00:00, 00:15, 00:30 & 00:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35484   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 01:00, 01:15, 01:30 & 01:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35485   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 02:00, 02:15, 02:30 & 02:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35486   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 03:00, 03:15, 03:30 & 03:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35487   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 04:00, 04:15, 04:30 & 04:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35488   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 05:00, 05:15, 05:30 & 05:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35489   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 06:00, 06:15, 06:30 & 06:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35490   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 07:00, 07:15, 07:30 & 07:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35491   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 08:00, 08:15, 08:30 & 08:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35492   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 09:00, 09:15, 09:30 & 09:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35493   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 10:00, 10:15, 10:30 & 10:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35494   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 11:00, 11:15, 11:30 & 11:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35495   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 12:00, 12:15, 12:30 & 12:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35496   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 13:00, 13:15, 13:30 & 13:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35497   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 14:00, 14:15, 14:30 & 14:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35498   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 15:00, 15:15, 15:30 & 15:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35499   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 16:00, 16:15, 16:30 & 16:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35500   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 17:00, 17:15, 17:30 & 17:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35501   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 18:00, 18:15, 18:30 & 18:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35502   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 19:00, 19:15, 19:30 & 19:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35503   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 20:00, 20:15, 20:30 & 20:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35504   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 21:00, 21:15, 21:30 & 21:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35505   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 22:00, 22:15, 22:30 & 22:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35506   |      |    |            | TOU Calendar Year 1 Profile 16 Register for 23:00, 23:15, 23:30 & 23:45 | 7-7-7-7 / 0-0-0-0 |       | F24  | R   |
| 35507   |      |    |            | TOU Calendar Year 1 Monthly End Day Jan & Feb                           | 30-28 (29) / 1-1  |       | F25  | R   |
| 35508   |      |    |            | TOU Calendar Year 1 Monthly End Day Mar & Apr                           | 31-30 / 1-1       |       | F25  | R   |
| 35509   |      |    |            | TOU Calendar Year 1 Monthly End Day May & Jun                           | 31-30 / 1-1       |       | F25  | R   |
| 35510   |      |    |            | TOU Calendar Year 1 Monthly End Day Jul & Aug                           | 31-31 / 1-1       |       | F25  | R   |
| 35511   |      |    |            | TOU Calendar Year 1 Monthly End Day Sep & Oct                           | 30-31 / 1-1       |       | F25  | R   |
| 35512   |      |    |            | TOU Calendar Year 1 Monthly End Day Nov & Dec                           | 30-31 / 1-1       |       | F25  | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description  | Range                  | Units   | Type | R/W |
|-------------------------------|------|----|------------|--|------------------------|---------|------|-----|
| 35513-35520                   |      |    |            | TOU Calendar Year 1 Profile 1 Label                  |                        |         | F1   | R   |
| 35521-35528                   |      |    |            | TOU Calendar Year 1 Profile 2 Label                  |                        |         | F1   | R   |
| 35529-35536                   |      |    |            | TOU Calendar Year 1 Profile 3 Label                  |                        |         | F1   | R   |
| 35537-35544                   |      |    |            | TOU Calendar Year 1 Profile 4 Label                  |                        |         | F1   | R   |
| 35545-35548                   |      |    |            | TOU Calendar Year 1 Profile 5 Label (Partial)        |                        |         | F1   | R   |
| Time of Use Calendar Window 6 |      |    |            |  |                        |         |      |     |
| 35549-35552                   |      |    |            | TOU Calendar Year 1 Profile 5 Label (Partial)        |                        |         | F1   | R   |
| 35553-35560                   |      |    |            | TOU Calendar Year 1 Profile 6 Label                  |                        |         | F1   | R   |
| 35561-35568                   |      |    |            | TOU Calendar Year 1 Profile 7 Label                  |                        |         | F1   | R   |
| 35569-35576                   |      |    |            | TOU Calendar Year 1 Profile 8 Label                  |                        |         | F1   | R   |
| 35577-35584                   |      |    |            | TOU Calendar Year 1 Profile 9 Label                  |                        |         | F1   | R   |
| 35585-35592                   |      |    |            | TOU Calendar Year 1 Profile 10 Label                 |                        |         | F1   | R   |
| 35593-35600                   |      |    |            | TOU Calendar Year 1 Profile 11 Label                 |                        |         | F1   | R   |
| 35601-35608                   |      |    |            | TOU Calendar Year 1 Profile 12 Label                 |                        |         | F1   | R   |
| 35609-35616                   |      |    |            | TOU Calendar Year 1 Profile 13 Label                 |                        |         | F1   | R   |
| 35617-35624                   |      |    |            | TOU Calendar Year 1 Profile 14 Label                 |                        |         | F1   | R   |
| 35625-35632                   |      |    |            | TOU Calendar Year 1 Profile 15 Label                 |                        |         | F1   | R   |
| 35633-35640                   |      |    |            | TOU Calendar Year 1 Profile 16 Label                 |                        |         | F1   | R   |
| 35641-35648                   |      |    |            | TOU Calendar Year 1 Reg 1 Label                      |                        |         | F1   | R   |
| 35649-35656                   |      |    |            | TOU Calendar Year 1 Reg 2 Label                      |                        |         | F1   | R   |
| 35657-35664                   |      |    |            | TOU Calendar Year 1 Reg 3 Label                      |                        |         | F1   | R   |
| 35665-35672                   |      |    |            | TOU Calendar Year 1 Reg 4 Label                      |                        |         | F1   | R   |
| 35673-35674                   |      |    |            | TOU Calendar Year 1 Reg 5 Label (Partial)            |                        |         | F1   | R   |
| Time of Use Calendar Window 7 |      |    |            |  |                        |         |      |     |
| 35675-35680                   |      |    |            | TOU Calendar Year 1 Reg 5 Label (Partial)            |                        |         | F1   | R   |
| 35681-35688                   |      |    |            | TOU Calendar Year 1 Reg 6 Label                      |                        |         | F1   | R   |
| 35689-35696                   |      |    |            | TOU Calendar Year 1 Reg 7 Label                      |                        |         | F1   | R   |
| 35697-35704                   |      |    |            | TOU Calendar Year 1 Reg 8 Label                      |                        |         | F1   | R   |
| 35705-35708                   |      |    |            | TOU Calendar Year 1 Start Date Season 1              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 35709-35712                   |      |    |            | TOU Calendar Year 1 Start Date Season 2              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 35713-35716                   |      |    |            | TOU Calendar Year 1 Start Date Season 3              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 35737-35720                   |      |    |            | TOU Calendar Year 1 Start Date Season 4              | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |
| 35721-35724                   |      |    |            | TOU Calendar Year 1 Start Date Daylight Savings Time | 12/31/9999 23:59:59.99 | 10 msec | F3   | R   |

| Address                           | Line | Pt | DNP<br>Obj | Description  | Range                         | Units    | Type | R/W |
|-----------------------------------|------|----|------------|--|-------------------------------|----------|------|-----|
| 35725-35728                       |      |    |            | TOU Calendar Year 1 End Date Daylight Savings Time | 12/31/9999 23:59:59.99        | 10 msec  | F3   | R   |
| 35729                             |      |    |            | TOU Calendar Year 1 DST Enable / Average Selection |                               |          | F26  | R   |
| 35730                             |      |    |            | Clear on New Period/ Freeze Period Selection       |                               |          |      |     |
| 35731                             |      |    |            | Weekly Freeze Day of Week/ Freeze Hour             |                               |          |      |     |
| 35732-35800                       |      |    |            | TOU Calendar Year 1 Undefined                      |                               |          |      | R   |
| Time of Use Upload Calendar Block |      |    |            |  |                               |          |      |     |
| 36607                             |      |    |            | TOU Upload Calendar Window Locked to Port          |                               |          | F66  | R/W |
| 36608                             |      |    |            | TOU Upload Calendar Window Sequence/Status         |                               |          | F27  | R   |
| 36609                             |      |    |            | TOU Upload Calendar Window ID                      | 14 / 1                        |          | F28  | R/W |
| 36610-36735                       |      |    |            | TOU Upload Calendar Window Data                    |                               |          | F29  | R/W |
| 36736                             |      |    |            | TOU Upload Calendar Window Checksum                |                               |          | F30  | R/W |
| Historical Log 1 Snapshot Header  |      |    |            |  |                               |          |      |     |
| 36865-36866                       |      |    |            | Historical Log 1 Snapshot Memory Size              | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 36867                             |      |    |            | Historical Log 1 Snapshot Record Size              | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 36868                             |      |    |            | Historical Log 1 Snapshot First Index              | record 65535 / record 0       | 1 record |      | R   |
| 36869                             |      |    |            | Historical Log 1 Snapshot Last Index               | record 65535 / record 0       | 1 record |      | R   |
| 36870-36873                       |      |    |            | Historical Log 1 Snapshot First Time Stamp         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 36874-36877                       |      |    |            | Historical Log 1 Snapshot Last Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 36878-36881                       |      |    |            | Historical Log 1 Snapshot Valid Bitmap             |                               |          |      | R   |
| 36882                             |      |    |            | Historical Log 1 Max Records                       | 65535 records / 0 records     | 1 record |      | R   |
| Historical Log 2 Snapshot Header  |      |    |            |  |                               |          |      |     |
| 36929-36930                       |      |    |            | Historical Log 2 Snapshot Memory Size              | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 36931                             |      |    |            | Historical Log 2 Snapshot Record Size              | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 36932                             |      |    |            | Historical Log 2 Snapshot First Index              | record 65535 / record 0       | 1 record |      | R   |
| 36933                             |      |    |            | Historical Log 2 Snapshot Last Index               | record 65535 / record 0       | 1 record |      | R   |
| 36934-36937                       |      |    |            | Historical Log 2 Snapshot First Time Stamp         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 36938-36941                       |      |    |            | Historical Log 2 Snapshot Last Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 36942-36945                       |      |    |            | Historical Log 2 Snapshot Valid Bitmap             |                               |          |      | R   |
| 36946                             |      |    |            | Historical Log 2 Max Records                       | 65535 records / 0 records     | 1 record |      | R   |
| Limit Trigger Log Header          |      |    |            |  |                               |          |      |     |
| 36993-36994                       |      |    |            | Limit Trigger Log Memory Size                      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 36995                             |      |    |            | Limit Trigger Log Record Size                      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 36996                             |      |    |            | Limit Trigger Log First Index                      | record 65535 / record 0       | 1 record |      | R   |

| Address                           | Line | Pt | DNP<br>Obj | Description                                 | Range                         | Units    | Type | R/W |
|-----------------------------------|------|----|------------|---|-------------------------------|----------|------|-----|
| 36997                             |      |    |            | Limit Trigger Log Last Index                | record 65535 / record 0       | 1 record |      | R   |
| 36998-37001                       |      |    |            | Limit Trigger Log First Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37002-37005                       |      |    |            | Limit Trigger Log Last Time Stamp           | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37006-37009                       |      |    |            | Limit Trigger Log Valid Bitmap              |                               |          |      | R   |
| 37010                             |      |    |            | Limit Trigger Log Max Records               | 65535 records / 0 records     | 1 record |      | R   |
| Limit Snapshot Log Header         |      |    |            |   |                               |          |      |     |
| 37057-37058                       |      |    |            | Limit Snapshot Log Memory Size              | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37059                             |      |    |            | Limit Snapshot Log Record Size              | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37060                             |      |    |            | Limit Snapshot Log First Index              | record 65535 / record 0       | 1 record |      | R   |
| 37061                             |      |    |            | Limit Snapshot Log Last Index               | record 65535 / record 0       | 1 record |      | R   |
| 37062-37065                       |      |    |            | Limit Snapshot Log First Time Stamp         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37066-37069                       |      |    |            | Limit Snapshot Log Last Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37070-37073                       |      |    |            | Limit Snapshot Log Valid Bitmap             |                               |          |      | R   |
| 37074                             |      |    |            | Limit Snapshot Log Max Records              | 65535 records / 0 records     | 1 record |      | R   |
| Digital Input Log Header          |      |    |            |   |                               |          |      |     |
| 37121-37122                       |      |    |            | Digital Input Log Memory Size               | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37123                             |      |    |            | Digital Input Log Record Size               | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37124                             |      |    |            | Digital Input Log First Index               | record 65535 / record 0       | 1 record |      | R   |
| 37125                             |      |    |            | Digital Input Log Last Index                | record 65535 / record 0       | 1 record |      | R   |
| 37126-37129                       |      |    |            | Digital Input Log First Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37130-37133                       |      |    |            | Digital Input Log Last Time Stamp           | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37134-37137                       |      |    |            | Digital Input Log Valid Bitmap              |                               |          |      | R   |
| 37138                             |      |    |            | Digital Input Log Max Records               | 65535 records / 0 records     | 1 record |      | R   |
| Digital Input Snapshot Log Header |      |    |            |   |                               |          |      |     |
| 37185-37186                       |      |    |            | Digital Input Snapshot Log Memory Size      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37187                             |      |    |            | Digital Input Snapshot Log Record Size      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37188                             |      |    |            | Digital Input Snapshot Log First Index      | record 65535 / record 0       | 1 record |      | R   |
| 37189                             |      |    |            | Digital Input Snapshot Log Last Index       | record 65535 / record 0       | 1 record |      | R   |
| 37190-37193                       |      |    |            | Digital Input Snapshot Log First Time Stamp | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37194-37197                       |      |    |            | Digital Input Snapshot Log Last Time Stamp  | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37198-37201                       |      |    |            | Digital Input Snapshot Log Valid Bitmap     |                               |          |      | R   |
| 37202                             |      |    |            | Digital Input Snapshot Log Max Records      | 65535 records / 0 records     | 1 record |      | R   |
| Digital Output Log Header         |      |    |            |   |                               |          |      |     |



| Address                            | Line | Pt | DNP<br>Obj | Description                                  | Range                         | Units    | Type | R/W |
|------------------------------------|------|----|------------|--|-------------------------------|----------|------|-----|
| 37249-37250                        |      |    |            | Digital Output Log Memory Size               | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37251                              |      |    |            | Digital Output Log Record Size               | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37252                              |      |    |            | Digital Output Log First Index               | record 65535 / record 0       | 1 record |      | R   |
| 37253                              |      |    |            | Digital Output Log Last Index                | record 65535 / record 0       | 1 record |      | R   |
| 37254-37257                        |      |    |            | Digital Output Log First Time Stamp          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37258-37261                        |      |    |            | Digital Output Log Last Time Stamp           | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37262-37265                        |      |    |            | Digital Output Log Valid Bitmap              |                               |          |      | R   |
| 37266                              |      |    |            | Digital Output Log Max Records               | 65535 records / 0 records     | 1 record |      | R   |
| Digital Output Snapshot Log Header |      |    |            |  |                               |          |      |     |
| 37313-37314                        |      |    |            | Digital Output Snapshot Log Memory Size      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37315                              |      |    |            | Digital Output Snapshot Log Record Size      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37316                              |      |    |            | Digital Output Snapshot Log First Index      | record 65535 / record 0       | 1 record |      | R   |
| 37317                              |      |    |            | Digital Output Snapshot Log Last Index       | record 65535 / record 0       | 1 record |      | R   |
| 37318-37321                        |      |    |            | Digital Output Snapshot Log First Time Stamp | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37322-37325                        |      |    |            | Digital Output Snapshot Log Last Time Stamp  | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37326-37329                        |      |    |            | Digital Output Snapshot Log Valid Bitmap     |                               |          |      | R   |
| 37330                              |      |    |            | Digital Output Snapshot Log Max Records      | 65535 records / 0 records     | 1 record |      | R   |
| Flicker Log Header                 |      |    |            |  |                               |          |      |     |
| 37377-37378                        |      |    |            | Flicker Log Memory Size                      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37379                              |      |    |            | Flicker Log Record Size                      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37380                              |      |    |            | Flicker Log First Index                      | record 65535 / record 0       | 1 record |      | R   |
| 37381                              |      |    |            | Flicker Log Last Index                       | record 65535 / record 0       | 1 record |      | R   |
| 37382-37385                        |      |    |            | Flicker Log First Time Stamp                 | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37386-37389                        |      |    |            | Flicker Log Last Time Stamp                  | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37390-37393                        |      |    |            | Flicker Log Valid Bitmap                     |                               |          |      | R   |
| 37394                              |      |    |            | Flicker Log Max Records                      | 65535 records / 0 records     | 1 record |      | R   |
| Waveform Trigger Log Header        |      |    |            |  |                               |          |      |     |
| 37441-37442                        |      |    |            | Waveform Trigger Log Memory Size             | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37443                              |      |    |            | Waveform Trigger Log Record Size             | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37444                              |      |    |            | Waveform Trigger Log First Index             | record 65535 / record 0       | 1 record |      | R   |
| 37445                              |      |    |            | Waveform Trigger Log Last Index              | record 65535 / record 0       | 1 record |      | R   |
| 37446-37449                        |      |    |            | Waveform Trigger Log First Time Stamp        | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37450-37453                        |      |    |            | Waveform Trigger Log Last Time Stamp         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |

| Address                     | Line | Pt | DNP<br>Obj | Description                           | Range                         | Units    | Type | R/W |
|-----------------------------|------|----|------------|---------------------------------------|-------------------------------|----------|------|-----|
| 37454-37457                 |      |    |            | Waveform Trigger Log Valid Bitmap     |                               |          |      | R   |
| 37458                       |      |    |            | Waveform Trigger Log Max Records      | 65535 records / 0 records     | 1 record |      | R   |
| System Event Log Header     |      |    |            |                                       |                               |          |      |     |
| 37505-37506                 |      |    |            | System Event Log Memory Size          | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37507                       |      |    |            | System Event Log Record Size          | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37508                       |      |    |            | System Event Log First Index          | record 65535 / record 0       | 1 record |      | R   |
| 37509                       |      |    |            | System Event Log Last Index           | record 65535 / record 0       | 1 record |      | R   |
| 37510-37513                 |      |    |            | System Event Log First Time Stamp     | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37514-37517                 |      |    |            | System Event Log Last Time Stamp      | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37518-37521                 |      |    |            | System Event Log Valid Bitmap         |                               |          |      | R   |
| 37522                       |      |    |            | System Event Log Max Records          | 65535 records / 0 records     | 1 record |      | R   |
| Waveform Samples Log Header |      |    |            |                                       |                               |          |      |     |
| 37569-37570                 |      |    |            | Waveform Samples Log Memory Size      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37571                       |      |    |            | Waveform Samples Log Record Size      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37572                       |      |    |            | Waveform Samples Log First Index      | record 65535 / record 0       | 1 record |      | R   |
| 37573                       |      |    |            | Waveform Samples Log Last Index       | record 65535 / record 0       | 1 record |      | R   |
| 37574-37577                 |      |    |            | Waveform Samples Log First Time Stamp | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37578-37581                 |      |    |            | Waveform Samples Log Last Time Stamp  | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37582-37585                 |      |    |            | Waveform Samples Log Valid Bitmap     |                               |          |      | R   |
| 37586                       |      |    |            | Waveform Samples Log Max Records      | 65535 records / 0 records     | 1 record |      | R   |
| PQ (CBEMA) Log Header       |      |    |            |                                       |                               |          |      |     |
| 37633-37634                 |      |    |            | PQ (CBEMA) Log Memory Size            | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37635                       |      |    |            | PQ (CBEMA) Log Record Size            | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37636                       |      |    |            | PQ (CBEMA) Log First Index            | record 65535 / record 0       | 1 record |      | R   |
| 37637                       |      |    |            | PQ (CBEMA) Log Last Index             | record 65535 / record 0       | 1 record |      | R   |
| 37638-37641                 |      |    |            | PQ (CBEMA) Log First Time Stamp       | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37642-37645                 |      |    |            | PQ (CBEMA) Log Last Time Stamp        | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37646-37649                 |      |    |            | PQ (CBEMA) Log Valid Bitmap           |                               |          |      | R   |
| 37650                       |      |    |            | PQ (CBEMA) Log Max Records            | 65535 records / 0 records     | 1 record |      | R   |
| Reset Log Header            |      |    |            |                                       |                               |          |      |     |
| 37697-37698                 |      |    |            | Reset Log Memory Size                 | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37699                       |      |    |            | Reset Log Record Size                 | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37700                       |      |    |            | Reset Log First Index                 | record 65535 / record 0       | 1 record |      | R   |

| Address                                  | Line | Pt | DNP<br>Obj | Description  | Range                         | Units    | Type | R/W |
|--|------|----|------------|--|-------------------------------|----------|------|-----|
| 37701                                    |      |    |            | Reset Log Last Index                               | record 65535 / record 0       | 1 record |      | R   |
| 37702-37705                              |      |    |            | Reset Log First Time Stamp                         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37706-37709                              |      |    |            | Reset Log Last Time Stamp                          | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37710-37713                              |      |    |            | Reset Log Valid Bitmap                             |                               |          |      | R   |
| 37714                                    |      |    |            | Reset Log Max Records                              | 65535 records / 0 records     | 1 record |      | R   |
| External Device Info Block Header        |      |    |            |  |                               |          |      |     |
| 37761-37762                              |      |    |            | External Device Info Block Memory Size             | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37763                                    |      |    |            | External Device Info Block Record Size             | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37764                                    |      |    |            | External Device Info Block First Index             | record 65535 / record 0       | 1 record |      | R   |
| 37765                                    |      |    |            | External Device Info Block Last Index              | record 65535 / record 0       | 1 record |      | R   |
| 37766-37769                              |      |    |            | External Device Info Block First Time Stamp        | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37770-37773                              |      |    |            | External Device Info Block Last Time Stamp         | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37774-37777                              |      |    |            | External Device Info Block Valid Bitmap            |                               |          |      | R   |
| 37778                                    |      |    |            | External Device Info Block Max Records             | 65535 records / 0 records     | 1 record |      | R   |
| External Device Programming Block Header |      |    |            |  |                               |          |      |     |
| 37825-37826                              |      |    |            | External Device Programming Block Memory Size      | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37827                                    |      |    |            | External Device Programming Block Record Size      | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37828                                    |      |    |            | External Device Programming Block First Index      | record 65535 / record 0       | 1 record |      | R   |
| 37829                                    |      |    |            | External Device Programming Block Last Index       | record 65535 / record 0       | 1 record |      | R   |
| 37830-37833                              |      |    |            | External Device Programming Block First Time Stamp | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37834-37837                              |      |    |            | External Device Programming Block Last Time Stamp  | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37838-37841                              |      |    |            | External Device Programming Block Valid Bitmap     |                               |          |      | R   |
| 37842                                    |      |    |            | External Device Programming Block Max Records      | 65535 records / 0 records     | 1 record |      | R   |
| Device History Block Header              |      |    |            |  |                               |          |      |     |
| 37889-37890                              |      |    |            | Device History Block Memory Size                   | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37891                                    |      |    |            | Device History Block Record Size                   | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37892                                    |      |    |            | Device History Block First Index                   | record 65535 / record 0       | 1 record |      | R   |
| 37893                                    |      |    |            | Device History Block Last Index                    | record 65535 / record 0       | 1 record |      | R   |
| 37894-37897                              |      |    |            | Device History Block First Time Stamp              | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37898-37901                              |      |    |            | Device History Block Last Time Stamp               | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37902-37905                              |      |    |            | Device History Block Valid Bitmap                  |                               |          |      | R   |
| 37906                                    |      |    |            | Device History Block Max Records                   | 65535 records / 0 records     | 1 record |      | R   |
| Direct Memory Access Header              |      |    |            |  |                               |          |      |     |

| Address            | Line | Pt | DNP<br>Obj | Description   | Range                         | Units    | Type | R/W |
|--------------------|------|----|------------|---|-------------------------------|----------|------|-----|
| 37953-37954        |      |    |            | Direct Memory Access Memory Size                    | 4,294,967,295 bytes / 0 bytes | 1 byte   |      | R   |
| 37955              |      |    |            | Direct Memory Access Record Size                    | 65535 bytes / 0 bytes         | 1 byte   |      | R   |
| 37956              |      |    |            | Direct Memory Access First Index                    | record 65535 / record 0       | 1 record |      | R   |
| 37957              |      |    |            | Direct Memory Access Last Index                     | record 65535 / record 0       | 1 record |      | R   |
| 37958-37961        |      |    |            | Direct Memory Access First Time Stamp               | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37962-37965        |      |    |            | Direct Memory Access Last Time Stamp                | 12/31/9999 23:59:59.99        | 10 msec  |      | R   |
| 37966-37969        |      |    |            | Direct Memory Access Valid Bitmap                   |                               |          |      | R   |
| 37970              |      |    |            | Direct Memory Access Max Records                    | 65535 records / 0 records     | 1 record |      | R   |
| Window Index Block |      |    |            |   |                               |          |      |     |
| 38145              |      |    |            | Window Index for Historical Log 1                   | record 65535 / record 0       | 1 record |      | R/W |
| 38146              |      |    |            | Window Index for Historical Log 2                   | record 65535 / record 0       | 1 record |      | R/W |
| 38147              |      |    |            | Window Index for Limit Trigger Log                  | record 65535 / record 0       | 1 record |      | R/W |
| 38148              |      |    |            | Window Index for Limit Snapshot Log                 | record 65535 / record 0       | 1 record |      | R/W |
| 38149              |      |    |            | Window Index for Digital Input Log                  | record 65535 / record 0       | 1 record |      | R/W |
| 38150              |      |    |            | Window Index for Digital Input Snapshot Log         | record 65535 / record 0       | 1 record |      | R/W |
| 38151              |      |    |            | Window Index for Digital Output Log                 | record 65535 / record 0       | 1 record |      | R/W |
| 38152              |      |    |            | Window Index for Digital Output Snapshot Log        | record 65535 / record 0       | 1 record |      | R/W |
| 38153              |      |    |            | Window Index for Flicker Log                        | record 65535 / record 0       | 1 record |      | R/W |
| 38154              |      |    |            | Window Index for Waveform Trigger Log               | record 65535 / record 0       | 1 record |      | R/W |
| 38155              |      |    |            | Window Index for System Event Log                   | record 65535 / record 0       | 1 record |      | R/W |
| 38156              |      |    |            | Window Index for Waveform Sample Log                | record 65535 / record 0       | 1 record |      | R/W |
| 38157              |      |    |            | Window Index for PQ (CBEMA) Log                     | record 65535 / record 0       | 1 record |      | R/W |
| 38158              |      |    |            | Window Index for Reset Log                          | record 65535 / record 0       | 1 record |      | R/W |
| 38159              |      |    |            | Window Index for External Device Info Block         | record 65535 / record 0       | 1 record |      | R/W |
| 38160              |      |    |            | Window Index for External Device Programming Blocks | record 65535 / record 0       | 1 record |      | R/W |
| 38161              |      |    |            | Window Index for Device History Block               | record 65535 / record 0       | 1 record |      | R/W |
| 38162              |      |    |            | Window Index for Direct Memory Access               | record 65535 / record 0       | 1 record |      | R/W |
| Window Mode Block  |      |    |            |   |                               |          |      |     |
| 38209              |      |    |            | Window Mode for Historical Log 1                    |                               |          |      | R/W |
| 38210              |      |    |            | Window Mode for Historical Log 2                    |                               |          |      | R/W |
| 38211              |      |    |            | Window Mode for Limit Trigger Log                   |                               |          |      | R/W |
| 38212              |      |    |            | Window Mode for Limit Snapshot Log                  |                               |          |      | R/W |
| 38213              |      |    |            | Window Mode for Digital Input Log                   |                               |          |      | R/W |

| Address                     | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|-----------------------------|------|----|------------|--|-------|-------|------|-----|
| 38214                       |      |    |            | Window Mode for Digital Input Snapshot Log         |       |       |      | R/W |
| 38215                       |      |    |            | Window Mode for Digital Output Log                 |       |       |      | R/W |
| 38216                       |      |    |            | Window Mode for Digital Output Snapshot Log        |       |       |      | R/W |
| 38217                       |      |    |            | Window Mode for Flicker Log                        |       |       |      | R/W |
| 38218                       |      |    |            | Window Mode for Waveform Trigger Log               |       |       |      | R/W |
| 38219                       |      |    |            | Window Mode for System Event Log                   |       |       |      | R/W |
| 38220                       |      |    |            | Window Mode for Waveform Samples Log               |       |       |      | R/W |
| 38221                       |      |    |            | Window Mode for PQ (CBEMA) Log                     |       |       |      | R/W |
| 38222                       |      |    |            | Window Mode for Reset Log                          |       |       |      | R/W |
| 38223                       |      |    |            | Window Mode for External Device Info Block         |       |       |      | R/W |
| 38224                       |      |    |            | Window Mode for External Device Programming Blocks |       |       |      | R/W |
| 38225                       |      |    |            | Window Mode for Device History Block               |       |       |      | R/W |
| 38226                       |      |    |            | Window Mode for Direct Memory Access               |       |       |      | R/W |
| Window Block                |      |    |            |  |       |       |      |     |
| 38273-38336                 |      |    |            | Historical Log 1 Window                            |       |       |      | R   |
| 38337-38400                 |      |    |            | Historical Log 2 Window                            |       |       |      | R   |
| 38401-38464                 |      |    |            | Limit Trigger Log Window                           |       |       |      | R   |
| 38465-38528                 |      |    |            | Limit Snapshot Log Window                          |       |       |      | R   |
| 38529-38592                 |      |    |            | Digital Input Log Window                           |       |       |      | R   |
| 38593-38656                 |      |    |            | Digital Input Snapshot Log Window                  |       |       |      | R   |
| 38657-38720                 |      |    |            | Digital Output Log Window                          |       |       |      | R   |
| 38721-38784                 |      |    |            | Digital Output Snapshot Log Window                 |       |       |      | R   |
| 38785-38848                 |      |    |            | Flicker Log Window                                 |       |       |      | R   |
| 38849-38912                 |      |    |            | Waveform Trigger Log Window                        |       |       |      | R   |
| 38913-38976                 |      |    |            | System Event Log Window                            |       |       |      | R   |
| 38977-39040                 |      |    |            | Waveform Samples Log Window                        |       |       |      | R   |
| 39041-39104                 |      |    |            | PQ (CBEMA) Log Window                              |       |       |      | R   |
| 39105-39168                 |      |    |            | Reset Log Window                                   |       |       |      | R   |
| 39169-39232                 |      |    |            | External Device Info Block Window                  |       |       |      | R   |
| 39233-39296                 |      |    |            | External Device Programming Block Window           |       |       |      | R   |
| 39297-39360                 |      |    |            | Device History Block Window                        |       |       |      | R   |
| Auto Increment Window Block |      |    |            |  |       |       |      |     |
| 39423                       |      |    |            | Auto Increment Configuration                       |       |       |      | R   |

| Address             | Line | Pt | DNP<br>Obj | Description                                  | Range                           | Units       | Type | R/W |
|---------------------|------|----|------------|--|---------------------------------|-------------|------|-----|
| 39424               |      |    |            | Auto Increment Window Index                  |                                 |             |      | R   |
| 39425-39488         |      |    |            | Auto Increment Log Window                    |                                 |             |      | R   |
| Alarm Block         |      |    |            |  |                                 |             |      |     |
| 40961               |      |    |            | Last Alarm                                   |                                 |             |      | R   |
| 40977-41104         |      |    |            | Last Alarm Snapshot                          |                                 |             |      | R   |
| 41105               |      |    |            | Latched Exception Flag                       | 65535 exceptions / 0 exceptions | 1 exception |      | R   |
| Port Control Block  |      |    |            |  |                                 |             |      |     |
| 41729               |      |    |            | Port Control Command                         |                                 |             |      | W   |
| 41730-41732         |      |    |            | Port Control Lock States                     |                                 |             |      | R   |
| 41733               |      |    |            | Port Control Pointer RecIn Comm 4 (I/O)      | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41734               |      |    |            | Port Control Pointer RecOut Comm 4 (I/O)     | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41735               |      |    |            | Port Control Pointer TrmIn Comm 4 (I/O)      | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41736               |      |    |            | Port Control Pointer TrmOut Comm 4 (I/O)     | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41737               |      |    |            | Port Control Pointer RecIn Comm 3            | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41738               |      |    |            | Port Control Pointer RecOut Comm 3           | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41739               |      |    |            | Port Control Pointer TrmIn Comm 3            | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41740               |      |    |            | Port Control Pointer TrmOut Comm 3           | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41741               |      |    |            | Port Control Pointer RecIn Comm 2            | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41742               |      |    |            | Port Control Pointer RecOut Comm 2           | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41743               |      |    |            | Port Control Pointer TrmIn Comm 2            | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41744               |      |    |            | Port Control Pointer TrmOut Comm 2           | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41745               |      |    |            | Port Control Pointer RecIn Comm 1 (232/485)  | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41746               |      |    |            | Port Control Pointer RecOut Comm 1 (232/485) | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41747               |      |    |            | Port Control Pointer TrmIn Comm 1 (232/485)  | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41748               |      |    |            | Port Control Pointer TrmOut Comm 1 (232/485) | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41749               |      |    |            | Port Control Pointer RecIn Comm 5 (DIAG)     | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41750               |      |    |            | Port Control Pointer RecOut Comm 5 (DIAG)    | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41751               |      |    |            | Port Control Pointer TrmIn Comm 5 (DIAG)     | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41752               |      |    |            | Port Control Pointer TrmOut Comm 5 (DIAG)    | byte 511 / byte 0               | 1 byte      |      | R/W |
| 41753               |      |    |            | Port and Buffer Selection                    |                                 |             |      | R/W |
| 41985-42496         |      |    |            | Communication Buffer                         |                                 |             |      | R/W |
| Energy Preset Block |      |    |            |  |                                 |             |      |     |
| 44545-44548         |      |    |            | Preset Energy Value                          |                                 |             |      | R/W |

| Address                      | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|------------------------------|------|----|------------|--|-------|-------|------|-----|
| 44549                        |      |    |            | Preset Energy Selection / Status             |       |       |      | R/W |
| Programmable Settings Block  |      |    |            |  |       |       |      |     |
| Communication Settings Block |      |    |            |  |       |       |      |     |
| 45057                        |      |    |            | Address, Port 4 (I/O)                        |       |       |      | R   |
| 45058                        |      |    |            | Protocol & Baud Rate, Port 4 (I/O)           |       |       |      | R   |
| 45059                        |      |    |            | Parity & Stop Bits, Port 4 (I/O)             |       |       |      | R   |
| 45060                        |      |    |            | Data Bits & Response Delay, Port 4(I/O)      |       |       |      | R   |
| 45061                        |      |    |            | Address, Port 3                              |       |       |      | R   |
| 45062                        |      |    |            | Protocol & Baud Rate, Port 3                 |       |       |      | R   |
| 45063                        |      |    |            | Parity & Stop Bits, Port 3                   |       |       |      | R   |
| 45064                        |      |    |            | Data Bits & Response Delay, Port 3           |       |       |      | R   |
| 45065                        |      |    |            | Address, Port 2                              |       |       |      | R   |
| 45066                        |      |    |            | Protocol & Baud Rate, Port 2                 |       |       |      | R   |
| 45067                        |      |    |            | Parity & Stop Bits, Port 2                   |       |       |      | R   |
| 45068                        |      |    |            | Data Bits & Response Delay, Port 2           |       |       |      | R   |
| 45069                        |      |    |            | Address, Port 1 (232/485)                    |       |       |      | R   |
| 45070                        |      |    |            | Protocol & Baud Rate, Port 1 (232/485)       |       |       |      | R   |
| 45071                        |      |    |            | Parity & Stop Bits, Port 1 (232/485)         |       |       |      | R   |
| 45072                        |      |    |            | Data Bits & Response Delay, Port 1 (232/485) |       |       |      | R   |
| 45073                        |      |    |            | Port 4 (I/O) Mode / Port 3 Mode              |       |       |      | R   |
| 45074                        |      |    |            | Port 2 Mode / Reserved                       |       |       |      | R   |
| 45075-45076                  |      |    |            | Reserved                                     |       |       |      |     |
| Limit Settings Block         |      |    |            |  |       |       |      |     |
| 45077                        |      |    |            | Line Number, Limit 1                         |       |       |      | R   |
| 45078                        |      |    |            | Point Number and SAB, Limit 1                |       |       |      | R   |
| 45079                        |      |    |            | Value 1, Limit 1                             |       |       |      | R   |
| 45080                        |      |    |            | Value 2, Limit 1                             |       |       |      | R   |
| 45081                        |      |    |            | Line Number, Limit 2                         |       |       |      | R   |
| 45082                        |      |    |            | Point Number and SAB, Limit 2                |       |       |      | R   |
| 45083                        |      |    |            | Value 1, Limit 2                             |       |       |      | R   |
| 45084                        |      |    |            | Value 2, Limit 2                             |       |       |      | R   |
| 45085                        |      |    |            | Line Number, Limit 3                         |       |       |      | R   |
| 45086                        |      |    |            | Point Number and SAB, Limit 3                |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                    | Range | Units | Type | R/W |
|---------|------|----|------------|--------------------------------|-------|-------|------|-----|
| 45087   |      |    |            | Value 1, Limit 3               |       |       |      | R   |
| 45088   |      |    |            | Value 2, Limit 3               |       |       |      | R   |
| 45089   |      |    |            | Line Number, Limit 4           |       |       |      | R   |
| 45090   |      |    |            | Point Number and SAB, Limit 4  |       |       |      | R   |
| 45091   |      |    |            | Value 1, Limit 4               |       |       |      | R   |
| 45092   |      |    |            | Value 2, Limit 4               |       |       |      | R   |
| 45093   |      |    |            | Line Number, Limit 5           |       |       |      | R   |
| 45094   |      |    |            | Point Number and SAB, Limit 5  |       |       |      | R   |
| 45095   |      |    |            | Value 1, Limit 5               |       |       |      | R   |
| 45096   |      |    |            | Value 2, Limit 5               |       |       |      | R   |
| 45097   |      |    |            | Line Number, Limit 6           |       |       |      | R   |
| 45098   |      |    |            | Point Number and SAB, Limit 6  |       |       |      | R   |
| 45099   |      |    |            | Value 1, Limit 6               |       |       |      | R   |
| 45100   |      |    |            | Value 2, Limit 6               |       |       |      | R   |
| 45101   |      |    |            | Line Number, Limit 7           |       |       |      | R   |
| 45102   |      |    |            | Point Number and SAB, Limit 7  |       |       |      | R   |
| 45103   |      |    |            | Value 1, Limit 7               |       |       |      | R   |
| 45104   |      |    |            | Value 2, Limit 7               |       |       |      | R   |
| 45105   |      |    |            | Line Number, Limit 8           |       |       |      | R   |
| 45106   |      |    |            | Point Number and SAB, Limit 8  |       |       |      | R   |
| 45107   |      |    |            | Value 1, Limit 8               |       |       |      | R   |
| 45108   |      |    |            | Value 2, Limit 8               |       |       |      | R   |
| 45109   |      |    |            | Line Number, Limit 9           |       |       |      | R   |
| 45110   |      |    |            | Point Number and SAB, Limit 9  |       |       |      | R   |
| 45111   |      |    |            | Value 1, Limit 9               |       |       |      | R   |
| 45112   |      |    |            | Value 2, Limit 9               |       |       |      | R   |
| 45113   |      |    |            | Line Number, Limit 10          |       |       |      | R   |
| 45114   |      |    |            | Point Number and SAB, Limit 10 |       |       |      | R   |
| 45115   |      |    |            | Value 1, Limit 10              |       |       |      | R   |
| 45116   |      |    |            | Value 2, Limit 10              |       |       |      | R   |
| 45117   |      |    |            | Line Number, Limit 11          |       |       |      | R   |
| 45118   |      |    |            | Point Number and SAB, Limit 11 |       |       |      | R   |
| 45119   |      |    |            | Value 1, Limit 11              |       |       |      | R   |



| Address | Line | Pt | DNP<br>Obj | Description                    | Range | Units | Type | R/W |
|---------|------|----|------------|--------------------------------|-------|-------|------|-----|
| 45120   |      |    |            | Value 2, Limit 11              |       |       |      | R   |
| 45121   |      |    |            | Line Number, Limit 12          |       |       |      | R   |
| 45122   |      |    |            | Point Number and SAB, Limit 12 |       |       |      | R   |
| 45123   |      |    |            | Value 1, Limit 12              |       |       |      | R   |
| 45124   |      |    |            | Value 2, Limit 12              |       |       |      | R   |
| 45125   |      |    |            | Line Number, Limit 13          |       |       |      | R   |
| 45126   |      |    |            | Point Number and SAB, Limit 13 |       |       |      | R   |
| 45127   |      |    |            | Value 1, Limit 13              |       |       |      | R   |
| 45128   |      |    |            | Value 2, Limit 13              |       |       |      | R   |
| 45129   |      |    |            | Line Number, Limit 14          |       |       |      | R   |
| 45130   |      |    |            | Point Number and SAB, Limit 14 |       |       |      | R   |
| 45131   |      |    |            | Value 1, Limit 14              |       |       |      | R   |
| 45132   |      |    |            | Value 2, Limit 14              |       |       |      | R   |
| 45133   |      |    |            | Line Number, Limit 15          |       |       |      | R   |
| 45134   |      |    |            | Point Number and SAB, Limit 15 |       |       |      | R   |
| 45135   |      |    |            | Value 1, Limit 15              |       |       |      | R   |
| 45136   |      |    |            | Value 2, Limit 15              |       |       |      | R   |
| 45137   |      |    |            | Line Number, Limit 16          |       |       |      | R   |
| 45138   |      |    |            | Point Number and SAB, Limit 16 |       |       |      | R   |
| 45139   |      |    |            | Value 1, Limit 16              |       |       |      | R   |
| 45140   |      |    |            | Value 2, Limit 16              |       |       |      | R   |
| 45141   |      |    |            | Line Number, Limit 17          |       |       |      | R   |
| 45142   |      |    |            | Point Number and SAB, Limit 17 |       |       |      | R   |
| 45143   |      |    |            | Value 1, Limit 17              |       |       |      | R   |
| 45144   |      |    |            | Value 2, Limit 17              |       |       |      | R   |
| 45145   |      |    |            | Line Number, Limit 18          |       |       |      | R   |
| 45146   |      |    |            | Point Number and SAB, Limit 18 |       |       |      | R   |
| 45147   |      |    |            | Value 1, Limit 18              |       |       |      | R   |
| 45148   |      |    |            | Value 2, Limit 18              |       |       |      | R   |
| 45149   |      |    |            | Line Number, Limit 19          |       |       |      | R   |
| 45150   |      |    |            | Point Number and SAB, Limit 19 |       |       |      | R   |
| 45151   |      |    |            | Value 1, Limit 19              |       |       |      | R   |
| 45152   |      |    |            | Value 2, Limit 19              |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                    | Range | Units | Type | R/W |
|---------|------|----|------------|--------------------------------|-------|-------|------|-----|
| 45153   |      |    |            | Line Number, Limit 20          |       |       |      | R   |
| 45154   |      |    |            | Point Number and SAB, Limit 20 |       |       |      | R   |
| 45155   |      |    |            | Value 1, Limit 20              |       |       |      | R   |
| 45156   |      |    |            | Value 2, Limit 20              |       |       |      | R   |
| 45157   |      |    |            | Line Number, Limit 21          |       |       |      | R   |
| 45158   |      |    |            | Point Number and SAB, Limit 21 |       |       |      | R   |
| 45159   |      |    |            | Value 1, Limit 21              |       |       |      | R   |
| 45160   |      |    |            | Value 2, Limit 21              |       |       |      | R   |
| 45161   |      |    |            | Line Number, Limit 22          |       |       |      | R   |
| 45162   |      |    |            | Point Number and SAB, Limit 22 |       |       |      | R   |
| 45163   |      |    |            | Value 1, Limit 22              |       |       |      | R   |
| 45164   |      |    |            | Value 2, Limit 22              |       |       |      | R   |
| 45165   |      |    |            | Line Number, Limit 23          |       |       |      | R   |
| 45166   |      |    |            | Point Number and SAB, Limit 23 |       |       |      | R   |
| 45167   |      |    |            | Value 1, Limit 23              |       |       |      | R   |
| 45168   |      |    |            | Value 2, Limit 23              |       |       |      | R   |
| 45169   |      |    |            | Line Number, Limit 24          |       |       |      | R   |
| 45170   |      |    |            | Point Number and SAB, Limit 24 |       |       |      | R   |
| 45171   |      |    |            | Value 1, Limit 24              |       |       |      | R   |
| 45172   |      |    |            | Value 2, Limit 24              |       |       |      | R   |
| 45173   |      |    |            | Line Number, Limit 25          |       |       |      | R   |
| 45174   |      |    |            | Point Number and SAB, Limit 25 |       |       |      | R   |
| 45175   |      |    |            | Value 1, Limit 25              |       |       |      | R   |
| 45176   |      |    |            | Value 2, Limit 25              |       |       |      | R   |
| 45177   |      |    |            | Line Number, Limit 26          |       |       |      | R   |
| 45178   |      |    |            | Point Number and SAB, Limit 26 |       |       |      | R   |
| 45179   |      |    |            | Value 1, Limit 26              |       |       |      | R   |
| 45180   |      |    |            | Value 2, Limit 26              |       |       |      | R   |
| 45181   |      |    |            | Line Number, Limit 27          |       |       |      | R   |
| 45182   |      |    |            | Point Number and SAB, Limit 27 |       |       |      | R   |
| 45183   |      |    |            | Value 1, Limit 27              |       |       |      | R   |
| 45184   |      |    |            | Value 2, Limit 27              |       |       |      | R   |
| 45185   |      |    |            | Line Number, Limit 28          |       |       |      | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description                                 | Range | Units | Type | R/W |
|-------------------------------|------|----|------------|---|-------|-------|------|-----|
| 45186                         |      |    |            | Point Number and SAB, Limit 28              |       |       |      | R   |
| 45187                         |      |    |            | Value 1, Limit 28                           |       |       |      | R   |
| 45188                         |      |    |            | Value 2, Limit 28                           |       |       |      | R   |
| 45189                         |      |    |            | Line Number, Limit 29                       |       |       |      | R   |
| 45190                         |      |    |            | Point Number and SAB, Limit 29              |       |       |      | R   |
| 45191                         |      |    |            | Value 1, Limit 29                           |       |       |      | R   |
| 45192                         |      |    |            | Value 2, Limit 29                           |       |       |      | R   |
| 45193                         |      |    |            | Line Number, Limit 30                       |       |       |      | R   |
| 45194                         |      |    |            | Point Number and SAB, Limit 30              |       |       |      | R   |
| 45195                         |      |    |            | Value 1, Limit 30                           |       |       |      | R   |
| 45196                         |      |    |            | Value 2, Limit 30                           |       |       |      | R   |
| 45197                         |      |    |            | Line Number, Limit 31                       |       |       |      | R   |
| 45198                         |      |    |            | Point Number and SAB, Limit 31              |       |       |      | R   |
| 45199                         |      |    |            | Value 1, Limit 31                           |       |       |      | R   |
| 45200                         |      |    |            | Value 2, Limit 31                           |       |       |      | R   |
| 45201                         |      |    |            | Line Number, Limit 32                       |       |       |      | R   |
| 45202                         |      |    |            | Point Number and SAB, Limit 32              |       |       |      | R   |
| 45203                         |      |    |            | Value 1, Limit 32                           |       |       |      | R   |
| 45204                         |      |    |            | Value 2, Limit 32                           |       |       |      | R   |
| Historical Log Settings Block |      |    |            |   |       |       |      |     |
| 45205                         |      |    |            | Line Number, Historical Log 1, Parameter 1  |       |       |      | R   |
| 45206                         |      |    |            | Point Number, Historical Log 1, Parameter 1 |       |       |      | R   |
| 45207                         |      |    |            | Line Number, Historical Log 1, Parameter 2  |       |       |      | R   |
| 45208                         |      |    |            | Point Number, Historical Log 1, Parameter 2 |       |       |      | R   |
| 45209                         |      |    |            | Line Number, Historical Log 1, Parameter 3  |       |       |      | R   |
| 45210                         |      |    |            | Point Number, Historical Log 1, Parameter 3 |       |       |      | R   |
| 45211                         |      |    |            | Line Number, Historical Log 1, Parameter 4  |       |       |      | R   |
| 45212                         |      |    |            | Point Number, Historical Log 1, Parameter 4 |       |       |      | R   |
| 45213                         |      |    |            | Line Number, Historical Log 1, Parameter 5  |       |       |      | R   |
| 45214                         |      |    |            | Point Number, Historical Log 1, Parameter 5 |       |       |      | R   |
| 45215                         |      |    |            | Line Number, Historical Log 1, Parameter 6  |       |       |      | R   |
| 45216                         |      |    |            | Point Number, Historical Log 1, Parameter 6 |       |       |      | R   |
| 45217                         |      |    |            | Line Number, Historical Log 1, Parameter 7  |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45218   |      |    |            | Point Number, Historical Log 1, Parameter 7  |       |       |      | R   |
| 45219   |      |    |            | Line Number, Historical Log 1, Parameter 8   |       |       |      | R   |
| 45220   |      |    |            | Point Number, Historical Log 1, Parameter 8  |       |       |      | R   |
| 45221   |      |    |            | Line Number, Historical Log 1, Parameter 9   |       |       |      | R   |
| 45222   |      |    |            | Point Number, Historical Log 1, Parameter 9  |       |       |      | R   |
| 45223   |      |    |            | Line Number, Historical Log 1, Parameter 10  |       |       |      | R   |
| 45224   |      |    |            | Point Number, Historical Log 1, Parameter 10 |       |       |      | R   |
| 45225   |      |    |            | Line Number, Historical Log 1, Parameter 11  |       |       |      | R   |
| 45226   |      |    |            | Point Number, Historical Log 1, Parameter 11 |       |       |      | R   |
| 45227   |      |    |            | Line Number, Historical Log 1, Parameter 12  |       |       |      | R   |
| 45228   |      |    |            | Point Number, Historical Log 1, Parameter 12 |       |       |      | R   |
| 45229   |      |    |            | Line Number, Historical Log 1, Parameter 13  |       |       |      | R   |
| 45230   |      |    |            | Point Number, Historical Log 1, Parameter 13 |       |       |      | R   |
| 45231   |      |    |            | Line Number, Historical Log 1, Parameter 14  |       |       |      | R   |
| 45232   |      |    |            | Point Number, Historical Log 1, Parameter 14 |       |       |      | R   |
| 45233   |      |    |            | Line Number, Historical Log 1, Parameter 15  |       |       |      | R   |
| 45234   |      |    |            | Point Number, Historical Log 1, Parameter 15 |       |       |      | R   |
| 45235   |      |    |            | Line Number, Historical Log 1, Parameter 16  |       |       |      | R   |
| 45236   |      |    |            | Point Number, Historical Log 1, Parameter 16 |       |       |      | R   |
| 45237   |      |    |            | Line Number, Historical Log 1, Parameter 17  |       |       |      | R   |
| 45238   |      |    |            | Point Number, Historical Log 1, Parameter 17 |       |       |      | R   |
| 45239   |      |    |            | Line Number, Historical Log 1, Parameter 18  |       |       |      | R   |
| 45240   |      |    |            | Point Number, Historical Log 1, Parameter 18 |       |       |      | R   |
| 45241   |      |    |            | Line Number, Historical Log 1, Parameter 19  |       |       |      | R   |
| 45242   |      |    |            | Point Number, Historical Log 1, Parameter 19 |       |       |      | R   |
| 45243   |      |    |            | Line Number, Historical Log 1, Parameter 20  |       |       |      | R   |
| 45244   |      |    |            | Point Number, Historical Log 1, Parameter 20 |       |       |      | R   |
| 45245   |      |    |            | Line Number, Historical Log 1, Parameter 21  |       |       |      | R   |
| 45246   |      |    |            | Point Number, Historical Log 1, Parameter 21 |       |       |      | R   |
| 45247   |      |    |            | Line Number, Historical Log 1, Parameter 22  |       |       |      | R   |
| 45248   |      |    |            | Point Number, Historical Log 1, Parameter 22 |       |       |      | R   |
| 45249   |      |    |            | Line Number, Historical Log 1, Parameter 23  |       |       |      | R   |
| 45250   |      |    |            | Point Number, Historical Log 1, Parameter 23 |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45251   |      |    |            | Line Number, Historical Log 1, Parameter 24  |       |       |      | R   |
| 45252   |      |    |            | Point Number, Historical Log 1, Parameter 24 |       |       |      | R   |
| 45253   |      |    |            | Line Number, Historical Log 1, Parameter 25  |       |       |      | R   |
| 45254   |      |    |            | Point Number, Historical Log 1, Parameter 25 |       |       |      | R   |
| 45255   |      |    |            | Line Number, Historical Log 1, Parameter 26  |       |       |      | R   |
| 45256   |      |    |            | Point Number, Historical Log 1, Parameter 26 |       |       |      | R   |
| 45257   |      |    |            | Line Number, Historical Log 1, Parameter 27  |       |       |      | R   |
| 45258   |      |    |            | Point Number, Historical Log 1, Parameter 27 |       |       |      | R   |
| 45259   |      |    |            | Line Number, Historical Log 1, Parameter 28  |       |       |      | R   |
| 45260   |      |    |            | Point Number, Historical Log 1, Parameter 28 |       |       |      | R   |
| 45261   |      |    |            | Line Number, Historical Log 1, Parameter 29  |       |       |      | R   |
| 45262   |      |    |            | Point Number, Historical Log 1, Parameter 29 |       |       |      | R   |
| 45263   |      |    |            | Line Number, Historical Log 1, Parameter 30  |       |       |      | R   |
| 45264   |      |    |            | Point Number, Historical Log 1, Parameter 30 |       |       |      | R   |
| 45265   |      |    |            | Line Number, Historical Log 1, Parameter 31  |       |       |      | R   |
| 45266   |      |    |            | Point Number, Historical Log 1, Parameter 31 |       |       |      | R   |
| 45267   |      |    |            | Line Number, Historical Log 1, Parameter 32  |       |       |      | R   |
| 45268   |      |    |            | Point Number, Historical Log 1, Parameter 32 |       |       |      | R   |
| 45269   |      |    |            | Line Number, Historical Log 1, Parameter 33  |       |       |      | R   |
| 45270   |      |    |            | Point Number, Historical Log 1, Parameter 33 |       |       |      | R   |
| 45271   |      |    |            | Line Number, Historical Log 1, Parameter 34  |       |       |      | R   |
| 45272   |      |    |            | Point Number, Historical Log 1, Parameter 34 |       |       |      | R   |
| 45273   |      |    |            | Line Number, Historical Log 1, Parameter 35  |       |       |      | R   |
| 45274   |      |    |            | Point Number, Historical Log 1, Parameter 35 |       |       |      | R   |
| 45275   |      |    |            | Line Number, Historical Log 1, Parameter 36  |       |       |      | R   |
| 45276   |      |    |            | Point Number, Historical Log 1, Parameter 36 |       |       |      | R   |
| 45277   |      |    |            | Line Number, Historical Log 1, Parameter 37  |       |       |      | R   |
| 45278   |      |    |            | Point Number, Historical Log 1, Parameter 37 |       |       |      | R   |
| 45279   |      |    |            | Line Number, Historical Log 1, Parameter 38  |       |       |      | R   |
| 45280   |      |    |            | Point Number, Historical Log 1, Parameter 38 |       |       |      | R   |
| 45281   |      |    |            | Line Number, Historical Log 1, Parameter 39  |       |       |      | R   |
| 45282   |      |    |            | Point Number, Historical Log 1, Parameter 39 |       |       |      | R   |
| 45283   |      |    |            | Line Number, Historical Log 1, Parameter 40  |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45284   |      |    |            | Point Number, Historical Log 1, Parameter 40 |       |       |      | R   |
| 45285   |      |    |            | Line Number, Historical Log 1, Parameter 41  |       |       |      | R   |
| 45286   |      |    |            | Point Number, Historical Log 1, Parameter 41 |       |       |      | R   |
| 45287   |      |    |            | Line Number, Historical Log 1, Parameter 42  |       |       |      | R   |
| 45288   |      |    |            | Point Number, Historical Log 1, Parameter 42 |       |       |      | R   |
| 45289   |      |    |            | Line Number, Historical Log 1, Parameter 43  |       |       |      | R   |
| 45290   |      |    |            | Point Number, Historical Log 1, Parameter 43 |       |       |      | R   |
| 45291   |      |    |            | Line Number, Historical Log 1, Parameter 44  |       |       |      | R   |
| 45292   |      |    |            | Point Number, Historical Log 1, Parameter 44 |       |       |      | R   |
| 45293   |      |    |            | Line Number, Historical Log 1, Parameter 45  |       |       |      | R   |
| 45294   |      |    |            | Point Number, Historical Log 1, Parameter 45 |       |       |      | R   |
| 45295   |      |    |            | Line Number, Historical Log 1, Parameter 46  |       |       |      | R   |
| 45296   |      |    |            | Point Number, Historical Log 1, Parameter 46 |       |       |      | R   |
| 45297   |      |    |            | Line Number, Historical Log 1, Parameter 47  |       |       |      | R   |
| 45298   |      |    |            | Point Number, Historical Log 1, Parameter 47 |       |       |      | R   |
| 45299   |      |    |            | Line Number, Historical Log 1, Parameter 48  |       |       |      | R   |
| 45300   |      |    |            | Point Number, Historical Log 1, Parameter 48 |       |       |      | R   |
| 45301   |      |    |            | Line Number, Historical Log 1, Parameter 49  |       |       |      | R   |
| 45302   |      |    |            | Point Number, Historical Log 1, Parameter 49 |       |       |      | R   |
| 45303   |      |    |            | Line Number, Historical Log 1, Parameter 50  |       |       |      | R   |
| 45304   |      |    |            | Point Number, Historical Log 1, Parameter 50 |       |       |      | R   |
| 45305   |      |    |            | Line Number, Historical Log 1, Parameter 51  |       |       |      | R   |
| 45306   |      |    |            | Point Number, Historical Log 1, Parameter 51 |       |       |      | R   |
| 45307   |      |    |            | Line Number, Historical Log 1, Parameter 52  |       |       |      | R   |
| 45308   |      |    |            | Point Number, Historical Log 1, Parameter 52 |       |       |      | R   |
| 45309   |      |    |            | Line Number, Historical Log 1, Parameter 53  |       |       |      | R   |
| 45310   |      |    |            | Point Number, Historical Log 1, Parameter 53 |       |       |      | R   |
| 45311   |      |    |            | Line Number, Historical Log 1, Parameter 54  |       |       |      | R   |
| 45312   |      |    |            | Point Number, Historical Log 1, Parameter 54 |       |       |      | R   |
| 45313   |      |    |            | Line Number, Historical Log 1, Parameter 55  |       |       |      | R   |
| 45314   |      |    |            | Point Number, Historical Log 1, Parameter 55 |       |       |      | R   |
| 45315   |      |    |            | Line Number, Historical Log 1, Parameter 56  |       |       |      | R   |
| 45316   |      |    |            | Point Number, Historical Log 1, Parameter 56 |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45317   |      |    |            | Line Number, Historical Log 1, Parameter 57  |       |       |      | R   |
| 45318   |      |    |            | Point Number, Historical Log 1, Parameter 57 |       |       |      | R   |
| 45319   |      |    |            | Line Number, Historical Log 1, Parameter 58  |       |       |      | R   |
| 45320   |      |    |            | Point Number, Historical Log 1, Parameter 58 |       |       |      | R   |
| 45321   |      |    |            | Line Number, Historical Log 1, Parameter 59  |       |       |      | R   |
| 45322   |      |    |            | Point Number, Historical Log 1, Parameter 59 |       |       |      | R   |
| 45323   |      |    |            | Line Number, Historical Log 1, Parameter 60  |       |       |      | R   |
| 45324   |      |    |            | Point Number, Historical Log 1, Parameter 60 |       |       |      | R   |
| 45325   |      |    |            | Line Number, Historical Log 1, Parameter 61  |       |       |      | R   |
| 45326   |      |    |            | Point Number, Historical Log 1, Parameter 61 |       |       |      | R   |
| 45327   |      |    |            | Line Number, Historical Log 1, Parameter 62  |       |       |      | R   |
| 45328   |      |    |            | Point Number, Historical Log 1, Parameter 62 |       |       |      | R   |
| 45329   |      |    |            | Line Number, Historical Log 1, Parameter 63  |       |       |      | R   |
| 45330   |      |    |            | Point Number, Historical Log 1, Parameter 63 |       |       |      | R   |
| 45331   |      |    |            | Line Number, Historical Log 1, Parameter 64  |       |       |      | R   |
| 45332   |      |    |            | Point Number, Historical Log 1, Parameter 64 |       |       |      | R   |
| 45333   |      |    |            | Line Number, Historical Log 2, Parameter 1   |       |       |      | R   |
| 45334   |      |    |            | Point Number, Historical Log 2, Parameter 1  |       |       |      | R   |
| 45335   |      |    |            | Line Number, Historical Log 2, Parameter 2   |       |       |      | R   |
| 45336   |      |    |            | Point Number, Historical Log 2, Parameter 2  |       |       |      | R   |
| 45337   |      |    |            | Line Number, Historical Log 2, Parameter 3   |       |       |      | R   |
| 45338   |      |    |            | Point Number, Historical Log 2, Parameter 3  |       |       |      | R   |
| 45339   |      |    |            | Line Number, Historical Log 2, Parameter 4   |       |       |      | R   |
| 45340   |      |    |            | Point Number, Historical Log 2, Parameter 4  |       |       |      | R   |
| 45341   |      |    |            | Line Number, Historical Log 2, Parameter 5   |       |       |      | R   |
| 45342   |      |    |            | Point Number, Historical Log 2, Parameter 5  |       |       |      | R   |
| 45343   |      |    |            | Line Number, Historical Log 2, Parameter 6   |       |       |      | R   |
| 45344   |      |    |            | Point Number, Historical Log 2, Parameter 6  |       |       |      | R   |
| 45345   |      |    |            | Line Number, Historical Log 2, Parameter 7   |       |       |      | R   |
| 45346   |      |    |            | Point Number, Historical Log 2, Parameter 7  |       |       |      | R   |
| 45347   |      |    |            | Line Number, Historical Log 2, Parameter 8   |       |       |      | R   |
| 45348   |      |    |            | Point Number, Historical Log 2, Parameter 8  |       |       |      | R   |
| 45349   |      |    |            | Line Number, Historical Log 2, Parameter 9   |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45350   |      |    |            | Point Number, Historical Log 2, Parameter 9  |       |       |      | R   |
| 45351   |      |    |            | Line Number, Historical Log 2, Parameter 10  |       |       |      | R   |
| 45352   |      |    |            | Point Number, Historical Log 2, Parameter 10 |       |       |      | R   |
| 45353   |      |    |            | Line Number, Historical Log 2, Parameter 11  |       |       |      | R   |
| 45354   |      |    |            | Point Number, Historical Log 2, Parameter 11 |       |       |      | R   |
| 45355   |      |    |            | Line Number, Historical Log 2, Parameter 12  |       |       |      | R   |
| 45356   |      |    |            | Point Number, Historical Log 2, Parameter 12 |       |       |      | R   |
| 45357   |      |    |            | Line Number, Historical Log 2, Parameter 13  |       |       |      | R   |
| 45358   |      |    |            | Point Number, Historical Log 2, Parameter 13 |       |       |      | R   |
| 45359   |      |    |            | Line Number, Historical Log 2, Parameter 14  |       |       |      | R   |
| 45360   |      |    |            | Point Number, Historical Log 2, Parameter 14 |       |       |      | R   |
| 45361   |      |    |            | Line Number, Historical Log 2, Parameter 15  |       |       |      | R   |
| 45362   |      |    |            | Point Number, Historical Log 2, Parameter 15 |       |       |      | R   |
| 45363   |      |    |            | Line Number, Historical Log 2, Parameter 16  |       |       |      | R   |
| 45364   |      |    |            | Point Number, Historical Log 2, Parameter 16 |       |       |      | R   |
| 45365   |      |    |            | Line Number, Historical Log 2, Parameter 17  |       |       |      | R   |
| 45366   |      |    |            | Point Number, Historical Log 2, Parameter 17 |       |       |      | R   |
| 45367   |      |    |            | Line Number, Historical Log 2, Parameter 18  |       |       |      | R   |
| 45368   |      |    |            | Point Number, Historical Log 2, Parameter 18 |       |       |      | R   |
| 45369   |      |    |            | Line Number, Historical Log 2, Parameter 19  |       |       |      | R   |
| 45370   |      |    |            | Point Number, Historical Log 2, Parameter 19 |       |       |      | R   |
| 45371   |      |    |            | Line Number, Historical Log 2, Parameter 20  |       |       |      | R   |
| 45372   |      |    |            | Point Number, Historical Log 2, Parameter 20 |       |       |      | R   |
| 45373   |      |    |            | Line Number, Historical Log 2, Parameter 21  |       |       |      | R   |
| 45374   |      |    |            | Point Number, Historical Log 2, Parameter 21 |       |       |      | R   |
| 45375   |      |    |            | Line Number, Historical Log 2, Parameter 22  |       |       |      | R   |
| 45376   |      |    |            | Point Number, Historical Log 2, Parameter 22 |       |       |      | R   |
| 45377   |      |    |            | Line Number, Historical Log 2, Parameter 23  |       |       |      | R   |
| 45378   |      |    |            | Point Number, Historical Log 2, Parameter 23 |       |       |      | R   |
| 45379   |      |    |            | Line Number, Historical Log 2, Parameter 24  |       |       |      | R   |
| 45380   |      |    |            | Point Number, Historical Log 2, Parameter 24 |       |       |      | R   |
| 45381   |      |    |            | Line Number, Historical Log 2, Parameter 25  |       |       |      | R   |
| 45382   |      |    |            | Point Number, Historical Log 2, Parameter 25 |       |       |      | R   |



| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45383   |      |    |            | Line Number, Historical Log 2, Parameter 26  |       |       |      | R   |
| 45384   |      |    |            | Point Number, Historical Log 2, Parameter 26 |       |       |      | R   |
| 45385   |      |    |            | Line Number, Historical Log 2, Parameter 27  |       |       |      | R   |
| 45386   |      |    |            | Point Number, Historical Log 2, Parameter 27 |       |       |      | R   |
| 45387   |      |    |            | Line Number, Historical Log 2, Parameter 28  |       |       |      | R   |
| 45388   |      |    |            | Point Number, Historical Log 2, Parameter 28 |       |       |      | R   |
| 45389   |      |    |            | Line Number, Historical Log 2, Parameter 29  |       |       |      | R   |
| 45390   |      |    |            | Point Number, Historical Log 2, Parameter 29 |       |       |      | R   |
| 45391   |      |    |            | Line Number, Historical Log 2, Parameter 30  |       |       |      | R   |
| 45392   |      |    |            | Point Number, Historical Log 2, Parameter 30 |       |       |      | R   |
| 45393   |      |    |            | Line Number, Historical Log 2, Parameter 31  |       |       |      | R   |
| 45394   |      |    |            | Point Number, Historical Log 2, Parameter 31 |       |       |      | R   |
| 45395   |      |    |            | Line Number, Historical Log 2, Parameter 32  |       |       |      | R   |
| 45396   |      |    |            | Point Number, Historical Log 2, Parameter 32 |       |       |      | R   |
| 45397   |      |    |            | Line Number, Historical Log 2, Parameter 33  |       |       |      | R   |
| 45398   |      |    |            | Point Number, Historical Log 2, Parameter 33 |       |       |      | R   |
| 45399   |      |    |            | Line Number, Historical Log 2, Parameter 34  |       |       |      | R   |
| 45400   |      |    |            | Point Number, Historical Log 2, Parameter 34 |       |       |      | R   |
| 45401   |      |    |            | Line Number, Historical Log 2, Parameter 35  |       |       |      | R   |
| 45402   |      |    |            | Point Number, Historical Log 2, Parameter 35 |       |       |      | R   |
| 45403   |      |    |            | Line Number, Historical Log 2, Parameter 36  |       |       |      | R   |
| 45404   |      |    |            | Point Number, Historical Log 2, Parameter 36 |       |       |      | R   |
| 45405   |      |    |            | Line Number, Historical Log 2, Parameter 37  |       |       |      | R   |
| 45406   |      |    |            | Point Number, Historical Log 2, Parameter 37 |       |       |      | R   |
| 45407   |      |    |            | Line Number, Historical Log 2, Parameter 38  |       |       |      | R   |
| 45408   |      |    |            | Point Number, Historical Log 2, Parameter 38 |       |       |      | R   |
| 45409   |      |    |            | Line Number, Historical Log 2, Parameter 39  |       |       |      | R   |
| 45410   |      |    |            | Point Number, Historical Log 2, Parameter 39 |       |       |      | R   |
| 45411   |      |    |            | Line Number, Historical Log 2, Parameter 40  |       |       |      | R   |
| 45412   |      |    |            | Point Number, Historical Log 2, Parameter 40 |       |       |      | R   |
| 45413   |      |    |            | Line Number, Historical Log 2, Parameter 41  |       |       |      | R   |
| 45414   |      |    |            | Point Number, Historical Log 2, Parameter 41 |       |       |      | R   |
| 45415   |      |    |            | Line Number, Historical Log 2, Parameter 42  |       |       |      | R   |

| Address | Line | Pt | DNP<br>Obj | Description                                  | Range | Units | Type | R/W |
|---------|------|----|------------|--|-------|-------|------|-----|
| 45416   |      |    |            | Point Number, Historical Log 2, Parameter 42 |       |       |      | R   |
| 45417   |      |    |            | Line Number, Historical Log 2, Parameter 43  |       |       |      | R   |
| 45418   |      |    |            | Point Number, Historical Log 2, Parameter 43 |       |       |      | R   |
| 45419   |      |    |            | Line Number, Historical Log 2, Parameter 44  |       |       |      | R   |
| 45420   |      |    |            | Point Number, Historical Log 2, Parameter 44 |       |       |      | R   |
| 45421   |      |    |            | Line Number, Historical Log 2, Parameter 45  |       |       |      | R   |
| 45422   |      |    |            | Point Number, Historical Log 2, Parameter 45 |       |       |      | R   |
| 45423   |      |    |            | Line Number, Historical Log 2, Parameter 46  |       |       |      | R   |
| 45424   |      |    |            | Point Number, Historical Log 2, Parameter 46 |       |       |      | R   |
| 45425   |      |    |            | Line Number, Historical Log 2, Parameter 47  |       |       |      | R   |
| 45426   |      |    |            | Point Number, Historical Log 2, Parameter 47 |       |       |      | R   |
| 45427   |      |    |            | Line Number, Historical Log 2, Parameter 48  |       |       |      | R   |
| 45428   |      |    |            | Point Number, Historical Log 2, Parameter 48 |       |       |      | R   |
| 45429   |      |    |            | Line Number, Historical Log 2, Parameter 49  |       |       |      | R   |
| 45430   |      |    |            | Point Number, Historical Log 2, Parameter 49 |       |       |      | R   |
| 45431   |      |    |            | Line Number, Historical Log 2, Parameter 50  |       |       |      | R   |
| 45432   |      |    |            | Point Number, Historical Log 2, Parameter 50 |       |       |      | R   |
| 45433   |      |    |            | Line Number, Historical Log 2, Parameter 51  |       |       |      | R   |
| 45434   |      |    |            | Point Number, Historical Log 2, Parameter 51 |       |       |      | R   |
| 45435   |      |    |            | Line Number, Historical Log 2, Parameter 52  |       |       |      | R   |
| 45436   |      |    |            | Point Number, Historical Log 2, Parameter 52 |       |       |      | R   |
| 45437   |      |    |            | Line Number, Historical Log 2, Parameter 53  |       |       |      | R   |
| 45438   |      |    |            | Point Number, Historical Log 2, Parameter 53 |       |       |      | R   |
| 45439   |      |    |            | Line Number, Historical Log 2, Parameter 54  |       |       |      | R   |
| 45440   |      |    |            | Point Number, Historical Log 2, Parameter 54 |       |       |      | R   |
| 45441   |      |    |            | Line Number, Historical Log 2, Parameter 55  |       |       |      | R   |
| 45442   |      |    |            | Point Number, Historical Log 2, Parameter 55 |       |       |      | R   |
| 45443   |      |    |            | Line Number, Historical Log 2, Parameter 56  |       |       |      | R   |
| 45444   |      |    |            | Point Number, Historical Log 2, Parameter 56 |       |       |      | R   |
| 45445   |      |    |            | Line Number, Historical Log 2, Parameter 57  |       |       |      | R   |
| 45446   |      |    |            | Point Number, Historical Log 2, Parameter 57 |       |       |      | R   |
| 45447   |      |    |            | Line Number, Historical Log 2, Parameter 58  |       |       |      | R   |
| 45448   |      |    |            | Point Number, Historical Log 2, Parameter 58 |       |       |      | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description                                  | Range               | Units    | Type | R/W |
|-------------------------------|------|----|------------|--|---------------------|----------|------|-----|
| 45449                         |      |    |            | Line Number, Historical Log 2, Parameter 59  |                     |          |      | R   |
| 45450                         |      |    |            | Point Number, Historical Log 2, Parameter 59 |                     |          |      | R   |
| 45451                         |      |    |            | Line Number, Historical Log 2, Parameter 60  |                     |          |      | R   |
| 45452                         |      |    |            | Point Number, Historical Log 2, Parameter 60 |                     |          |      | R   |
| 45453                         |      |    |            | Line Number, Historical Log 2, Parameter 61  |                     |          |      | R   |
| 45454                         |      |    |            | Point Number, Historical Log 2, Parameter 61 |                     |          |      | R   |
| 45455                         |      |    |            | Line Number, Historical Log 2, Parameter 62  |                     |          |      | R   |
| 45456                         |      |    |            | Point Number, Historical Log 2, Parameter 62 |                     |          |      | R   |
| 45457                         |      |    |            | Line Number, Historical Log 2, Parameter 63  |                     |          |      | R   |
| 45458                         |      |    |            | Point Number, Historical Log 2, Parameter 63 |                     |          |      | R   |
| 45459                         |      |    |            | Line Number, Historical Log 2, Parameter 64  |                     |          |      | R   |
| 45460                         |      |    |            | Point Number, Historical Log 2, Parameter 64 |                     |          |      | R   |
| 45461                         |      |    |            | Snapshot Interval, Historical Log 1          | 3600/0              | 1 second |      | R   |
| 45462                         |      |    |            | Snapshot Interval, Historical Log 2          | 3600/0              | 1 second |      | R   |
| 45463                         |      |    |            | Record Size, Historical Log 1                |                     |          |      | R   |
| 45464                         |      |    |            | Record Size, Historical Log 2                |                     |          |      | R   |
| Waveform/CBEMA Settings Block |      |    |            |  |                     |          |      |     |
| 45465                         |      |    |            | Phase A-N Voltage Above Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45466                         |      |    |            | Phase A-N Voltage Below Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45467                         |      |    |            | Phase B-N Voltage Above Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45468                         |      |    |            | Phase B-N Voltage Below Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45469                         |      |    |            | Phase C-N Voltage Above Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45470                         |      |    |            | Phase C-N Voltage Below Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45471                         |      |    |            | Auxiliary Voltage Above Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45472                         |      |    |            | Auxiliary Voltage Below Setpoint             | +327.67% / -327.68% | 0.01%    |      | R   |
| 45473                         |      |    |            | Phase A Current Above Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45474                         |      |    |            | Phase A Current Below Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45475                         |      |    |            | Phase B Current Above Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45476                         |      |    |            | Phase B Current Below Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45477                         |      |    |            | Phase C Current Above Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45478                         |      |    |            | Phase C Current Below Setpoint               | +327.67% / -327.68% | 0.01%    |      | R   |
| 45479                         |      |    |            | Measured Neutral Current Above Setpoint      | +327.67% / -327.68% | 0.01%    |      | R   |
| 45480                         |      |    |            | Measured Neutral Current Below Setpoint      | +327.67% / -327.68% | 0.01%    |      | R   |

| Address                         | Line | Pt | DNP<br>Obj | Description   | Range               | Units | Type | R/W |
|---------------------------------|------|----|------------|---|---------------------|-------|------|-----|
| 45481                           |      |    |            | Calculated Neutral Current Above Setpoint                         | +327.67% / -327.68% | 0.01% |      | R   |
| 45482                           |      |    |            | Calculated Neutral Current Below Setpoint                         | +327.67% / -327.68% | 0.01% |      | R   |
| 45483                           |      |    |            | Phase A-B Voltage Above Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45484                           |      |    |            | Phase A-B Voltage Below Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45485                           |      |    |            | Phase B-C Voltage Above Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45486                           |      |    |            | Phase B-C Voltage Below Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45487                           |      |    |            | Phase C-A Voltage Above Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45488                           |      |    |            | Phase C-A Voltage Below Setpoint                                  | +327.67% / -327.68% | 0.01% |      | R   |
| 45489-45490                     |      |    |            | Waveform Enables (Limit Above, Limit Below)                       |                     |       |      | R   |
| 45491-45492                     |      |    |            | PQ Enables (Limit Above, Limit Below)                             |                     |       |      | R   |
| 45493-45496                     |      |    |            | Reserved  |                     |       |      |     |
| 45497                           |      |    |            | Sample Rate and Total Captures                                    |                     |       |      | R   |
| 45498                           |      |    |            | Mode and CBEMA Enable   |                     |       |      | R   |
| 45499                           |      |    |            | High Speed Input Waveform and PQ Enables                          |                     |       |      | R   |
| 45500                           |      |    |            | 256 Samp/Cyc Channel Selection and 512 Samp/Cyc Channel Selection |                     |       |      | R   |
| High Speed Input Settings Block |      |    |            |   |                     |       |      |     |
| 45501-45508                     |      |    |            | Input 1 Name  |                     |       |      | R   |
| 45509-45516                     |      |    |            | Input 1 Open Label  |                     |       |      | R   |
| 45517-45524                     |      |    |            | Input 1 Close Label   |                     |       |      | R   |
| 45525-45526                     |      |    |            | Input 1 Value   |                     |       |      | R   |
| 45527                           |      |    |            | Input 1 Mode  |                     |       |      | R   |
| 45528                           |      |    |            | Reserved  |                     |       |      |     |
| 45529-45536                     |      |    |            | Input 2 Name  |                     |       |      | R   |
| 45537-45544                     |      |    |            | Input 2 Open Label  |                     |       |      | R   |
| 45545-45552                     |      |    |            | Input 2 Close Label   |                     |       |      | R   |
| 45553-45554                     |      |    |            | Input 2 Value   |                     |       |      | R   |
| 45555                           |      |    |            | Input 2 Mode  |                     |       |      | R   |
| 45556                           |      |    |            | Reserved  |                     |       |      |     |
| 45557-45564                     |      |    |            | Input 3 Name  |                     |       |      | R   |
| 45565-45572                     |      |    |            | Input 3 Open Label  |                     |       |      | R   |
| 45573-45580                     |      |    |            | Input 3 Close Label   |                     |       |      | R   |
| 45581-45582                     |      |    |            | Input 3 Value   |                     |       |      | R   |
| 45583                           |      |    |            | Input 3 Mode  |                     |       |      | R   |

| Address                                      | Line | Pt | DNP<br>Obj | Description                             | Range | Units | Type | R/W |
|--|------|----|------------|---|-------|-------|------|-----|
| 45584  |      |    |            | Reserved                                |       |       |      |     |
| 45585-45592                                  |      |    |            | Input 4 Name                            |       |       |      | R   |
| 45593-45600                                  |      |    |            | Input 4 Open Label                      |       |       |      | R   |
| 45601-45608                                  |      |    |            | Input 4 Close Label                     |       |       |      | R   |
| 45609-45610                                  |      |    |            | Input 4 Value                           |       |       |      | R   |
| 45611  |      |    |            | Input 4 Mode                            |       |       |      | R   |
| 45612  |      |    |            | Reserved                                |       |       |      |     |
| 45613-45620                                  |      |    |            | Input 5 Name                            |       |       |      | R   |
| 45621-45628                                  |      |    |            | Input 5 Open Label                      |       |       |      | R   |
| 45629-45636                                  |      |    |            | Input 5 Close Label                     |       |       |      | R   |
| 45637-45638                                  |      |    |            | Input 5 Value                           |       |       |      | R   |
| 45639  |      |    |            | Input 5 Mode                            |       |       |      | R   |
| 45640  |      |    |            | Reserved                                |       |       |      |     |
| 45641-45648                                  |      |    |            | Input 6 Name                            |       |       |      | R   |
| 45649-45656                                  |      |    |            | Input 6 Open Label                      |       |       |      | R   |
| 45657-45664                                  |      |    |            | Input 6 Close Label                     |       |       |      | R   |
| 45665-45666                                  |      |    |            | Input 6 Value                           |       |       |      | R   |
| 45667  |      |    |            | Input 6 Mode                            |       |       |      | R   |
| 45668  |      |    |            | Reserved                                |       |       |      |     |
| 45669-45676                                  |      |    |            | Input 7 Name                            |       |       |      | R   |
| 45677-45684                                  |      |    |            | Input 7 Open Label                      |       |       |      | R   |
| 45685-45692                                  |      |    |            | Input 7 Close Label                     |       |       |      | R   |
| 45693-45694                                  |      |    |            | Input 7 Value                           |       |       |      | R   |
| 45695  |      |    |            | Input 7 Mode                            |       |       |      | R   |
| 45696  |      |    |            | Reserved                                |       |       |      |     |
| 45697-45704                                  |      |    |            | Input 8 Name                            |       |       |      | R   |
| 45705-45712                                  |      |    |            | Input 8 Open Label                      |       |       |      | R   |
| 45713-45720                                  |      |    |            | Input 8 Close Label                     |       |       |      | R   |
| 45721-45722                                  |      |    |            | Input 8 Value                           |       |       |      | R   |
| 45723  |      |    |            | Input 8 Mode                            |       |       |      | R   |
| 45724  |      |    |            | Reserved                                |       |       |      | R   |
| External Digital Input Module Settings Block |      |    |            |   |       |       |      |     |
| 45725  |      |    |            | External Digital Input Module 1 Address |       |       |      | R   |

| Address                                       | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|---|------|----|------------|---|-------|-------|------|-----|
| 45726   |      |    |            | External Digital Input Module 2 Address                 |       |       |      | R   |
| 45727   |      |    |            | External Digital Input Module 3 Address                 |       |       |      | R   |
| 45728   |      |    |            | External Digital Input Module 4 Address                 |       |       |      | R   |
| External Digital Output Module Settings Block |      |    |            |   |       |       |      |     |
| 45729   |      |    |            | Address, External Digital Output Module 1               |       |       |      | R   |
| 45730-45732                                   |      |    |            | Reserved  |       |       |      |     |
| 45733   |      |    |            | Line Number, Relay 1, External Digital Output Module 1  |       |       |      | R   |
| 45734   |      |    |            | Point Number, Relay 1, External Digital Output Module 1 |       |       |      | R   |
| 45735   |      |    |            | Line Number, Relay 2, External Digital Output Module 1  |       |       |      | R   |
| 45736   |      |    |            | Point Number, Relay 2, External Digital Output Module 1 |       |       |      | R   |
| 45737   |      |    |            | Line Number, Relay 3, External Digital Output Module 1  |       |       |      | R   |
| 45738   |      |    |            | Point Number, Relay 3, External Digital Output Module 1 |       |       |      | R   |
| 45739   |      |    |            | Line Number, Relay 4, External Digital Output Module 1  |       |       |      | R   |
| 45740   |      |    |            | Point Number, Relay 4, External Digital Output Module 1 |       |       |      | R   |
| 45741   |      |    |            | Line Number, Relay 5, External Digital Output Module 1  |       |       |      | R   |
| 45742   |      |    |            | Point Number, Relay 5, External Digital Output Module 1 |       |       |      | R   |
| 45743   |      |    |            | Line Number, Relay 6, External Digital Output Module 1  |       |       |      | R   |
| 45744   |      |    |            | Point Number, Relay 6, External Digital Output Module 1 |       |       |      | R   |
| 45745   |      |    |            | Line Number, Relay 7, External Digital Output Module 1  |       |       |      | R   |
| 45746   |      |    |            | Point Number, Relay 7, External Digital Output Module 1 |       |       |      | R   |
| 45747   |      |    |            | Line Number, Relay 8, External Digital Output Module 1  |       |       |      | R   |
| 45748   |      |    |            | Point Number, Relay 8, External Digital Output Module 1 |       |       |      | R   |
| 45749   |      |    |            | Address, External Digital Output Module 2               |       |       |      | R   |
| 45750-45752                                   |      |    |            | Reserved  |       |       |      |     |
| 45753   |      |    |            | Line Number, Relay 1, External Digital Output Module 2  |       |       |      | R   |
| 45754   |      |    |            | Point Number, Relay 1, External Digital Output Module 2 |       |       |      | R   |
| 45755   |      |    |            | Line Number, Relay 2, External Digital Output Module 2  |       |       |      | R   |
| 45756   |      |    |            | Point Number, Relay 2, External Digital Output Module 2 |       |       |      | R   |
| 45757   |      |    |            | Line Number, Relay 3, External Digital Output Module 2  |       |       |      | R   |
| 45758   |      |    |            | Point Number, Relay 3, External Digital Output Module 2 |       |       |      | R   |
| 45759   |      |    |            | Line Number, Relay 4, External Digital Output Module 2  |       |       |      | R   |
| 45760   |      |    |            | Point Number, Relay 4, External Digital Output Module 2 |       |       |      | R   |
| 45761   |      |    |            | Line Number, Relay 5, External Digital Output Module 2  |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|-------------|------|----|------------|---|-------|-------|------|-----|
| 45762       |      |    |            | Point Number, Relay 5, External Digital Output Module 2 |       |       |      | R   |
| 45763       |      |    |            | Line Number, Relay 6, External Digital Output Module 2  |       |       |      | R   |
| 45764       |      |    |            | Point Number, Relay 6, External Digital Output Module 2 |       |       |      | R   |
| 45765       |      |    |            | Line Number, Relay 7, External Digital Output Module 2  |       |       |      | R   |
| 45766       |      |    |            | Point Number, Relay 7, External Digital Output Module 2 |       |       |      | R   |
| 45767       |      |    |            | Line Number, Relay 8, External Digital Output Module 2  |       |       |      | R   |
| 45768       |      |    |            | Point Number, Relay 8, External Digital Output Module 2 |       |       |      | R   |
| 45769       |      |    |            | Address, External Digital Output Module 3               |       |       |      | R   |
| 45770-45772 |      |    |            | Reserved  |       |       |      |     |
| 45773       |      |    |            | Line Number, Relay 1, External Digital Output Module 3  |       |       |      | R   |
| 45774       |      |    |            | Point Number, Relay 1, External Digital Output Module 3 |       |       |      | R   |
| 45775       |      |    |            | Line Number, Relay 2, External Digital Output Module 3  |       |       |      | R   |
| 45776       |      |    |            | Point Number, Relay 2, External Digital Output Module 3 |       |       |      | R   |
| 45777       |      |    |            | Line Number, Relay 3, External Digital Output Module 3  |       |       |      | R   |
| 45778       |      |    |            | Point Number, Relay 3, External Digital Output Module 3 |       |       |      | R   |
| 45779       |      |    |            | Line Number, Relay 4, External Digital Output Module 3  |       |       |      | R   |
| 45780       |      |    |            | Point Number, Relay 4, External Digital Output Module 3 |       |       |      | R   |
| 45781       |      |    |            | Line Number, Relay 5, External Digital Output Module 3  |       |       |      | R   |
| 45782       |      |    |            | Point Number, Relay 5, External Digital Output Module 3 |       |       |      | R   |
| 45783       |      |    |            | Line Number, Relay 6, External Digital Output Module 3  |       |       |      | R   |
| 45784       |      |    |            | Point Number, Relay 6, External Digital Output Module 3 |       |       |      | R   |
| 45785       |      |    |            | Line Number, Relay 7, External Digital Output Module 3  |       |       |      | R   |
| 45786       |      |    |            | Point Number, Relay 7, External Digital Output Module 3 |       |       |      | R   |
| 45787       |      |    |            | Line Number, Relay 8, External Digital Output Module 3  |       |       |      | R   |
| 45788       |      |    |            | Point Number, Relay 8, External Digital Output Module 3 |       |       |      | R   |
| 45789       |      |    |            | Address, External Digital Output Module 4               |       |       |      | R   |
| 45790-45792 |      |    |            | Reserved  |       |       |      |     |
| 45793       |      |    |            | Line Number, Relay 1, External Digital Output Module 4  |       |       |      | R   |
| 45794       |      |    |            | Point Number, Relay 1, External Digital Output Module 4 |       |       |      | R   |
| 45795       |      |    |            | Line Number, Relay 2, External Digital Output Module 4  |       |       |      | R   |
| 45796       |      |    |            | Point Number, Relay 2, External Digital Output Module 4 |       |       |      | R   |
| 45797       |      |    |            | Line Number, Relay 3, External Digital Output Module 4  |       |       |      | R   |
| 45798       |      |    |            | Point Number, Relay 3, External Digital Output Module 4 |       |       |      | R   |

| Address                                      | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|--|------|----|------------|---|-------|-------|------|-----|
| 45799  |      |    |            | Line Number, Relay 4, External Digital Output Module 4  |       |       |      | R   |
| 45800  |      |    |            | Point Number, Relay 4, External Digital Output Module 4 |       |       |      | R   |
| 45801  |      |    |            | Line Number, Relay 5, External Digital Output Module 4  |       |       |      | R   |
| 45802  |      |    |            | Point Number, Relay 5, External Digital Output Module 4 |       |       |      | R   |
| 45803  |      |    |            | Line Number, Relay 6, External Digital Output Module 4  |       |       |      | R   |
| 45804  |      |    |            | Point Number, Relay 6, External Digital Output Module 4 |       |       |      | R   |
| 45805  |      |    |            | Line Number, Relay 7, External Digital Output Module 4  |       |       |      | R   |
| 45806  |      |    |            | Point Number, Relay 7, External Digital Output Module 4 |       |       |      | R   |
| 45807  |      |    |            | Line Number, Relay 8, External Digital Output Module 4  |       |       |      | R   |
| 45808  |      |    |            | Point Number, Relay 8, External Digital Output Module 4 |       |       |      | R   |
| External Analog Input Module Settings Block  |      |    |            |   |       |       |      |     |
| 45809  |      |    |            | Address, External Analog Input Module 1                 |       |       |      | R   |
| 45810  |      |    |            | Address, External Analog Input Module 2                 |       |       |      | R   |
| 45811  |      |    |            | Address, External Analog Input Module 3                 |       |       |      | R   |
| 45812  |      |    |            | Address, External Analog Input Module 4                 |       |       |      | R   |
| External Analog Output Module Settings Block |      |    |            |   |       |       |      |     |
| 45813  |      |    |            | Address, External Analog Output Module 1                |       |       |      | R   |
| 45814-45816                                  |      |    |            | Reserved  |       |       |      |     |
| 45817  |      |    |            | Line Number, Relay 1, External Analog Output Module 1   |       |       |      | R   |
| 45818  |      |    |            | Point Number, Relay 1, External Digital Output Module 1 |       |       |      | R   |
| 45819  |      |    |            | Line Number, Relay 2, External Analog Output Module 1   |       |       |      | R   |
| 45820  |      |    |            | Point Number, Relay 2, External Digital Output Module 1 |       |       |      | R   |
| 45821  |      |    |            | Line Number, Relay 3, External Analog Output Module 1   |       |       |      | R   |
| 45822  |      |    |            | Point Number, Relay 3, External Digital Output Module 1 |       |       |      | R   |
| 45823  |      |    |            | Line Number, Relay 4, External Analog Output Module 1   |       |       |      | R   |
| 45824  |      |    |            | Point Number, Relay 4, External Digital Output Module 1 |       |       |      | R   |
| 45825  |      |    |            | Line Number, Relay 5, External Analog Output Module 1   |       |       |      | R   |
| 45826  |      |    |            | Point Number, Relay 5, External Digital Output Module 1 |       |       |      | R   |
| 45827  |      |    |            | Line Number, Relay 6, External Analog Output Module 1   |       |       |      | R   |
| 45828  |      |    |            | Point Number, Relay 6, External Digital Output Module 1 |       |       |      | R   |
| 45829  |      |    |            | Line Number, Relay 7, External Analog Output Module 1   |       |       |      | R   |
| 45830  |      |    |            | Point Number, Relay 7, External Digital Output Module 1 |       |       |      | R   |
| 45831  |      |    |            | Line Number, Relay 8, External Analog Output Module 1   |       |       |      | R   |



| Address     | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|-------------|------|----|------------|---|-------|-------|------|-----|
| 45832       |      |    |            | Point Number, Relay 8, External Digital Output Module 1 |       |       |      | R   |
| 45833       |      |    |            | Address, External Analog Output Module 2                |       |       |      | R   |
| 45834-45836 |      |    |            | Reserved  |       |       |      |     |
| 45837       |      |    |            | Line Number, Relay 1, External Analog Output Module 2   |       |       |      | R   |
| 45870       |      |    |            | Point Number, Relay 1, External Digital Output Module 2 |       |       |      | R   |
| 45839       |      |    |            | Line Number, Relay 2, External Analog Output Module 2   |       |       |      | R   |
| 45840       |      |    |            | Point Number, Relay 2, External Digital Output Module 2 |       |       |      | R   |
| 45841       |      |    |            | Line Number, Relay 3, External Analog Output Module 2   |       |       |      | R   |
| 45842       |      |    |            | Point Number, Relay 3, External Digital Output Module 2 |       |       |      | R   |
| 45843       |      |    |            | Line Number, Relay 4, External Analog Output Module 2   |       |       |      | R   |
| 45844       |      |    |            | Point Number, Relay 4, External Digital Output Module 2 |       |       |      | R   |
| 45845       |      |    |            | Line Number, Relay 5, External Analog Output Module 2   |       |       |      | R   |
| 45846       |      |    |            | Point Number, Relay 5, External Digital Output Module 2 |       |       |      | R   |
| 45847       |      |    |            | Line Number, Relay 6, External Analog Output Module 2   |       |       |      | R   |
| 45848       |      |    |            | Point Number, Relay 6, External Digital Output Module 2 |       |       |      | R   |
| 45849       |      |    |            | Line Number, Relay 7, External Analog Output Module 2   |       |       |      | R   |
| 45850       |      |    |            | Point Number, Relay 7, External Digital Output Module 2 |       |       |      | R   |
| 45851       |      |    |            | Line Number, Relay 8, External Analog Output Module 2   |       |       |      | R   |
| 45852       |      |    |            | Point Number, Relay 8, External Digital Output Module 2 |       |       |      | R   |
| 45853       |      |    |            | Address, External Analog Output Module 3                |       |       |      | R   |
| 45854-45856 |      |    |            | Reserved  |       |       |      |     |
| 45857       |      |    |            | Line Number, Relay 1, External Analog Output Module 3   |       |       |      | R   |
| 45858       |      |    |            | Point Number, Relay 1, External Digital Output Module 3 |       |       |      | R   |
| 45859       |      |    |            | Line Number, Relay 2, External Analog Output Module 3   |       |       |      | R   |
| 45860       |      |    |            | Point Number, Relay 2, External Digital Output Module 3 |       |       |      | R   |
| 45861       |      |    |            | Line Number, Relay 3, External Analog Output Module 3   |       |       |      | R   |
| 45862       |      |    |            | Point Number, Relay 3, External Digital Output Module 3 |       |       |      | R   |
| 45863       |      |    |            | Line Number, Relay 4, External Analog Output Module 3   |       |       |      | R   |
| 45864       |      |    |            | Point Number, Relay 4, External Digital Output Module 3 |       |       |      | R   |
| 45865       |      |    |            | Line Number, Relay 5, External Analog Output Module 3   |       |       |      | R   |
| 45866       |      |    |            | Point Number, Relay 5, External Digital Output Module 3 |       |       |      | R   |
| 45867       |      |    |            | Line Number, Relay 6, External Analog Output Module 3   |       |       |      | R   |
| 45868       |      |    |            | Point Number, Relay 6, External Digital Output Module 3 |       |       |      | R   |

| Address                                   | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|---|------|----|------------|--|-------|-------|------|-----|
| 45869                                     |      |    |            | Line Number, Relay 7, External Analog Output Module 3      |       |       |      | R   |
| 45870                                     |      |    |            | Point Number, Relay 7, External Digital Output Module 3    |       |       |      | R   |
| 45871                                     |      |    |            | Line Number, Relay 8, External Analog Output Module 3      |       |       |      | R   |
| 45872                                     |      |    |            | Point Number, Relay 8, External Digital Output Module 3    |       |       |      | R   |
| 45873                                     |      |    |            | Address, External Analog Output Module 4                   |       |       |      | R   |
| 45874-45876                               |      |    |            | Reserved   |       |       |      |     |
| 45877                                     |      |    |            | Line Number, Relay 1, External Analog Output Module 4      |       |       |      | R   |
| 45878                                     |      |    |            | Point Number, Relay 1, External Digital Output Module 4    |       |       |      | R   |
| 45879                                     |      |    |            | Line Number, Relay 2, External Analog Output Module 4      |       |       |      | R   |
| 45880                                     |      |    |            | Point Number, Relay 2, External Digital Output Module 4    |       |       |      | R   |
| 45881                                     |      |    |            | Line Number, Relay 3, External Analog Output Module 4      |       |       |      | R   |
| 45882                                     |      |    |            | Point Number, Relay 3, External Digital Output Module 4    |       |       |      | R   |
| 45883                                     |      |    |            | Line Number, Relay 4, External Analog Output Module 4      |       |       |      | R   |
| 45884                                     |      |    |            | Point Number, Relay 4, External Digital Output Module 4    |       |       |      | R   |
| 45885                                     |      |    |            | Line Number, Relay 5, External Analog Output Module 4      |       |       |      | R   |
| 45886                                     |      |    |            | Point Number, Relay 5, External Digital Output Module 4    |       |       |      | R   |
| 45887                                     |      |    |            | Line Number, Relay 6, External Analog Output Module 4      |       |       |      | R   |
| 45888                                     |      |    |            | Point Number, Relay 6, External Digital Output Module 4    |       |       |      | R   |
| 45889                                     |      |    |            | Line Number, Relay 7, External Analog Output Module 4      |       |       |      | R   |
| 45890                                     |      |    |            | Point Number, Relay 7, External Digital Output Module 4    |       |       |      | R   |
| 45891                                     |      |    |            | Line Number, Relay 8, External Analog Output Module 4      |       |       |      | R   |
| 45892                                     |      |    |            | Point Number, Relay 8, External Digital Output Module 4    |       |       |      | R   |
| External KYZ Output Module Settings Block |      |    |            |  |       |       |      |     |
| 45893                                     |      |    |            | Address, External KYZ Output Module 1                      |       |       |      | R   |
| 45894                                     |      |    |            | Energy Assignment, Relay 1-2, External KYZ Output Module 1 |       |       |      | R   |
| 45895                                     |      |    |            | Energy Assignment, Relay 3-4, External KYZ Output Module 1 |       |       |      | R   |
| 45896                                     |      |    |            | Reserved   |       |       |      |     |
| 45897                                     |      |    |            | Address, External KYZ Output Module 2                      |       |       |      | R   |
| 45898                                     |      |    |            | Energy Assignment, Relay 1-2, External KYZ Output Module 2 |       |       |      | R   |
| 45899                                     |      |    |            | Energy Assignment, Relay 3-4, External KYZ Output Module 2 |       |       |      | R   |
| 45900                                     |      |    |            | Reserved   |       |       |      |     |
| 45901                                     |      |    |            | Address, External KYZ Output Module 3                      |       |       |      | R   |
| 45902                                     |      |    |            | Energy Assignment, Relay 1-2, External KYZ Output Module 3 |       |       |      | R   |

| Address                        | Line | Pt | DNP<br>Obj | Description  | Range               | Units       | Type | R/W |
|--------------------------------|------|----|------------|--|---------------------|-------------|------|-----|
| 45903                          |      |    |            | Energy Assignment, Relay 3-4, External KYZ Output Module 3 |                     |             |      | R   |
| 45904                          |      |    |            | Reserved   |                     |             |      |     |
| 45905                          |      |    |            | Address, External KYZ Output Module 4                      |                     |             |      | R   |
| 45906                          |      |    |            | Energy Assignment, Relay 1-2, External KYZ Output Module 4 |                     |             |      | R   |
| 45907                          |      |    |            | Energy Assignment, Relay 3-4, External KYZ Output Module 4 |                     |             |      | R   |
| 45908                          |      |    |            | Reserved   |                     |             |      |     |
| CT & PT Ratio Settings Block   |      |    |            |  |                     |             |      |     |
| 45909-45910                    |      |    |            | Phase Current CT Ratio Numerator                           | +999,999.99 / +0.01 | 1/100 A pri |      | R   |
| 45911-45912                    |      |    |            | Phase Current CT Ratio Denominator                         | +999,999.99 / +0.01 | 1/100 A sec |      | R   |
| 45913-45914                    |      |    |            | Measured Neutral Current CT Ratio Numerator                | +999,999.99 / +0.01 | 1/100 A pri |      | R   |
| 45915-45916                    |      |    |            | Measured Neutral Current CT Ratio Denominator              | +999,999.99 / +0.01 | 1/100 A sec |      | R   |
| 45917-45918                    |      |    |            | Phase Voltage PT Ratio Numerator                           | +999,999.99 / +0.01 | 1/100 V pri |      | R   |
| 45919-45920                    |      |    |            | Phase Voltage PT Ratio Denominator                         | +999,999.99 / +0.01 | 1/100 V sec |      | R   |
| 45921-45922                    |      |    |            | Auxiliary Voltage PT Ratio Numerator                       | +999,999.99 / +0.01 | 1/100 V pri |      | R   |
| 45923-45924                    |      |    |            | Auxiliary Voltage PT Ratio Denominator                     | +999,999.99 / +0.01 | 1/100 V sec |      | R   |
| Hookup and Time Settings Block |      |    |            |  |                     |             |      |     |
| 45925                          |      |    |            | Hookup   |                     |             |      | R   |
| 45926                          |      |    |            | Frequency & Time Zone Hour Selection                       |                     |             |      | R   |
| 45927                          |      |    |            | Time Zone Half Hour & Daylight Savings Time Enable         |                     |             |      | R   |
| 45928                          |      |    |            | Transformer Loss Compensation (TLC) & Internal KYZ Form    |                     |             |      | R   |
| 45929-45932                    |      |    |            | Daylight Savings Time Start                                |                     |             |      | R   |
| 45933-45936                    |      |    |            | Daylight Savings Time End                                  |                     |             |      | R   |
| 45937-45938                    |      |    |            | % Loss of Watts due to Iron (TLC)                          |                     |             |      | R   |
| 45939-45940                    |      |    |            | % Loss of Watts due to Copper (TLC)                        |                     |             |      | R   |
| 45941-45942                    |      |    |            | % Loss of VAR due to Iron (TLC)                            |                     |             |      | R   |
| 45943-45944                    |      |    |            | % Loss of VAR due to Copper (TLC)                          |                     |             |      | R   |
| 45945-45948                    |      |    |            | Reserved   |                     |             |      |     |
| Average Settings Block         |      |    |            |  |                     |             |      |     |
| 45949                          |      |    |            | Thermal and Block Averaging Time Interval                  | 65535 / 0           | 1 second    |      | R   |
| 45950                          |      |    |            | Rolling Averaging Sub-Interval                             | 65535 / 0           | 1 second    |      | R   |
| 45951                          |      |    |            | Predictive Rolling Window Average                          | 100.00 / 0          | 0.01 %      |      | R   |
| 45952                          |      |    |            | Rolling Sub-Intervals / Time of Use Log Enable             | 1~255/not used      |             |      | R   |
| Exception Profile Block        |      |    |            |  |                     |             |      |     |

| Address   | Line | Pt | DNP<br>Obj | Description                                     | Range     | Units     | Type | R/W |
|---|------|----|------------|---|-----------|-----------|------|-----|
| 45953-45960   |      |    |            | Limits  |           |           |      | R   |
| 45961-45962   |      |    |            | External Inputs                                 |           |           |      | R   |
| 45963   |      |    |            | Reserved  |           |           |      |     |
| 45964   |      |    |            | Digital Inputs                                  |           |           |      | R   |
| 45965-45966   |      |    |            | Device Internal Change                          |           |           |      | R   |
| 45967-45968   |      |    |            | External Digital Input Mode                     |           |           |      | R   |
| Device Label Settings Block                         |      |    |            |   |           |           |      |     |
| 45969-45976   |      |    |            | Meter Designation                               |           |           |      | R   |
| 45977-45984   |      |    |            | Auxiliary Voltage Label (1250 only)             |           |           |      | R   |
| 45985-45992   |      |    |            | Measured Neutral Current Label                  |           |           |      | R   |
| Network Settings Block                              |      |    |            |   |           |           |      |     |
| 45993-45994   |      |    |            | IP Address                                      |           |           |      | R   |
| 45995-45996   |      |    |            | Subnet Mask                                     |           |           |      | R   |
| 45997-45998   |      |    |            | Default Gateway                                 |           |           |      | R   |
| 45999   |      |    |            | Port 2 Baud Rate / Gateway Delay                |           |           |      | R   |
| 46000   |      |    |            | Mode/ Mode 2                                    |           |           |      | R   |
| 46001-46008   |      |    |            | Computer Name                                   |           |           |      | R   |
| 46009-46010   |      |    |            | DNS Server 1 IP Address                         |           |           |      | R   |
| 46011-46012   |      |    |            | DNS Server 2 IP Address                         |           |           |      |     |
| 46013-46014   |      |    |            | Server / Service Enable Bits                    |           |           |      |     |
| 46015   |      |    |            | Email Port Number                               |           |           |      |     |
| 46016   |      |    |            | FTP Port Number                                 |           |           |      |     |
| Block Window Average External Synchronization Block |      |    |            |   |           |           |      |     |
| 46017   |      |    |            | BWA Synch Enable / BWA Synch Mask               |           |           |      | R   |
| Display Configuration Block                         |      |    |            |   |           |           |      |     |
| 46018   |      |    |            | Display Configuration                           |           |           |      | R   |
| Energy Direction Block                              |      |    |            |   |           |           |      |     |
| 46019   |      |    |            | Received Energy Direction/Power Factor labeling |           |           |      | R   |
| Test Mode Configuration Block                       |      |    |            |   |           |           |      |     |
| 46020   |      |    |            | Test Mode Exit Delay Time                       |           |           |      |     |
| Full Scale Block                                    |      |    |            |   |           |           |      |     |
| 46021-46022   |      |    |            | Full Scale Phase Current                        | 65535 / 0 | 1 / 65536 |      | R   |
| 46023-46024   |      |    |            | Full Scale Measured Neutral Current             | 65535 / 0 | 1 / 65536 |      | R   |

| Address                                  | Line | Pt | DNP<br>Obj | Description                         | Range     | Units     | Type | R/W |
|--|------|----|------------|-------------------------------------|-----------|-----------|------|-----|
| 46025-46026                              |      |    |            | Full Scale Phase-to-Neutral Voltage | 65535 / 0 | 1 / 65536 |      | R   |
| 46027-46028                              |      |    |            | Full Scale Auxiliary Voltage        | 65535 / 0 | 1 / 65536 |      | R   |
| 46029-46030                              |      |    |            | Full Scale Phase-To-Phase Voltage   | 65535 / 0 | 1 / 65536 |      | R   |
| 46031-46032                              |      |    |            | Full Scale Phase Power              | 65535 / 0 | 1 / 65536 |      | R   |
| 46033-46034                              |      |    |            | Full Scale Total Power              | 65535 / 0 | 1 / 65536 |      | R   |
| 46035-46036                              |      |    |            | Full Scale Frequency                | 65535 / 0 | 1 / 65536 |      | R   |
| 46037-46052                              |      |    |            | Reserved                            |           |           |      |     |
| External Module Software Interface Block |      |    |            |                                     |           |           |      |     |
| 46053                                    |      |    |            | External Module 1 & 2 Type          |           |           |      | R   |
| 46054                                    |      |    |            | External Module 3 & 4 Type          |           |           |      | R   |
| 46055                                    |      |    |            | External Module 5 & 6 Type          |           |           |      | R   |
| 46056                                    |      |    |            | External Module 7 & 8 Type          |           |           |      | R   |
| 46057                                    |      |    |            | External Module 9 & 10 Type         |           |           |      | R   |
| 46058                                    |      |    |            | External Module 11 & 12 Type        |           |           |      | R   |
| 46059                                    |      |    |            | External Module 13 & 14 Type        |           |           |      | R   |
| 46060                                    |      |    |            | External Module 15 & 16 Type        |           |           |      | R   |
| 46061                                    |      |    |            | External Module 1 & 2 Slot          |           |           |      | R   |
| 46062                                    |      |    |            | External Module 3 & 4 Slot          |           |           |      | R   |
| 46063                                    |      |    |            | External Module 5 & 6 Slot          |           |           |      | R   |
| 46064                                    |      |    |            | External Module 7 & 8 Slot          |           |           |      | R   |
| 46065                                    |      |    |            | External Module 9 & 10 Slot         |           |           |      | R   |
| 46066                                    |      |    |            | External Module 11 & 12 Slot        |           |           |      | R   |
| 46067                                    |      |    |            | External Module 13 & 14 Slot        |           |           |      | R   |
| 46068                                    |      |    |            | External Module 15 & 16 Slot        |           |           |      | R   |
| 46069-46076                              |      |    |            | External Module 1 Label             |           |           |      | R   |
| 46077-46084                              |      |    |            | External Module 2 Label             |           |           |      | R   |
| 46085-46092                              |      |    |            | External Module 3 Label             |           |           |      | R   |
| 46093-46100                              |      |    |            | External Module 4 Label             |           |           |      | R   |
| 46101-46108                              |      |    |            | External Module 5 Label             |           |           |      | R   |
| 46109-46116                              |      |    |            | External Module 6 Label             |           |           |      | R   |
| 46117-46124                              |      |    |            | External Module 7 Label             |           |           |      | R   |
| 46125-46132                              |      |    |            | External Module 8 Label             |           |           |      | R   |
| 46133-46140                              |      |    |            | External Module 9 Label             |           |           |      | R   |

| Address  | Line | Pt | DNP<br>Obj | Description   | Range          | Units | Type | R/W |
|--|------|----|------------|---|----------------|-------|------|-----|
| 46141-46148  |      |    |            | External Module 10 Label                                      |                |       |      | R   |
| 46149-46156  |      |    |            | External Module 11 Label                                      |                |       |      | R   |
| 46157-46164  |      |    |            | External Module 12 Label                                      |                |       |      | R   |
| 46165-46172  |      |    |            | External Module 13 Label                                      |                |       |      | R   |
| 46173-46180  |      |    |            | External Module 14 Label                                      |                |       |      | R   |
| 46181-46188  |      |    |            | External Module 15 Label                                      |                |       |      | R   |
| 46189-46196  |      |    |            | External Module 16 Label                                      |                |       |      | R   |
| External Module Port Assignment Block                |      |    |            |   |                |       |      |     |
| 46197  |      |    |            | Digital Input Module 1 & 2 Port Assignment                    |                |       |      | R   |
| 46198  |      |    |            | Digital Input Module 3 & 4 Port Assignment                    |                |       |      | R   |
| 46199  |      |    |            | Digital Output Module 1 & 2 Port Assignment                   |                |       |      | R   |
| 46200  |      |    |            | Digital Output Module 3 & 4 Port Assignment                   |                |       |      | R   |
| 46201  |      |    |            | Analog Input Module 1 & 2 Port Assignment                     |                |       |      | R   |
| 46202  |      |    |            | Analog Input Module 3 & 4 Port Assignment                     |                |       |      | R   |
| 46203  |      |    |            | Analog Output Module 1 & 2 Port Assignment                    |                |       |      | R   |
| 46204  |      |    |            | Analog Output Module 3 & 4 Port Assignment                    |                |       |      | R   |
| 46205  |      |    |            | KYZ Output Module 1 & 2 Port Assignment                       |                |       |      | R   |
| 46206  |      |    |            | KYZ Output Module 3 & 4 Port Assignment                       |                |       |      | R   |
| Manual Control Relay Block                           |      |    |            |   |                |       |      |     |
| 46207  |      |    |            | Manual Control Relay Settings                                 |                |       |      | R   |
| 46208  |      |    |            | Flicker Log/ Reserved   |                |       |      | R   |
| Internal Input Pulse Accumulation Scale Factor Block |      |    |            |   |                |       |      |     |
| 46209-46210  |      |    |            | Internal Input 1 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46211-46212  |      |    |            | Internal Input 2 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46213-46214  |      |    |            | Internal Input 3 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46215-46216  |      |    |            | Internal Input 4 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46217-46218  |      |    |            | Internal Input 5 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46219-46220  |      |    |            | Internal Input 6 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46221-46222  |      |    |            | Internal Input 7 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46223-46224  |      |    |            | Internal Input 8 Pulse Accumulation Scale Factor              | 4294967295 / 0 |       |      | R   |
| 46225  |      |    |            | Internal Input 1 & 2 Pulse Accumulation Aggregator Assignment |                |       |      | R   |
| 46226  |      |    |            | Internal Input 3 & 4 Pulse Accumulation Aggregator Assignment |                |       |      | R   |
| 46227  |      |    |            | Internal Input 5 & 6 Pulse Accumulation Aggregator Assignment |                |       |      | R   |

| Address   | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|---|------|----|------------|---|-------|-------|------|-----|
| 46228   |      |    |            | Internal Input 7 & 8 Pulse Accumulation Aggregator Assignment         |       |       |      | R   |
| 46229-46236   |      |    |            | Internal Input 1 Pulse Accumulation Label                             |       |       |      | R   |
| 46237-46244   |      |    |            | Internal Input 2 Pulse Accumulation Label                             |       |       |      | R   |
| 46245-46252   |      |    |            | Internal Input 3 Pulse Accumulation Label                             |       |       |      | R   |
| 46253-46260   |      |    |            | Internal Input 4 Pulse Accumulation Label                             |       |       |      | R   |
| 46261-46268   |      |    |            | Internal Input 5 Pulse Accumulation Label                             |       |       |      | R   |
| 46269-46276   |      |    |            | Internal Input 6 Pulse Accumulation Label                             |       |       |      | R   |
| 46277-46284   |      |    |            | Internal Input 7 Pulse Accumulation Label                             |       |       |      | R   |
| 46285-46292   |      |    |            | Internal Input 8 Pulse Accumulation Label                             |       |       |      | R   |
| 46293-46300   |      |    |            | Internal Input Pulse Aggregation 1 Label                              |       |       |      | R   |
| 46301-46308   |      |    |            | Internal Input Pulse Aggregation 2 Label                              |       |       |      | R   |
| 46309-46316   |      |    |            | Internal Input Pulse Aggregation 3 Label                              |       |       |      | R   |
| 46317-46324   |      |    |            | Internal Input Pulse Aggregation 4 Label                              |       |       |      | R   |
| 46325   |      |    |            | Nexus Watthour Selection / Aggregation Assignment                     |       |       |      | R   |
| I <sup>2</sup> t and V <sup>2</sup> t Threshold Block |      |    |            |   |       |       |      |     |
| 46326-46327   |      |    |            | I <sup>2</sup> t Threshold  |       |       |      | R   |
| 46328-46329   |      |    |            | V <sup>2</sup> t Threshold  |       |       |      | R   |
| Internal KYZ Settings Block                           |      |    |            |   |       |       |      |     |
| 46330   |      |    |            | Internal KYZ Pulse Width (Relay 1/ Relay 2)                           |       |       |      | R   |
| 46331   |      |    |            | Internal KYZ Pulse Width (Relay 3/ Relay 4)                           |       |       |      | R   |
| 46332   |      |    |            | Internal KYZ Pulse Width (LED)/ Internal KYZ Channel Select (Relay 1) |       |       |      | R   |
| 46333   |      |    |            | Internal KYZ Channel Select (Relay 2/ Relay 3)                        |       |       |      | R   |
| 46334   |      |    |            | Internal KYZ Channel Select (Relay 4/ LED)                            |       |       |      | R   |
| 46335-46336   |      |    |            | Internal KYZ Watthour Per Pulse (Relay 1)                             |       |       |      | R   |
| 46337-46338   |      |    |            | Internal KYZ Watthour Per Pulse (Relay 2)                             |       |       |      | R   |
| 46339-46340   |      |    |            | Internal KYZ Watthour Per Pulse (Relay 3)                             |       |       |      | R   |
| 46341-46342   |      |    |            | Internal KYZ Watthour Per Pulse (Relay 4)                             |       |       |      | R   |
| 46343-46344   |      |    |            | Internal KYZ Watthour Per Pulse (LED)                                 |       |       |      | R   |
| 46345   |      |    |            | Internal KYZ enable/ End of Interval Pulse enable                     |       |       |      | R   |
| 46346   |      |    |            | End of Interval Pulse (Relay, Width)                                  |       |       |      | R   |
| 46347   |      |    |            | Cold Load Delay / Cumulative Demand Settings                          |       |       |      | R   |
| 46348   |      |    |            | Short Term Flicker Interval / Long Term Flicker Interval              |       |       |      | R   |
| 46349   |      |    |            | Flicker Voltage Adaptor Level   |       |       |      | R   |

| Address  | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|--|------|----|------------|--|-------|-------|------|-----|
| 46350  |      |    |            | Flicker Base Frequency                                   |       |       |      | R   |
| 46351-46372  |      |    |            | Reserved   |       |       |      | R   |
| Internal Input Pulse Accumulation Unit Label Block |      |    |            |  |       |       |      |     |
| 46373-46376  |      |    |            | Internal Input 1 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46377-46380  |      |    |            | Internal Input 2 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46381-46384  |      |    |            | Internal Input 3 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46385-46388  |      |    |            | Internal Input 4 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46389-46392  |      |    |            | Internal Input 5 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46393-46396  |      |    |            | Internal Input 6 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46397-46400  |      |    |            | Internal Input 7 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46401-46404  |      |    |            | Internal Input 8 Pulse Accumulation Unit Label           |       |       |      | R   |
| 46405-46408  |      |    |            | Internal Input Pulse Aggregation 1 Unit Label            |       |       |      | R   |
| 46409-46412  |      |    |            | Internal Input Pulse Aggregation 2 Unit Label            |       |       |      | R   |
| 46413-46416  |      |    |            | Internal Input Pulse Aggregation 3 Unit Label            |       |       |      | R   |
| 46417-46420  |      |    |            | Internal Input Pulse Aggregation 4 Unit Label            |       |       |      | R   |
| ElectroLogic Block                                 |      |    |            |  |       |       |      |     |
| 46421-46422  |      |    |            | Relay 1 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46423-46424  |      |    |            | Relay 1 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46425-46426  |      |    |            | Relay 1 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46427-46428  |      |    |            | Relay 1 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46429-46430  |      |    |            | Relay 1 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46431-46432  |      |    |            | Relay 1 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46433-46434  |      |    |            | Relay 1 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46435-46436  |      |    |            | Relay 1 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46437  |      |    |            | Relay 1 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46438  |      |    |            | Relay 1 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46439  |      |    |            | Relay 1 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46440  |      |    |            | Relay 1 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46441  |      |    |            | Relay 1 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46442-46444  |      |    |            | Reserved   |       |       |      | R   |
| 46445-46446  |      |    |            | Relay 2 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46447-46448  |      |    |            | Relay 2 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46449-46450  |      |    |            | Relay 2 Combination Tree Input Line 3, Point 3           |       |       |      | R   |



| Address     | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|-------------|------|----|------------|--|-------|-------|------|-----|
| 46451-46452 |      |    |            | Relay 2 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46453-46454 |      |    |            | Relay 2 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46455-46456 |      |    |            | Relay 2 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46457-46458 |      |    |            | Relay 2 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46459-46460 |      |    |            | Relay 2 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46461       |      |    |            | Relay 2 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46462       |      |    |            | Relay 2 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46463       |      |    |            | Relay 2 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46464       |      |    |            | Relay 2 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46465       |      |    |            | Relay 2 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46466-46468 |      |    |            | Reserved   |       |       |      | R   |
| 46469-46470 |      |    |            | Relay 3 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46471-46472 |      |    |            | Relay 3 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46473-46474 |      |    |            | Relay 3 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46475-46476 |      |    |            | Relay 3 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46477-46478 |      |    |            | Relay 3 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46479-46480 |      |    |            | Relay 3 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46481-46482 |      |    |            | Relay 3 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46483-46484 |      |    |            | Relay 3 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46485       |      |    |            | Relay 3 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46486       |      |    |            | Relay 3 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46487       |      |    |            | Relay 3 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46488       |      |    |            | Relay 3 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46489       |      |    |            | Relay 3 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46490-46492 |      |    |            | Reserved   |       |       |      | R   |
| 46493-46494 |      |    |            | Relay 4 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46495-46496 |      |    |            | Relay 4 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46497-46498 |      |    |            | Relay 4 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46499-46500 |      |    |            | Relay 4 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46501-46502 |      |    |            | Relay 4 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46503-46504 |      |    |            | Relay 4 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46505-46506 |      |    |            | Relay 4 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46507-46508 |      |    |            | Relay 4 Combination Tree Input Line 8, Point 8           |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|-------------|------|----|------------|--|-------|-------|------|-----|
| 46509       |      |    |            | Relay 4 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46510       |      |    |            | Relay 4 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46511       |      |    |            | Relay 4 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46512       |      |    |            | Relay 4 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46513       |      |    |            | Relay 4 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46514-46516 |      |    |            | Reserved   |       |       |      | R   |
| 46517-46518 |      |    |            | Relay 5 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46519-46520 |      |    |            | Relay 5 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46521-46522 |      |    |            | Relay 5 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46523-46524 |      |    |            | Relay 5 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46525-46526 |      |    |            | Relay 5 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46527-46528 |      |    |            | Relay 5 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46529-46530 |      |    |            | Relay 5 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46531-46532 |      |    |            | Relay 5 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46533       |      |    |            | Relay 5 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46534       |      |    |            | Relay 5 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46535       |      |    |            | Relay 5 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46536       |      |    |            | Relay 5 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46537       |      |    |            | Relay 5 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46538-46540 |      |    |            | Reserved   |       |       |      | R   |
| 46541-46542 |      |    |            | Relay 6 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46543-46544 |      |    |            | Relay 6 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46545-46546 |      |    |            | Relay 6 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46547-46548 |      |    |            | Relay 6 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46549-46550 |      |    |            | Relay 6 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46551-46552 |      |    |            | Relay 6 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46553-46554 |      |    |            | Relay 6 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46555-46556 |      |    |            | Relay 6 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46557       |      |    |            | Relay 6 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46558       |      |    |            | Relay 6 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46559       |      |    |            | Relay 6 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46560       |      |    |            | Relay 6 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46561       |      |    |            | Relay 6 Set Delay/ Reset Delay                           |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|-------------|------|----|------------|--|-------|-------|------|-----|
| 46562-46564 |      |    |            | Reserved   |       |       |      | R   |
| 46565-46566 |      |    |            | Relay 7 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46567-46568 |      |    |            | Relay 7 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46569-46570 |      |    |            | Relay 7 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46571-46572 |      |    |            | Relay 7 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46573-46574 |      |    |            | Relay 7 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46575-46576 |      |    |            | Relay 7 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46577-46578 |      |    |            | Relay 7 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46579-46580 |      |    |            | Relay 7 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46581       |      |    |            | Relay 7 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46582       |      |    |            | Relay 7 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46583       |      |    |            | Relay 7 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46584       |      |    |            | Relay 7 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46585       |      |    |            | Relay 7 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46586-46588 |      |    |            | Reserved   |       |       |      | R   |
| 46589-46590 |      |    |            | Relay 8 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46591-46592 |      |    |            | Relay 8 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46593-46594 |      |    |            | Relay 8 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46595-46596 |      |    |            | Relay 8 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46597-46598 |      |    |            | Relay 8 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46599-46600 |      |    |            | Relay 8 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46601-46602 |      |    |            | Relay 8 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46603-46604 |      |    |            | Relay 8 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46605       |      |    |            | Relay 8 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46606       |      |    |            | Relay 8 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46607       |      |    |            | Relay 8 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46608       |      |    |            | Relay 8 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46609       |      |    |            | Relay 8 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46610-46612 |      |    |            | Reserved   |       |       |      | R   |
| 46613-46614 |      |    |            | Relay 9 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46615-46616 |      |    |            | Relay 9 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46617-46618 |      |    |            | Relay 9 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46619-46620 |      |    |            | Relay 9 Combination Tree Input Line 4, Point 4           |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|-------------|------|----|------------|---|-------|-------|------|-----|
| 46621-46622 |      |    |            | Relay 9 Combination Tree Input Line 5, Point 5            |       |       |      | R   |
| 46623-46624 |      |    |            | Relay 9 Combination Tree Input Line 6, Point 6            |       |       |      | R   |
| 46625-46626 |      |    |            | Relay 9 Combination Tree Input Line 7, Point 7            |       |       |      | R   |
| 46627-46628 |      |    |            | Relay 9 Combination Tree Input Line 8, Point 8            |       |       |      | R   |
| 46629       |      |    |            | Relay 9 Combination Logic (Combination A/ Combination B)  |       |       |      | R   |
| 46630       |      |    |            | Relay 9 Combination Logic (Combination C/ Combination D)  |       |       |      | R   |
| 46631       |      |    |            | Relay 9 Combination Logic (Combination E/ Combination F)  |       |       |      | R   |
| 46632       |      |    |            | Relay 9 Combination Logic (Combination G/ Reserved)       |       |       |      | R   |
| 46633       |      |    |            | Relay 9 Set Delay/ Reset Delay                            |       |       |      | R   |
| 46634-46636 |      |    |            | Reserved  |       |       |      | R   |
| 46637-46638 |      |    |            | Relay 10 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46639-46640 |      |    |            | Relay 10 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46641-46642 |      |    |            | Relay 10 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46643-46644 |      |    |            | Relay 10 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46645-46646 |      |    |            | Relay 10 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46647-46648 |      |    |            | Relay 10 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46649-46650 |      |    |            | Relay 10 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46651-46652 |      |    |            | Relay 10 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46653       |      |    |            | Relay 10 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46654       |      |    |            | Relay 10 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46655       |      |    |            | Relay 10 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46656       |      |    |            | Relay 10 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46657       |      |    |            | Relay 10 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46658-46660 |      |    |            | Reserved  |       |       |      | R   |
| 46661-46662 |      |    |            | Relay 11 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46663-46664 |      |    |            | Relay 11 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46665-46666 |      |    |            | Relay 11 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46667-46668 |      |    |            | Relay 11 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46669-46670 |      |    |            | Relay 11 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46671-46672 |      |    |            | Relay 11 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46673-46674 |      |    |            | Relay 11 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46675-46676 |      |    |            | Relay 11 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46677       |      |    |            | Relay 11 Combination Logic (Combination A/ Combination B) |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|-------------|------|----|------------|---|-------|-------|------|-----|
| 46678       |      |    |            | Relay 11 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46679       |      |    |            | Relay 11 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46680       |      |    |            | Relay 11 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46681       |      |    |            | Relay 11 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46682-46684 |      |    |            | Reserved  |       |       |      | R   |
| 46685-46686 |      |    |            | Relay 12 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46687-46688 |      |    |            | Relay 12 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46689-46690 |      |    |            | Relay 12 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46691-46692 |      |    |            | Relay 12 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46693-46694 |      |    |            | Relay 12 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46695-46696 |      |    |            | Relay 12 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46697-46698 |      |    |            | Relay 12 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46699-46700 |      |    |            | Relay 12 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46701       |      |    |            | Relay 12 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46702       |      |    |            | Relay 12 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46703       |      |    |            | Relay 12 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46704       |      |    |            | Relay 12 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46705       |      |    |            | Relay 12 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46706-46708 |      |    |            | Reserved  |       |       |      | R   |
| 46709-46710 |      |    |            | Relay 13 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46711-46712 |      |    |            | Relay 13 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46713-46714 |      |    |            | Relay 13 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46715-46716 |      |    |            | Relay 13 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46717-46718 |      |    |            | Relay 13 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46719-46720 |      |    |            | Relay 13 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46721-46722 |      |    |            | Relay 13 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46723-46724 |      |    |            | Relay 13 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46725       |      |    |            | Relay 13 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46726       |      |    |            | Relay 13 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46727       |      |    |            | Relay 13 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46728       |      |    |            | Relay 13 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46729       |      |    |            | Relay 13 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46730-46732 |      |    |            | Reserved  |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|-------------|------|----|------------|---|-------|-------|------|-----|
| 46733-46734 |      |    |            | Relay 14 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46735-46736 |      |    |            | Relay 14 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46737-46738 |      |    |            | Relay 14 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46739-46740 |      |    |            | Relay 14 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46741-46742 |      |    |            | Relay 14 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46743-46744 |      |    |            | Relay 14 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46745-46746 |      |    |            | Relay 14 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46747-46748 |      |    |            | Relay 14 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46749       |      |    |            | Relay 14 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46750       |      |    |            | Relay 14 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46751       |      |    |            | Relay 14 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46752       |      |    |            | Relay 14 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46753       |      |    |            | Relay 14 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46754-46756 |      |    |            | Reserved  |       |       |      | R   |
| 46757-46758 |      |    |            | Relay 15 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46759-46760 |      |    |            | Relay 15 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46761-46762 |      |    |            | Relay 15 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46763-46764 |      |    |            | Relay 15 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46765-46766 |      |    |            | Relay 15 Combination Tree Input Line 5, Point 5           |       |       |      | R   |
| 46767-46768 |      |    |            | Relay 15 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46769-46770 |      |    |            | Relay 15 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46771-46772 |      |    |            | Relay 15 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46773       |      |    |            | Relay 15 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46774       |      |    |            | Relay 15 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46775       |      |    |            | Relay 15 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46776       |      |    |            | Relay 15 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46777       |      |    |            | Relay 15 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46778-46780 |      |    |            | Reserved  |       |       |      | R   |
| 46781-46782 |      |    |            | Relay 16 Combination Tree Input Line 1, Point 1           |       |       |      | R   |
| 46783-46784 |      |    |            | Relay 16 Combination Tree Input Line 2, Point 2           |       |       |      | R   |
| 46785-46786 |      |    |            | Relay 16 Combination Tree Input Line 3, Point 3           |       |       |      | R   |
| 46787-46788 |      |    |            | Relay 16 Combination Tree Input Line 4, Point 4           |       |       |      | R   |
| 46789-46790 |      |    |            | Relay 16 Combination Tree Input Line 5, Point 5           |       |       |      | R   |

| Address                   | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|---------------------------|------|----|------------|---|-------|-------|------|-----|
| 46791-46792               |      |    |            | Relay 16 Combination Tree Input Line 6, Point 6           |       |       |      | R   |
| 46793-46794               |      |    |            | Relay 16 Combination Tree Input Line 7, Point 7           |       |       |      | R   |
| 46795-46796               |      |    |            | Relay 16 Combination Tree Input Line 8, Point 8           |       |       |      | R   |
| 46797                     |      |    |            | Relay 16 Combination Logic (Combination A/ Combination B) |       |       |      | R   |
| 46798                     |      |    |            | Relay 16 Combination Logic (Combination C/ Combination D) |       |       |      | R   |
| 46799                     |      |    |            | Relay 16 Combination Logic (Combination E/ Combination F) |       |       |      | R   |
| 46800                     |      |    |            | Relay 16 Combination Logic (Combination G/ Reserved)      |       |       |      | R   |
| 46801                     |      |    |            | Relay 16 Set Delay/ Reset Delay                           |       |       |      | R   |
| 46802-46804               |      |    |            | Reserved  |       |       |      | R   |
| Limit Profile Label Block |      |    |            |   |       |       |      |     |
| 46805-46812               |      |    |            | Limit 1 Label   |       |       |      | R   |
| 46813-46820               |      |    |            | Limit 2 Label   |       |       |      | R   |
| 46821-46828               |      |    |            | Limit 3 Label   |       |       |      | R   |
| 46829-46836               |      |    |            | Limit 4 Label   |       |       |      | R   |
| 46837-46844               |      |    |            | Limit 5 Label   |       |       |      | R   |
| 46845-46852               |      |    |            | Limit 6 Label   |       |       |      | R   |
| 46853-46860               |      |    |            | Limit 7 Label   |       |       |      | R   |
| 46861-46868               |      |    |            | Limit 8 Label   |       |       |      | R   |
| 46869-46876               |      |    |            | Limit 9 Label   |       |       |      | R   |
| 46877-46884               |      |    |            | Limit 10 Label  |       |       |      | R   |
| 46885-46892               |      |    |            | Limit 11 Label  |       |       |      | R   |
| 46893-46900               |      |    |            | Limit 12 Label  |       |       |      | R   |
| 46901-46908               |      |    |            | Limit 13 Label  |       |       |      | R   |
| 46909-46916               |      |    |            | Limit 14 Label  |       |       |      | R   |
| 46917-46924               |      |    |            | Limit 15 Label  |       |       |      | R   |
| 46925-46932               |      |    |            | Limit 16 Label  |       |       |      | R   |
| 46933-46940               |      |    |            | Limit 17 Label  |       |       |      | R   |
| 46941-46948               |      |    |            | Limit 18 Label  |       |       |      | R   |
| 46949-46956               |      |    |            | Limit 19 Label  |       |       |      | R   |
| 46957-46964               |      |    |            | Limit 20 Label  |       |       |      | R   |
| 46965-46972               |      |    |            | Limit 21 Label  |       |       |      | R   |
| 46973-46980               |      |    |            | Limit 22 Label  |       |       |      | R   |
| 46981-46988               |      |    |            | Limit 23 Label  |       |       |      | R   |

| Address  | Line | Pt | DNP Obj | Description  | Range | Units | Type | R/W |
|--|------|----|---------|--|-------|-------|------|-----|
| 46989-46996  |      |    |         | Limit 24 Label   |       |       |      | R   |
| 46997-47004  |      |    |         | Limit 25 Label   |       |       |      | R   |
| 47005-47012  |      |    |         | Limit 26 Label   |       |       |      | R   |
| 47213-47020  |      |    |         | Limit 27 Label   |       |       |      | R   |
| 47021-47028  |      |    |         | Limit 28 Label   |       |       |      | R   |
| 47029-47036  |      |    |         | Limit 29 Label   |       |       |      | R   |
| 47037-47044  |      |    |         | Limit 30 Label   |       |       |      | R   |
| 47045-47052  |      |    |         | Limit 31 Label   |       |       |      | R   |
| 47053-47060  |      |    |         | Limit 32 Label   |       |       |      | R   |
| External Analog Output Module Channel Update Block         |      |    |         |  |       |       |      |     |
| 47061  |      |    |         | Module 1/ Module 2   |       |       |      | R   |
| 47062  |      |    |         | Module 3/ Module 4   |       |       |      | R   |
| DNP Block  |      |    |         |  |       |       |      |     |
| Miscellaneous DNP Settings Block                           |      |    |         |  |       |       |      |     |
| 47063  |      |    |         | Scale for Analog Output of Average Pulse Accumulation/Compressed DNP   |       |       |      | R   |
| 47064  |      |    |         | Energy in the Interval / DNP Time Synchronization Enable               |       |       |      |     |
| 47065  |      |    |         | DNP Time Synchronization Time Interval                                 |       |       |      | R   |
| 47066  |      |    |         | Bit 13(Choice of Class 0 poll between Object 20 and Object 21), Bitmap |       |       |      | R   |
| 47067-47070  |      |    |         | DNP Freeze Date & Time   |       |       |      |     |
| 47071  |      |    |         | DNP Freeze Interval  |       |       |      |     |
| 47072-47104  |      |    |         | Reserved   |       |       |      |     |
| Custom DNP Definition Block for Analog Input (Object 30)   |      |    |         |  |       |       |      |     |
| 47105  |      |    |         | Point 0, Line Number   |       |       |      | R   |
| 47106  |      |    |         | Point 0, Point Number/ reserved  |       |       |      |     |
| 47107  |      |    |         | Point 0, Deadband  |       |       |      |     |
| 47108  |      |    |         | Point 0, Class assignments/ reserved                                   |       |       |      |     |
| 47109-47360  |      |    |         | Point 1 - Point 63   |       |       |      |     |
| Custom DNP Definition Block for Binary Counter (Object 20) |      |    |         |  |       |       |      |     |
| 47361  |      |    |         | Point 0, Line Number   |       |       |      | R   |
| 47362  |      |    |         | Point 0, Point Number/ Scaling   |       |       |      |     |
| 47363-47364  |      |    |         | Point 0, Delta values for Event to occur                               |       |       |      |     |
| 47365  |      |    |         | Point 0, Class assignments/ reserved                                   |       |       |      |     |
| 47366-47368  |      |    |         | Point 0, reserved  |       |       |      |     |



| Address   | Line | Pt | DNP<br>Obj | Description                                     | Range          | Units   | Type | R/W |
|---|------|----|------------|---|----------------|---------|------|-----|
| 47369-47424   |      |    |            | Point 1 - Point 8                               |                |         |      |     |
| Custom DNP Definition Block for Binary Input (Object 1)   |      |    |            |   |                |         |      |     |
| 47425   |      |    |            | Point 0-7, Line Number                          |                |         |      | R   |
| 47426   |      |    |            | Point 0-7, Point Number/ Class assignments      |                |         |      | R   |
| 47427-47428   |      |    |            | Point 0-7, reserved                             |                |         |      |     |
| 47429-47456   |      |    |            | Point 8-15 - Point 57-64                        |                |         |      |     |
| Custom DNP Definition Block for Binary Output (Object 10) |      |    |            |   |                |         |      |     |
| 47457   |      |    |            | Enable/Disable Relays (1 - 16)                  |                |         |      | R   |
| 47458   |      |    |            | Enable/Disable Resets (17 - 24) / reserved      |                |         |      |     |
| Custom DNP Definition Block for Global Values             |      |    |            |   |                |         |      |     |
| 47459   |      |    |            | Choice of Variation 0 for Object 1 & Object 2   |                |         |      |     |
| 47460   |      |    |            | Choice of Variation 0 for Object 20 & Object 21 |                |         |      |     |
| 47461   |      |    |            | Choice of Variation 0 for Object 22 & Object 23 |                |         |      |     |
| 47462   |      |    |            | Choice of Variation 0 for Object 30 & Object 31 |                |         |      |     |
| 47463   |      |    |            | Choice of Variation 0 for Object 32 & Object 33 |                |         |      |     |
| 47464-48640   |      |    |            | Reserved  |                |         |      |     |
| Analog Input Scaling Factors Block                        |      |    |            |   |                |         |      |     |
| 48641-48642   |      |    |            | Module 1 Channel 1 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48643-48644   |      |    |            | Module 1 Channel 2 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48645-48646   |      |    |            | Module 1 Channel 3 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48647-48648   |      |    |            | Module 1 Channel 4 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48649-48650   |      |    |            | Module 1 Channel 5 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48651-48652   |      |    |            | Module 1 Channel 6 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48653-48654   |      |    |            | Module 1 Channel 7 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48655-48656   |      |    |            | Module 1 Channel 8 High                         | 32767 / -32768 | 1/65536 |      | R   |
| 48657-48658   |      |    |            | Module 1 Channel 1 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48659-48660   |      |    |            | Module 1 Channel 2 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48661-48662   |      |    |            | Module 1 Channel 3 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48663-48664   |      |    |            | Module 1 Channel 4 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48665-48666   |      |    |            | Module 1 Channel 5 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48667-48668   |      |    |            | Module 1 Channel 6 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48669-48670   |      |    |            | Module 1 Channel 7 Low                          | 32767 / -32768 | 1/65536 |      | R   |
| 48671-48672   |      |    |            | Module 1 Channel 8 Low                          | 32767 / -32768 | 1/65536 |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description             | Range          | Units   | Type | R/W |
|-------------|------|----|------------|-------------------------|----------------|---------|------|-----|
| 48673-48674 |      |    |            | Module 2 Channel 1 High | 32767 / -32768 | 1/65536 |      | R   |
| 48675-48676 |      |    |            | Module 2 Channel 2 High | 32767 / -32768 | 1/65536 |      | R   |
| 48677-48678 |      |    |            | Module 2 Channel 3 High | 32767 / -32768 | 1/65536 |      | R   |
| 48679-48680 |      |    |            | Module 2 Channel 4 High | 32767 / -32768 | 1/65536 |      | R   |
| 48681-48682 |      |    |            | Module 2 Channel 5 High | 32767 / -32768 | 1/65536 |      | R   |
| 48683-48684 |      |    |            | Module 2 Channel 6 High | 32767 / -32768 | 1/65536 |      | R   |
| 48685-48686 |      |    |            | Module 2 Channel 7 High | 32767 / -32768 | 1/65536 |      | R   |
| 48687-48688 |      |    |            | Module 2 Channel 8 High | 32767 / -32768 | 1/65536 |      | R   |
| 48689-48690 |      |    |            | Module 2 Channel 1 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48691-48692 |      |    |            | Module 2 Channel 2 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48693-48694 |      |    |            | Module 2 Channel 3 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48695-48696 |      |    |            | Module 2 Channel 4 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48697-48698 |      |    |            | Module 2 Channel 5 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48699-48700 |      |    |            | Module 2 Channel 6 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48701-48702 |      |    |            | Module 2 Channel 7 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48703-48704 |      |    |            | Module 2 Channel 8 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48705-48706 |      |    |            | Module 3 Channel 1 High | 32767 / -32768 | 1/65536 |      | R   |
| 48707-48708 |      |    |            | Module 3 Channel 2 High | 32767 / -32768 | 1/65536 |      | R   |
| 48709-48710 |      |    |            | Module 3 Channel 3 High | 32767 / -32768 | 1/65536 |      | R   |
| 48711-48712 |      |    |            | Module 3 Channel 4 High | 32767 / -32768 | 1/65536 |      | R   |
| 48713-48714 |      |    |            | Module 3 Channel 5 High | 32767 / -32768 | 1/65536 |      | R   |
| 48715-48716 |      |    |            | Module 3 Channel 6 High | 32767 / -32768 | 1/65536 |      | R   |
| 48717-48718 |      |    |            | Module 3 Channel 7 High | 32767 / -32768 | 1/65536 |      | R   |
| 48719-48720 |      |    |            | Module 3 Channel 8 High | 32767 / -32768 | 1/65536 |      | R   |
| 48721-48722 |      |    |            | Module 3 Channel 1 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48723-48724 |      |    |            | Module 3 Channel 2 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48725-48726 |      |    |            | Module 3 Channel 3 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48727-48728 |      |    |            | Module 3 Channel 4 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48729-48730 |      |    |            | Module 3 Channel 5 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48731-48732 |      |    |            | Module 3 Channel 6 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48733-48734 |      |    |            | Module 3 Channel 7 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48735-48736 |      |    |            | Module 3 Channel 8 Low  | 32767 / -32768 | 1/65536 |      | R   |
| 48737-48738 |      |    |            | Module 4 Channel 1 High | 32767 / -32768 | 1/65536 |      | R   |

| Address                   | Line | Pt | DNP<br>Obj | Description              | Range          | Units   | Type | R/W |
|---------------------------|------|----|------------|--------------------------|----------------|---------|------|-----|
| 48739-48740               |      |    |            | Module 4 Channel 2 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48741-48742               |      |    |            | Module 4 Channel 3 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48743-48744               |      |    |            | Module 4 Channel 4 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48745-48746               |      |    |            | Module 4 Channel 5 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48747-48748               |      |    |            | Module 4 Channel 6 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48749-48750               |      |    |            | Module 4 Channel 7 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48751-48752               |      |    |            | Module 4 Channel 8 High  | 32767 / -32768 | 1/65536 |      | R   |
| 48753-48754               |      |    |            | Module 4 Channel 1 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48755-48756               |      |    |            | Module 4 Channel 2 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48757-48758               |      |    |            | Module 4 Channel 3 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48759-48760               |      |    |            | Module 4 Channel 4 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48761-48762               |      |    |            | Module 4 Channel 5 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48763-48764               |      |    |            | Module 4 Channel 6 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48765-48766               |      |    |            | Module 4 Channel 7 Low   | 32767 / -32768 | 1/65536 |      | R   |
| 48767-48768               |      |    |            | Module 4 Channel 8 Low   | 32767 / -32768 | 1/65536 |      | R   |
| Analog Input Labels Block |      |    |            |                          |                |         |      |     |
| 48769-48776               |      |    |            | Module 1 Channel Label 1 |                |         |      | R   |
| 48777-48784               |      |    |            | Module 1 Channel Label 2 |                |         |      | R   |
| 48785-48792               |      |    |            | Module 1 Channel Label 3 |                |         |      | R   |
| 48793-48800               |      |    |            | Module 1 Channel Label 4 |                |         |      | R   |
| 48801-48808               |      |    |            | Module 1 Channel Label 5 |                |         |      | R   |
| 48809-48816               |      |    |            | Module 1 Channel Label 6 |                |         |      | R   |
| 48817-48824               |      |    |            | Module 1 Channel Label 7 |                |         |      | R   |
| 48825-48832               |      |    |            | Module 1 Channel Label 8 |                |         |      | R   |
| 48833-48840               |      |    |            | Module 2 Channel Label 1 |                |         |      | R   |
| 48841-48848               |      |    |            | Module 2 Channel Label 2 |                |         |      | R   |
| 48849-48856               |      |    |            | Module 2 Channel Label 3 |                |         |      | R   |
| 48857-48864               |      |    |            | Module 2 Channel Label 4 |                |         |      | R   |
| 48865-48872               |      |    |            | Module 2 Channel Label 5 |                |         |      | R   |
| 48873-48880               |      |    |            | Module 2 Channel Label 6 |                |         |      | R   |
| 48881-48888               |      |    |            | Module 2 Channel Label 7 |                |         |      | R   |
| 48889-48896               |      |    |            | Module 2 Channel Label 8 |                |         |      | R   |
| 48897-48904               |      |    |            | Module 3 Channel Label 1 |                |         |      | R   |

| Address                                    | Line | Pt | DNP<br>Obj | Description              | Range | Units | Type | R/W |
|--|------|----|------------|--------------------------|-------|-------|------|-----|
| 48905-48912                                |      |    |            | Module 3 Channel Label 2 |       |       |      | R   |
| 48913-48920                                |      |    |            | Module 3 Channel Label 3 |       |       |      | R   |
| 48921-48928                                |      |    |            | Module 3 Channel Label 4 |       |       |      | R   |
| 48929-48936                                |      |    |            | Module 3 Channel Label 5 |       |       |      | R   |
| 48937-48944                                |      |    |            | Module 3 Channel Label 6 |       |       |      | R   |
| 48945-48952                                |      |    |            | Module 3 Channel Label 7 |       |       |      | R   |
| 48953-48960                                |      |    |            | Module 3 Channel Label 8 |       |       |      | R   |
| 48961-48968                                |      |    |            | Module 4 Channel Label 1 |       |       |      | R   |
| 48969-48976                                |      |    |            | Module 4 Channel Label 2 |       |       |      | R   |
| 48977-48984                                |      |    |            | Module 4 Channel Label 3 |       |       |      | R   |
| 48985-48992                                |      |    |            | Module 4 Channel Label 4 |       |       |      | R   |
| 48993-49000                                |      |    |            | Module 4 Channel Label 5 |       |       |      | R   |
| 49001-49008                                |      |    |            | Module 4 Channel Label 6 |       |       |      | R   |
| 49009-49016                                |      |    |            | Module 4 Channel Label 7 |       |       |      | R   |
| 49017-49024                                |      |    |            | Module 4 Channel Label 8 |       |       |      | R   |
| External Digital Input Module Labels Block |      |    |            |                          |       |       |      |     |
| 49025-49032                                |      |    |            | Module 1 Channel Label 1 |       |       |      | R   |
| 49033-49040                                |      |    |            | Module 1 Channel Label 2 |       |       |      | R   |
| 49041-49048                                |      |    |            | Module 1 Channel Label 3 |       |       |      | R   |
| 49049-49056                                |      |    |            | Module 1 Channel Label 4 |       |       |      | R   |
| 49057-49064                                |      |    |            | Module 1 Channel Label 5 |       |       |      | R   |
| 49065-49072                                |      |    |            | Module 1 Channel Label 6 |       |       |      | R   |
| 49073-49080                                |      |    |            | Module 1 Channel Label 7 |       |       |      | R   |
| 49081-49088                                |      |    |            | Module 1 Channel Label 8 |       |       |      | R   |
| 49089-49096                                |      |    |            | Module 2 Channel Label 1 |       |       |      | R   |
| 49097-49104                                |      |    |            | Module 2 Channel Label 2 |       |       |      | R   |
| 49105-49112                                |      |    |            | Module 2 Channel Label 3 |       |       |      | R   |
| 49113-49120                                |      |    |            | Module 2 Channel Label 4 |       |       |      | R   |
| 49121-49128                                |      |    |            | Module 2 Channel Label 5 |       |       |      | R   |
| 49129-49136                                |      |    |            | Module 2 Channel Label 6 |       |       |      | R   |
| 49137-49144                                |      |    |            | Module 2 Channel Label 7 |       |       |      | R   |
| 49145-49152                                |      |    |            | Module 2 Channel Label 8 |       |       |      | R   |
| 49153-49160                                |      |    |            | Module 3 Channel Label 1 |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description              | Range | Units | Type | R/W |
|-------------|------|----|------------|--------------------------|-------|-------|------|-----|
| 49161-49168 |      |    |            | Module 3 Channel Label 2 |       |       |      | R   |
| 49169-49176 |      |    |            | Module 3 Channel Label 3 |       |       |      | R   |
| 49177-49184 |      |    |            | Module 3 Channel Label 4 |       |       |      | R   |
| 49185-49192 |      |    |            | Module 3 Channel Label 5 |       |       |      | R   |
| 49193-49200 |      |    |            | Module 3 Channel Label 6 |       |       |      | R   |
| 49201-49208 |      |    |            | Module 3 Channel Label 7 |       |       |      | R   |
| 49209-49216 |      |    |            | Module 3 Channel Label 8 |       |       |      | R   |
| 49217-49224 |      |    |            | Module 4 Channel Label 1 |       |       |      | R   |
| 49225-49232 |      |    |            | Module 4 Channel Label 2 |       |       |      | R   |
| 49233-49240 |      |    |            | Module 4 Channel Label 3 |       |       |      | R   |
| 49241-49248 |      |    |            | Module 4 Channel Label 4 |       |       |      | R   |
| 49249-49256 |      |    |            | Module 4 Channel Label 5 |       |       |      | R   |
| 49257-49264 |      |    |            | Module 4 Channel Label 6 |       |       |      | R   |
| 49265-49272 |      |    |            | Module 4 Channel Label 7 |       |       |      | R   |
| 49273-49280 |      |    |            | Module 4 Channel Label 8 |       |       |      | R   |
| 49281-49288 |      |    |            | Module 1 Open Label 1    |       |       |      | R   |
| 49289-49296 |      |    |            | Module 1 Open Label 2    |       |       |      | R   |
| 49297-49304 |      |    |            | Module 1 Open Label 3    |       |       |      | R   |
| 49305-49312 |      |    |            | Module 1 Open Label 4    |       |       |      | R   |
| 49313-49320 |      |    |            | Module 1 Open Label 5    |       |       |      | R   |
| 49321-49328 |      |    |            | Module 1 Open Label 6    |       |       |      | R   |
| 49329-49336 |      |    |            | Module 1 Open Label 7    |       |       |      | R   |
| 49337-49344 |      |    |            | Module 1 Open Label 8    |       |       |      | R   |
| 49345-49352 |      |    |            | Module 2 Open Label 1    |       |       |      | R   |
| 49353-49360 |      |    |            | Module 2 Open Label 2    |       |       |      | R   |
| 49361-49368 |      |    |            | Module 2 Open Label 3    |       |       |      | R   |
| 49369-49376 |      |    |            | Module 2 Open Label 4    |       |       |      | R   |
| 49377-49384 |      |    |            | Module 2 Open Label 5    |       |       |      | R   |
| 49385-49392 |      |    |            | Module 2 Open Label 6    |       |       |      | R   |
| 49393-49400 |      |    |            | Module 2 Open Label 7    |       |       |      | R   |
| 49401-49408 |      |    |            | Module 2 Open Label 8    |       |       |      | R   |
| 49409-49416 |      |    |            | Module 3 Open Label 1    |       |       |      | R   |
| 49417-49424 |      |    |            | Module 3 Open Label 2    |       |       |      | R   |

| Address     | Line | Pt | DNP<br>Obj | Description             | Range | Units | Type | R/W |
|-------------|------|----|------------|-------------------------|-------|-------|------|-----|
| 49425-49432 |      |    |            | Module 3 Open Label 3   |       |       |      | R   |
| 49433-49440 |      |    |            | Module 3 Open Label 4   |       |       |      | R   |
| 49441-49448 |      |    |            | Module 3 Open Label 5   |       |       |      | R   |
| 49449-49456 |      |    |            | Module 3 Open Label 6   |       |       |      | R   |
| 49457-49464 |      |    |            | Module 3 Open Label 7   |       |       |      | R   |
| 49465-49472 |      |    |            | Module 3 Open Label 8   |       |       |      | R   |
| 49473-49480 |      |    |            | Module 4 Open Label 1   |       |       |      | R   |
| 49481-49488 |      |    |            | Module 4 Open Label 2   |       |       |      | R   |
| 49489-49496 |      |    |            | Module 4 Open Label 3   |       |       |      | R   |
| 49497-49504 |      |    |            | Module 4 Open Label 4   |       |       |      | R   |
| 49505-49512 |      |    |            | Module 4 Open Label 5   |       |       |      | R   |
| 49513-49520 |      |    |            | Module 4 Open Label 6   |       |       |      | R   |
| 49521-49528 |      |    |            | Module 4 Open Label 7   |       |       |      | R   |
| 49529-49536 |      |    |            | Module 4 Open Label 8   |       |       |      | R   |
| 49537-49544 |      |    |            | Module 1 Closed Label 1 |       |       |      | R   |
| 49545-49552 |      |    |            | Module 1 Closed Label 2 |       |       |      | R   |
| 49553-49560 |      |    |            | Module 1 Closed Label 3 |       |       |      | R   |
| 49561-49568 |      |    |            | Module 1 Closed Label 4 |       |       |      | R   |
| 49569-49576 |      |    |            | Module 1 Closed Label 5 |       |       |      | R   |
| 49577-49584 |      |    |            | Module 1 Closed Label 6 |       |       |      | R   |
| 49585-49592 |      |    |            | Module 1 Closed Label 7 |       |       |      | R   |
| 49593-49600 |      |    |            | Module 1 Closed Label 8 |       |       |      | R   |
| 49601-49608 |      |    |            | Module 2 Closed Label 1 |       |       |      | R   |
| 49609-49616 |      |    |            | Module 2 Closed Label 2 |       |       |      | R   |
| 49617-49624 |      |    |            | Module 2 Closed Label 3 |       |       |      | R   |
| 49625-49632 |      |    |            | Module 2 Closed Label 4 |       |       |      | R   |
| 49633-49640 |      |    |            | Module 2 Closed Label 5 |       |       |      | R   |
| 49641-49648 |      |    |            | Module 2 Closed Label 6 |       |       |      | R   |
| 49649-49656 |      |    |            | Module 2 Closed Label 7 |       |       |      | R   |
| 49657-49664 |      |    |            | Module 2 Closed Label 8 |       |       |      | R   |
| 49665-49672 |      |    |            | Module 3 Closed Label 1 |       |       |      | R   |
| 49673-49680 |      |    |            | Module 3 Closed Label 2 |       |       |      | R   |
| 49681-49688 |      |    |            | Module 3 Closed Label 3 |       |       |      | R   |

| Address                                     | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|---|------|----|------------|--|-------|-------|------|-----|
| 49689-49696                                 |      |    |            | Module 3 Closed Label 4                                  |       |       |      | R   |
| 49697-49704                                 |      |    |            | Module 3 Closed Label 5                                  |       |       |      | R   |
| 49705-49712                                 |      |    |            | Module 3 Closed Label 6                                  |       |       |      | R   |
| 49713-49720                                 |      |    |            | Module 3 Closed Label 7                                  |       |       |      | R   |
| 49721-49728                                 |      |    |            | Module 3 Closed Label 8                                  |       |       |      | R   |
| 49729-49736                                 |      |    |            | Module 4 Closed Label 1                                  |       |       |      | R   |
| 49737-49744                                 |      |    |            | Module 4 Closed Label 2                                  |       |       |      | R   |
| 49745-49752                                 |      |    |            | Module 4 Closed Label 3                                  |       |       |      | R   |
| 49753-49760                                 |      |    |            | Module 4 Closed Label 4                                  |       |       |      | R   |
| 49761-49768                                 |      |    |            | Module 4 Closed Label 5                                  |       |       |      | R   |
| 49769-49776                                 |      |    |            | Module 4 Closed Label 6                                  |       |       |      | R   |
| 49777-49784                                 |      |    |            | Module 4 Closed Label 7                                  |       |       |      | R   |
| 49785-49792                                 |      |    |            | Module 4 Closed Label 8                                  |       |       |      | R   |
| External Digital Output Module Labels Block |      |    |            |  |       |       |      |     |
| 49793-49800                                 |      |    |            | Module 1 Relay Label 1                                   |       |       |      | R   |
| 49801-49808                                 |      |    |            | Module 1 Relay Label 2                                   |       |       |      | R   |
| 49809-49816                                 |      |    |            | Module 1 Relay Label 3                                   |       |       |      | R   |
| 49817-49824                                 |      |    |            | Module 1 Relay Label 4                                   |       |       |      | R   |
| 49825-49832                                 |      |    |            | Module 2 Relay Label 1                                   |       |       |      | R   |
| 49833-49840                                 |      |    |            | Module 2 Relay Label 2                                   |       |       |      | R   |
| 49841-49848                                 |      |    |            | Module 2 Relay Label 3                                   |       |       |      | R   |
| 49849-49856                                 |      |    |            | Module 2 Relay Label 4                                   |       |       |      | R   |
| 49857-49864                                 |      |    |            | Module 3 Relay Label 1                                   |       |       |      | R   |
| 49865-49872                                 |      |    |            | Module 3 Relay Label 2                                   |       |       |      | R   |
| 49873-49880                                 |      |    |            | Module 3 Relay Label 3                                   |       |       |      | R   |
| 49881-49888                                 |      |    |            | Module 3 Relay Label 4                                   |       |       |      | R   |
| 49889-49896                                 |      |    |            | Module 4 Relay Label 1                                   |       |       |      | R   |
| 49897-49904                                 |      |    |            | Module 4 Relay Label 2                                   |       |       |      | R   |
| 49905-49912                                 |      |    |            | Module 4 Relay Label 3                                   |       |       |      | R   |
| 49913-49920                                 |      |    |            | Module 4 Relay Label 4                                   |       |       |      | R   |
| 49921-49928                                 |      |    |            | Module 1 Relay Common Shorted to Normally Closed Label 1 |       |       |      | R   |
| 49929-49936                                 |      |    |            | Module 1 Relay Common Shorted to Normally Closed Label 2 |       |       |      | R   |
| 49937-49944                                 |      |    |            | Module 1 Relay Common Shorted to Normally Closed Label 3 |       |       |      | R   |

| Address                            | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|------------------------------------|------|----|------------|--|-------|-------|------|-----|
| 49945-49952                        |      |    |            | Module 1 Relay Common Shorted to Normally Closed Label 4 |       |       |      | R   |
| 49953-49960                        |      |    |            | Module 2 Relay Common Shorted to Normally Closed Label 1 |       |       |      | R   |
| 49961-49968                        |      |    |            | Module 2 Relay Common Shorted to Normally Closed Label 2 |       |       |      | R   |
| 49969-49976                        |      |    |            | Module 2 Relay Common Shorted to Normally Closed Label 3 |       |       |      | R   |
| 49977-49984                        |      |    |            | Module 2 Relay Common Shorted to Normally Closed Label 4 |       |       |      | R   |
| 49985-49992                        |      |    |            | Module 3 Relay Common Shorted to Normally Closed Label 1 |       |       |      | R   |
| 49993-50000                        |      |    |            | Module 3 Relay Common Shorted to Normally Closed Label 2 |       |       |      | R   |
| 50001-50008                        |      |    |            | Module 3 Relay Common Shorted to Normally Closed Label 3 |       |       |      | R   |
| 50009-50016                        |      |    |            | Module 3 Relay Common Shorted to Normally Closed Label 4 |       |       |      | R   |
| 50017-50024                        |      |    |            | Module 4 Relay Common Shorted to Normally Closed Label 1 |       |       |      | R   |
| 50025-50032                        |      |    |            | Module 4 Relay Common Shorted to Normally Closed Label 2 |       |       |      | R   |
| 50033-50040                        |      |    |            | Module 4 Relay Common Shorted to Normally Closed Label 3 |       |       |      | R   |
| 50041-50048                        |      |    |            | Module 4 Relay Common Shorted to Normally Closed Label 4 |       |       |      | R   |
| 50049-50056                        |      |    |            | Module 1 Relay Common Shorted to Normally Opened Label 1 |       |       |      | R   |
| 50057-50064                        |      |    |            | Module 1 Relay Common Shorted to Normally Opened Label 2 |       |       |      | R   |
| 50065-50072                        |      |    |            | Module 1 Relay Common Shorted to Normally Opened Label 3 |       |       |      | R   |
| 50073-50080                        |      |    |            | Module 1 Relay Common Shorted to Normally Opened Label 4 |       |       |      | R   |
| 50081-50088                        |      |    |            | Module 2 Relay Common Shorted to Normally Opened Label 1 |       |       |      | R   |
| 50089-50096                        |      |    |            | Module 2 Relay Common Shorted to Normally Opened Label 2 |       |       |      | R   |
| 50097-50104                        |      |    |            | Module 2 Relay Common Shorted to Normally Opened Label 3 |       |       |      | R   |
| 50105-50112                        |      |    |            | Module 2 Relay Common Shorted to Normally Opened Label 4 |       |       |      | R   |
| 50113-50120                        |      |    |            | Module 3 Relay Common Shorted to Normally Opened Label 1 |       |       |      | R   |
| 50121-50128                        |      |    |            | Module 3 Relay Common Shorted to Normally Opened Label 2 |       |       |      | R   |
| 50129-50136                        |      |    |            | Module 3 Relay Common Shorted to Normally Opened Label 3 |       |       |      | R   |
| 50137-50144                        |      |    |            | Module 3 Relay Common Shorted to Normally Opened Label 4 |       |       |      | R   |
| 50145-50152                        |      |    |            | Module 4 Relay Common Shorted to Normally Opened Label 1 |       |       |      | R   |
| 50153-50160                        |      |    |            | Module 4 Relay Common Shorted to Normally Opened Label 2 |       |       |      | R   |
| 50161-50168                        |      |    |            | Module 4 Relay Common Shorted to Normally Opened Label 3 |       |       |      | R   |
| 50169-50176                        |      |    |            | Module 4 Relay Common Shorted to Normally Opened Label 4 |       |       |      | R   |
| Internal Modem Card Settings Block |      |    |            |  |       |       |      |     |
| 50177                              |      |    |            | Ring Number/ Baud Rate                                   |       |       |      |     |
| 50178                              |      |    |            | Port Config/ reserved                                    |       |       |      |     |
| 50179-50180                        |      |    |            | Reserved   |       |       |      |     |



| Address                                | Line | Pt | DNP<br>Obj | Description                                      | Range | Units | Type | R/W |
|--|------|----|------------|--|-------|-------|------|-----|
| 50181                                  |      |    |            | Call Delay Timer Limit                           |       |       |      |     |
| 50182                                  |      |    |            | Activity Timeout Limit/ Call Fail Reset Limit    |       |       |      |     |
| 50183                                  |      |    |            | Violation Lockout Time/ Violation Limit          |       |       |      |     |
| 50184                                  |      |    |            | Log Full Limit Threshold                         |       |       |      |     |
| 50185-50200                            |      |    |            | Modem ID (32 bytes)                              |       |       |      |     |
| 50201-50205                            |      |    |            | Modem Password (10 bytes)                        |       |       |      |     |
| 50206-50208                            |      |    |            | Numeric Pager ID (7 bytes)                       |       |       |      |     |
| 50209                                  |      |    |            | Numeric Pager ID/ Bitmap Set                     |       |       |      |     |
| 50210                                  |      |    |            | Rings to Answer/ Reserved                        |       |       |      |     |
| 50211                                  |      |    |            | Primary Retry Limit                              |       |       |      |     |
| 50212                                  |      |    |            | Primary Retry Delay                              |       |       |      |     |
| 50213-50236                            |      |    |            | Primary Phone Number (48 Bytes)                  |       |       |      |     |
| 50237                                  |      |    |            | Time Limit/ Reserved                             |       |       |      |     |
| 50238                                  |      |    |            | Event Mask                                       |       |       |      |     |
| 50239                                  |      |    |            | Secondary Retry Limit                            |       |       |      |     |
| 50240                                  |      |    |            | Secondary Retry Delay                            |       |       |      |     |
| 50241-50264                            |      |    |            | Secondary Phone Number (48 bytes)                |       |       |      |     |
| 50265                                  |      |    |            | Device Addresses at Gateway (Device 1, Device 2) |       |       |      |     |
| 50266                                  |      |    |            | Device Addresses at Gateway (Device 3, Device 4) |       |       |      |     |
| 50267                                  |      |    |            | Device Addresses at Gateway (Device 5, Device 6) |       |       |      |     |
| 50268                                  |      |    |            | Device Addresses at Gateway (Device 7, Device 8) |       |       |      |     |
| 50269-50272                            |      |    |            | Reserved   |       |       |      |     |
| Customizable Modbus Map Settings Block |      |    |            |  |       |       |      |     |
| 50273-50274                            |      |    |            | Line 1, Point 1                                  |       |       |      | R   |
| 50275-50784                            |      |    |            | Line 2, Point 2 - Line 256, Point 256            |       |       |      | R   |
| Network Settings 10/100 Card           |      |    |            |  |       |       |      |     |
| Auto TFTP Download Settings            |      |    |            |  |       |       |      |     |
| 50785                                  |      |    |            | Enable/ Disable                                  |       |       |      |     |
| 50786                                  |      |    |            | TFTP Port  |       |       |      |     |
| 50787-50788                            |      |    |            | Client IP  |       |       |      |     |
| 50789-50790                            |      |    |            | Server IP  |       |       |      |     |
| 50791-50792                            |      |    |            | Default Gateway                                  |       |       |      |     |
| 50793-50794                            |      |    |            | Subnet Mask                                      |       |       |      |     |

| Address               | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|-----------------------|------|----|------------|--|-------|-------|------|-----|
| 50795                 |      |    |            | Email Mode   |       |       |      |     |
| 50796                 |      |    |            | FTP Download   |       |       |      |     |
| 50797-50860           |      |    |            | Download Filename (128 Bytes)                                  |       |       |      |     |
| Email Client settings |      |    |            |  |       |       |      |     |
| 50861-50892           |      |    |            | Email Server IP Address / Name (64 bytes)                      |       |       |      |     |
| 50893-50924           |      |    |            | Nxs Comm Email Processing Service IP Address / Name (64 bytes) |       |       |      |     |
| 50925-50956           |      |    |            | Return / Reply Address (64 bytes)                              |       |       |      |     |
| 50957-50988           |      |    |            | Email Subject Text (64 Bytes)                                  |       |       |      |     |
| 50989-51004           |      |    |            | Email Username (32 Bytes)                                      |       |       |      |     |
| 51005-51020           |      |    |            | Email Password (32 Bytes)                                      |       |       |      |     |
| FTP Client            |      |    |            |  |       |       |      |     |
| 51021-51036           |      |    |            | FTP Username (32 Bytes)  |       |       |      |     |
| 51037-51052           |      |    |            | FTP Password (32 Bytes)  |       |       |      |     |
| 51053-51116           |      |    |            | Startup Remote Default Directory (128 Bytes)                   |       |       |      |     |
| 51117-51148           |      |    |            | FTP Server IP Address / Name (64 Bytes)                        |       |       |      |     |
| GE Protocol (EGD)     |      |    |            |  |       |       |      |     |
| 51149-51150           |      |    |            | IP Address   |       |       |      |     |
| 51151                 |      |    |            | Update Interval  |       |       |      |     |
| 51152                 |      |    |            | Connection Type/ Bit Settings                                  |       |       |      |     |
| 51153-51154           |      |    |            | Producer Identifier  |       |       |      |     |
| 51155-51156           |      |    |            | Reserved   |       |       |      |     |
| DNP LAN/WAN           |      |    |            |  |       |       |      |     |
| 51157                 |      |    |            | Mode/ Bitmap Set   |       |       |      |     |
| 51158                 |      |    |            | UDP Addressing/ Validate Connection Count                      |       |       |      |     |
| 51159                 |      |    |            | TCP Listen Port  |       |       |      |     |
| 51160                 |      |    |            | UDP Listen Port  |       |       |      |     |
| 51161-51162           |      |    |            | Valid IP Address 1   |       |       |      |     |
| 51163-51164           |      |    |            | Valid IP Address 2   |       |       |      |     |
| 51165-61166           |      |    |            | Valid IP Address 3   |       |       |      |     |
| 51167-51168           |      |    |            | Valid IP Address 4   |       |       |      |     |
| 51169-51170           |      |    |            | Valid IP Subnet Mask 1   |       |       |      |     |
| 51171-51172           |      |    |            | Valid IP Subnet Mask 2   |       |       |      |     |
| 51173-51174           |      |    |            | Valid IP Subnet Mask 3   |       |       |      |     |

| Address                              | Line | Pt | DNP<br>Obj | Description  | Range | Units | Type | R/W |
|--------------------------------------|------|----|------------|--|-------|-------|------|-----|
| 51175-51176                          |      |    |            | Valid IP Subnet Mask 4                                       |       |       |      |     |
| 51177-51180                          |      |    |            | TCP Starting Valid Client Ports                              |       |       |      |     |
| 51181-51184                          |      |    |            | TCP Ending Valid Client Ports                                |       |       |      |     |
| 51185-51188                          |      |    |            | UDP Starting Valid Client Ports                              |       |       |      |     |
| 51189-51192                          |      |    |            | UDP Ending Valid Client Ports                                |       |       |      |     |
| 51193-51194                          |      |    |            | Multicast Group Address                                      |       |       |      |     |
| 51195                                |      |    |            | UDP Respond Port   |       |       |      |     |
| 51196-51200                          |      |    |            | Reserved   |       |       |      |     |
| Customizable Modbus Map Format Block |      |    |            |  |       |       |      |     |
| 51201                                |      |    |            | Custom Modbus Point 1 Style / Format                         |       |       |      | R   |
| 51202                                |      |    |            | Custom Modbus Point 1 Unit / Special                         |       |       |      |     |
| 51203-51712                          |      |    |            | Custom Modbus Points 2-256 Style / Format and Unit / Special |       |       |      | R   |
| Energy Scale Settings                |      |    |            |  |       |       |      |     |
| 51713                                |      |    |            | Q1234 VAh/ Q12 VARh  |       |       | F65  |     |
| 51714                                |      |    |            | Q34 VARh/ Q14 Wh   |       |       | F65  |     |
| 51715                                |      |    |            | Q1 VAh/ Q1 VARh  |       |       | F65  |     |
| 51716                                |      |    |            | Q4 VAh/ Q4 VARh  |       |       | F65  |     |
| 51717                                |      |    |            | Q23 Wh/ Q2 VAh   |       |       | F65  |     |
| 51718                                |      |    |            | Q2 VARh/ Q3 VAh  |       |       | F65  |     |
| 51719                                |      |    |            | Q3 VARh/ I <sup>2</sup> t Phase A                            |       |       | F65  |     |
| 51720                                |      |    |            | I <sup>2</sup> t Phase B/ I <sup>2</sup> t Phase C           |       |       | F65  |     |
| 51721                                |      |    |            | V <sup>2</sup> t Phase A/ V <sup>2</sup> t Phase B           |       |       | F65  |     |
| 51722                                |      |    |            | V <sup>2</sup> t Phase C/ Q1 Wh                              |       |       | F65  |     |
| 51723                                |      |    |            | Q4 Wh/ Q2 Wh   |       |       | F65  |     |
| 51724                                |      |    |            | Q3 Wh/ Q1234 VAh, Uncompensated                              |       |       | F65  |     |
| 51725                                |      |    |            | Q12 VARh, Uncompensated/ Q34 VARh, Uncompensated             |       |       | F65  |     |
| 51726                                |      |    |            | Q14 Wh, Uncompensated/ Q23 Wh, Uncompensated                 |       |       | F65  |     |
| 51727                                |      |    |            | +Oh/ -Oh   |       |       | F65  |     |
| 51728                                |      |    |            | Q14 Wh Test Mode/ Q1 VAh Test Mode                           |       |       | F65  |     |
| 51729                                |      |    |            | Q1 VARh Test Mode/ Q4 VAh Test Mode                          |       |       | F65  |     |
| 51730                                |      |    |            | Q4 VARh Test Mode/ Q23 Wh Test Mode                          |       |       | F65  |     |
| 51731                                |      |    |            | Q2 VAh Test Mode/ Q2 VARh Test Mode                          |       |       | F65  |     |
| 51732                                |      |    |            | Q3 VAh Test Mode/ Q3 VARh Test Mode                          |       |       | F65  |     |

| Address               | Line | Pt | DNP<br>Obj | Description   | Range                   | Units             | Type | R/W |
|-----------------------|------|----|------------|---|-------------------------|-------------------|------|-----|
| 51733                 |      |    |            | Pulse Accumulation, Input 1/ Pulse Accumulation Input 2 |                         |                   | F65  |     |
| 51734                 |      |    |            | Pulse Accumulation, Input 3/ Pulse Accumulation Input 4 |                         |                   | F65  |     |
| 51735                 |      |    |            | Pulse Accumulation, Input 5/ Pulse Accumulation Input 6 |                         |                   | F65  |     |
| 51736                 |      |    |            | Pulse Accumulation, Input 7/ Pulse Accumulation Input 8 |                         |                   | F65  |     |
| 51737                 |      |    |            | Pulse Aggregation 1/ Pulse Aggregation 2                |                         |                   | F65  |     |
| 51738                 |      |    |            | Pulse Aggregation 3/ Pulse Aggregation 4                |                         |                   | F65  |     |
| Update Settings Block |      |    |            |   |                         |                   |      |     |
| 51739-52974           |      |    |            | Reserved  |                         |                   |      |     |
| 52975-53102           |      |    |            | User Memo Field (256 bytes)                             |                         |                   |      |     |
| 53103-53230           |      |    |            | Name of User Who Last Updated the Profile (256 bytes)   |                         |                   |      |     |
| 53231                 |      |    |            | Device Profile Version (Year)                           |                         |                   |      |     |
| 53232                 |      |    |            | Device Profile Version (Month/ Day)                     |                         |                   |      |     |
| 53233                 |      |    |            | Device Profile Version (Build)                          |                         |                   |      |     |
| 53234                 |      |    |            | Pro Software ID   |                         |                   |      |     |
| 53235-53236           |      |    |            | Electro Industries Device Type (Base Unit)              |                         |                   |      |     |
| 53237                 |      |    |            | Electro Industries Device Type (Option 1/ Option 2)     |                         |                   |      |     |
| 53238                 |      |    |            | Electro Industries Device Type (Option 3/ Option 4)     |                         |                   |      |     |
| 53239                 |      |    |            | Update Programming Software Version Number (Major)      |                         |                   |      |     |
| 53240                 |      |    |            | Update Programming Software Version Number (Minor)      |                         |                   |      |     |
| 53241                 |      |    |            | Update Programming Software Version Number (Revision)   |                         |                   |      |     |
| 53244-53247           |      |    |            | Update Time   |                         |                   |      | R   |
| 53248                 |      |    |            | Programmable Settings Block Checksum                    |                         |                   |      | R   |
| 12-bit RTU Block      |      |    |            |   |                         |                   |      |     |
| 53249                 |      |    |            | Sanity Register   |                         |                   | F58  | W   |
| 53250                 |      |    |            | Phase A Current   | + 5 A / 0 A             | 5 / 2048 A sec    | F59  | W   |
| 53251                 |      |    |            | Phase B Current   | + 5 A / 0 A             | 5 / 2048 A sec    | F59  | W   |
| 53252                 |      |    |            | Phase C Current   | + 5 A / 0 A             | 5 / 2048 A sec    | F59  | R   |
| 53253                 |      |    |            | Phase A-N Voltage                                       | + 150 V / 0 V           | 150 / 2048 V sec  | F59  | R   |
| 53254                 |      |    |            | Phase B-N Voltage                                       | + 150 V / 0 V           | 150 / 2048 V sec  | F59  | R   |
| 53255                 |      |    |            | Phase C-N Voltage                                       | + 150 V / 0 V           | 150 / 2048 V sec  | F59  | R   |
| 53256                 |      |    |            | Total Watt  | + 1500 W / - 1500 W     | 1500 / 2048 W sec | F59  | R   |
| 53257                 |      |    |            | Total VAR   | + 1500 VAR / - 1500 VAR | 1500 / 2048       | F59  | R   |
| 53258                 |      |    |            | Phase A Watt  | + 1500 W / - 1500 W     | 1500 / 2048 W sec | F59  | R   |

| Address      | Line | Pt | DNP<br>Obj | Description              | Range                        | Units             | Type | R/W |
|--------------|------|----|------------|--------------------------|------------------------------|-------------------|------|-----|
| 53259        |      |    |            | Phase B Watt             | + 1500 W / - 1500 W          | 1500 / 2048 W sec | F59  | R   |
| 53260        |      |    |            | Phase C Watt             | + 1500 W / - 1500 W          | 1500 / 2048 W sec | F59  | R   |
| 53261        |      |    |            | Phase A VAR              | + 1500 VAR / - 1500 VAR      | 1500 / 2048       | F59  | R   |
| 53262        |      |    |            | Phase B VAR              | + 1500 VAR / - 1500 VAR      | 1500 / 2048       | F59  | R   |
| 53263        |      |    |            | Phase C VAR              | + 1500 VAR / - 1500 VAR      | 1500 / 2048       | F59  | R   |
| 53264-53265  |      |    |            | Reserved                 |                              |                   |      |     |
| 53266        |      |    |            | Computed Neutral Current | + 5 A / 0 A                  | 5 / 2048 A sec    | F59  | R   |
| 53267-53268  |      |    |            | Positive Watthour        | + 99,999,999 kWh / 0 kWh     | 1 kWh pri         | F60  | R   |
| 53269-53270  |      |    |            | Negative Watthour        | 0 kWh / - 99,999,999 kWh     | 1 kWh pri         | F60  | R   |
| 53271-53272  |      |    |            | Positive VARhour         | + 99,999,999 kVARh / 0 kVARh | 1 kVARh pri       | F60  | R   |
| 53273-53274  |      |    |            | Negative VARhour         | 0 kVARh / - 99,999,999 kVARh | 1 kVARh pri       | F60  | R   |
| 53275        |      |    |            | Frequency                | 45 Hz / 75 Hz                | 30 / 4096 Hz      | F61  | R   |
| 53276-53347  |      |    |            | Reserved                 |                              |                   |      |     |
| 53348        |      |    |            | Energy Reset             |                              |                   |      | W   |
| Action Block |      |    |            |                          |                              |                   |      |     |
| 57345        |      |    |            | Log Reset                |                              |                   |      | W   |
| 57346        |      |    |            | Maximum Reset            |                              |                   |      | W   |
| 57347        |      |    |            | Minimum Reset            |                              |                   |      | W   |
| 57348        |      |    |            | Energy Reset             |                              |                   |      | W   |
| 57349        |      |    |            | Calibrate 120 V          |                              |                   |      | R/W |
| 57350        |      |    |            | Calibrate 150 mA         |                              |                   |      | R/W |
| 57351        |      |    |            | Calibrate 250 mA         |                              |                   |      | R/W |
| 57352        |      |    |            | Calibrate 500 mA         |                              |                   |      | R/W |
| 57353        |      |    |            | Calibrate 1 A            |                              |                   |      | R/W |
| 57354        |      |    |            | Calibrate 2.5 A          |                              |                   |      | R/W |
| 57355        |      |    |            | Calibrate 5 A            |                              |                   |      | R/W |
| 57356        |      |    |            | Calibrate Automatic      |                              |                   |      | R/W |
| 57357        |      |    |            | Calibrate +1 A Phase     |                              |                   |      | R/W |
| 57358        |      |    |            | Calibrate -1 A Phase     |                              |                   |      | R/W |
| 57359        |      |    |            | Calibrate +1 B Phase     |                              |                   |      | R/W |
| 57360        |      |    |            | Calibrate -1 B Phase     |                              |                   |      | R/W |
| 57361        |      |    |            | Calibrate +1 C Phase     |                              |                   |      | R/W |
| 57362        |      |    |            | Calibrate -1 C Phase     |                              |                   |      | R/W |

| Address | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|---------|------|----|------------|---|-------|-------|------|-----|
| 57363   |      |    |            | Calibrate +1 Aux Phase                              |       |       |      | R/W |
| 57364   |      |    |            | Calibrate -1 Aux Phase                              |       |       |      | R/W |
| 57365   |      |    |            | Start Calibration Mode                              |       |       |      | R/W |
| 57366   |      |    |            | Calibrate Manual Gain Adjustment                    |       |       |      | R/W |
| 57367   |      |    |            | Activate first time CTPT Compensation               |       |       |      | R/W |
| 57368   |      |    |            | Calibrate Manual Phase Adjustment                   |       |       |      | R/W |
| 57369   |      |    |            | Calibrate Multiplier 1x                             |       |       |      | R/W |
| 57370   |      |    |            | Calibrate Multiplier 10x                            |       |       |      | R/W |
| 57371   |      |    |            | Calibrate References                                |       |       |      | R/W |
| 57372   |      |    |            | Calibration Status Reset                            |       |       |      | R/W |
| 57373   |      |    |            | Calibrate Phase at 500 mA                           |       |       |      | R/W |
| 57374   |      |    |            | Calibrate Phase at 1 A                              |       |       |      | R/W |
| 57375   |      |    |            | Calibrate Phase at 5 A                              |       |       |      | R/W |
| 57376   |      |    |            | Calibrate Phase at 10 A                             |       |       |      | R/W |
| 57377   |      |    |            | Calibrate Phase at 2.5 A                            |       |       |      | R/W |
| 57378   |      |    |            | Preload CTPT compensation values                    |       |       |      | R/W |
| 57380   |      |    |            | Internal KYZ Enable                                 |       |       |      | R/W |
| 57381   |      |    |            | Flicker Enable                                      |       |       |      | R/W |
| 57382   |      |    |            | Undefined   |       |       |      | R/W |
| 57383   |      |    |            | Calibrate Waveform 120 V                            |       |       |      | R/W |
| 57384   |      |    |            | Calibrate Waveform - 5 A                            |       |       |      | R/W |
| 57385   |      |    |            | Calibrate Waveform - DC Offset                      |       |       |      | R/W |
| 57386   |      |    |            | Reset Time Of Use Current Month                     |       |       |      | R/W |
| 57387   |      |    |            | Manual Waveform Capture                             |       |       |      | W   |
| 57388   |      |    |            | Reset Internal Input Accumulations and Aggregations |       |       |      | R/W |
| 57389   |      |    |            | Override Data not yet Valid Block                   |       |       |      | W   |
| 57390   |      |    |            | Refresh External IO Header Information              |       |       |      | R/W |
| 57391   |      |    |            | Refresh External IO Programming Information         |       |       |      | W   |
| 57392   |      |    |            | Relay Locking Relay Selection                       |       |       |      | R/W |
| 57393   |      |    |            | Relay Locking Action Selection                      |       |       |      | R/W |
| 57396   |      |    |            | Reset KYZ Output Accumulations                      |       |       |      | W   |
| 57397   |      |    |            | Reset Cumulative Demand                             |       |       |      | W   |
| 57398   |      |    |            | Reset Historical Log 1                              |       |       |      | W   |

| Address                   | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|---------------------------|------|----|------------|---|-------|-------|------|-----|
| 57399                     |      |    |            | Reset Historical Log 2                              |       |       |      | W   |
| 57400                     |      |    |            | Reset Sequence of Events Log                        |       |       |      | W   |
| 57401                     |      |    |            | Reset Digital Input Log                             |       |       |      | W   |
| 57402                     |      |    |            | Reset Digital Output Log                            |       |       |      | W   |
| 57403                     |      |    |            | Reset Flicker Log                                   |       |       |      | W   |
| 57404                     |      |    |            | Reset Waveform Log                                  |       |       |      | W   |
| 57405                     |      |    |            | Reset PQ Log  |       |       |      | W   |
| 57406                     |      |    |            | Reset System Event Log                              |       |       |      | W   |
| 57407                     |      |    |            | Reset Total Average Power Factor                    |       |       |      | W   |
| 57408                     |      |    |            | Reset Time of Use Active Registers                  |       |       |      | W   |
| 57409                     |      |    |            | DNP over TCP Network Card connect/disconnect Status |       |       |      | W   |
| 57410-57411               |      |    |            | DNP over TCP Connection IP Address                  |       |       |      | W   |
| 57412                     |      |    |            | DNP over TCP Connection Client Port Number          |       |       |      | W   |
| Factory Calibration Block |      |    |            |   |       |       |      |     |
| 60929-60932               |      |    |            | Factory Calibration Block Timestamp                 |       |       |      | R   |
| 60933-60936               |      |    |            | Factory Calibration Timestamp                       |       |       |      | R   |
| 60937-60938               |      |    |            | Gain factor for Van                                 |       |       |      | R   |
| 60939-60944               |      |    |            | Gain factors for Vbn, Vcn, Vxn                      |       |       |      | R   |
| 60945-60946               |      |    |            | Gain Factor for Ia 150 mA                           |       |       |      | R   |
| 60947-60948               |      |    |            | Gain Factor for Ia 250 mA                           |       |       |      | R   |
| 60949-60950               |      |    |            | Gain Factor for Ia 500 mA                           |       |       |      | R   |
| 60951-60952               |      |    |            | Gain Factor for Ia 1 A                              |       |       |      | R   |
| 50953-60954               |      |    |            | Gain Factor for Ia 2.5 A                            |       |       |      | R   |
| 60955-60956               |      |    |            | Gain Factor for Ia 5 A                              |       |       |      | R   |
| 60957-60968               |      |    |            | Gain factors for Ib                                 |       |       |      | R   |
| 60969-60992               |      |    |            | Gain factors for Ic, Ix                             |       |       |      | R   |
| 60993                     |      |    |            | Unused  |       |       |      | R   |
| 60994                     |      |    |            | Phase Compensation for Phase A 500 mA               |       |       |      | R   |
| 60995                     |      |    |            | Phase Compensation for Phase A 1 A                  |       |       |      | R   |
| 60996                     |      |    |            | Phase Compensation for Phase A 2.5 A                |       |       |      | R   |
| 60997                     |      |    |            | Phase Compensation for Phase A 5 A                  |       |       |      | R   |
| 60998                     |      |    |            | Phase Compensation for Phase A 10 A                 |       |       |      | R   |
| 60999-61003               |      |    |            | Phase Compensation for Phase B                      |       |       |      | R   |

| Address                             | Line | Pt | DNP<br>Obj | Description                                   | Range | Units | Type | R/W |
|-------------------------------------|------|----|------------|---|-------|-------|------|-----|
| 61004-61008                         |      |    |            | Phase Compensation for Phase C                |       |       |      | R   |
| 61009-61025                         |      |    |            | Unused  |       |       |      | R   |
| 61026                               |      |    |            | Calibration Checksum                          |       |       |      | R   |
| CTPT Compensation Calibration Block |      |    |            |   |       |       |      |     |
| 61027-61030                         |      |    |            | CTPT Compensation Calibration Block Timestamp |       |       |      | R   |
| 61031-61034                         |      |    |            | CTPT Compensation Calibration Timestamp       |       |       |      | R   |
| 61035-61036                         |      |    |            | Gain factor for Van                           |       |       |      | R   |
| 61037-61042                         |      |    |            | Gain factors for Vbn, Vcn, Vxn                |       |       |      | R   |
| 61043-61044                         |      |    |            | Gain Factor for Ia 150 mA                     |       |       |      | R   |
| 61045-61046                         |      |    |            | Gain Factor for Ia 250 mA                     |       |       |      | R   |
| 61047-61048                         |      |    |            | Gain Factor for Ia 500 mA                     |       |       |      | R   |
| 61049-61050                         |      |    |            | Gain Factor for Ia 1 A                        |       |       |      | R   |
| 61051-61052                         |      |    |            | Gain Factor for Ia 2.5 A                      |       |       |      | R   |
| 61053-61054                         |      |    |            | Gain Factor for Ia 5 A                        |       |       |      | R   |
| 61055-61066                         |      |    |            | Gain factors for Ib                           |       |       |      | R   |
| 61067-61090                         |      |    |            | Gain factors for Ic, Ix                       |       |       |      | R   |
| 61091                               |      |    |            | Unused  |       |       |      | R   |
| 61092                               |      |    |            | Phase Compensation for Phase A 500 mA         |       |       |      | R   |
| 61093                               |      |    |            | Phase Compensation for Phase A 1 A            |       |       |      | R   |
| 61094                               |      |    |            | Phase Compensation for Phase A 2.5 A          |       |       |      | R   |
| 61095                               |      |    |            | Phase Compensation for Phase A 5 A            |       |       |      | R   |
| 61096                               |      |    |            | Phase Compensation for Phase A 10 A           |       |       |      | R   |
| 61097-61101                         |      |    |            | Phase Compensation for Phase B                |       |       |      | R   |
| 61102-61106                         |      |    |            | Phase Compensation for Phase C                |       |       |      | R   |
| 61107-61123                         |      |    |            | Unused  |       |       |      | R   |
| 61124                               |      |    |            | Calibration Checksum                          |       |       |      | R   |
| Calibration Modification Block      |      |    |            |   |       |       |      |     |
| 61185                               |      |    |            | Calibration Modification Selection            |       |       |      | R/W |
| 61186-61189                         |      |    |            | Calibration Timestamp                         |       |       |      | R/W |
| 61190-61191                         |      |    |            | Gain factor for Van                           |       |       |      | R/W |
| 61192-61197                         |      |    |            | Gain factors for Vbn, Vcn, Vxn                |       |       |      | R/W |
| 61198-61199                         |      |    |            | Gain Factor for Ia 150 mA                     |       |       |      | R/W |
| 61200-61201                         |      |    |            | Gain Factor for Ia 250 mA                     |       |       |      | R/W |



| Address                                  | Line | Pt | DNP<br>Obj | Description   | Range | Units | Type | R/W |
|--|------|----|------------|---|-------|-------|------|-----|
| 61202-61203                              |      |    |            | Gain Factor for Ia 500 mA                           |       |       |      | R/W |
| 61204-61205                              |      |    |            | Gain Factor for Ia 1 A                              |       |       |      | R/W |
| 61206-61207                              |      |    |            | Gain Factor for Ia 2.5 A                            |       |       |      | R/W |
| 61208-61209                              |      |    |            | Gain Factor for Ia 5 A                              |       |       |      | R/W |
| 61210-61221                              |      |    |            | Gain factors for Ib                                 |       |       |      | R/W |
| 61222-61245                              |      |    |            | Gain factors for Ic, Ix                             |       |       |      | R/W |
| 61246                                    |      |    |            | Unused  |       |       |      | R/W |
| 61247                                    |      |    |            | Phase Compensation for Phase A 500 mA               |       |       |      | R/W |
| 61248                                    |      |    |            | Phase Compensation for Phase A 1 A                  |       |       |      | R/W |
| 61249                                    |      |    |            | Phase Compensation for Phase A 2.5 A                |       |       |      | R/W |
| 61250                                    |      |    |            | Phase Compensation for Phase A 5 A                  |       |       |      | R/W |
| 61251                                    |      |    |            | Phase Compensation for Phase A 10 A                 |       |       |      | R/W |
| 61252-61256                              |      |    |            | Phase Compensation for Phase B                      |       |       |      | R/W |
| 61257-61261                              |      |    |            | Phase Compensation for Phase C                      |       |       |      | R/W |
| 61262-61278                              |      |    |            | Unused  |       |       |      | R/W |
| 61279                                    |      |    |            | Calibration Checksum                                |       |       |      | R/W |
| 61280                                    |      |    |            | Calibration Modification Checksum                   |       |       |      | R/W |
| Operational Communication Settings Block |      |    |            |   |       |       |      |     |
| 65025                                    |      |    |            | Operational Address, Port 4 (I/O)                   |       |       |      | R   |
| 65026                                    |      |    |            | Operational Protocol & Baud Rate, Port 4 (I/O)      |       |       |      | R   |
| 65027                                    |      |    |            | Operational Parity & Stop Bits, Port 4 (I/O)        |       |       |      | R   |
| 65028                                    |      |    |            | Operational Data Bits & Response Delay, Port 4(I/O) |       |       |      | R   |
| 65029                                    |      |    |            | Operational Address, Port 3                         |       |       |      | R   |
| 65030                                    |      |    |            | Operational Protocol & Baud Rate, Port 3            |       |       |      | R   |
| 65031                                    |      |    |            | Operational Parity & Stop Bits, Port 3              |       |       |      | R   |
| 65032                                    |      |    |            | Operational Data Bits & Response Delay, Port 3      |       |       |      | R   |
| 65033                                    |      |    |            | Operational Address, Port 2                         |       |       |      | R   |
| 65034                                    |      |    |            | Operational Protocol & Baud Rate, Port 2            |       |       |      | R   |
| 65035                                    |      |    |            | Operational Parity & Stop Bits, Port 2              |       |       |      | R   |
| 65036                                    |      |    |            | Operational Data Bits & Response Delay, Port 2      |       |       |      | R   |
| 65037                                    |      |    |            | Operational Address, Port 1 (232/485)               |       |       |      | R   |
| 65038                                    |      |    |            | Operational Protocol & Baud Rate, Port 1 (232/485)  |       |       |      | R   |
| 65039                                    |      |    |            | Operational Parity & Stop Bits, Port 1 (232/485)    |       |       |      | R   |

| Address                       | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|-------------------------------|------|----|------------|--|---------------------|-------|------|-----|
| 65040                         |      |    |            | Operational Data Bits & Response Delay, Port 1 (232/485) |                     |       |      | R   |
| Diagnostic Block              |      |    |            |  |                     |       |      |     |
| 65041-65042                   |      |    |            | Data Valid Bits  |                     |       |      | R   |
| Device Identification Block 2 |      |    |            |  |                     |       |      |     |
| 65088                         |      |    |            | 196 Xilinx Version / 320 Xilinx Version                  |                     |       |      | R   |
| 65089-65096                   |      |    |            | Nexus Comm Boot Firmware Variation String 1              |                     |       | F1   | R   |
| 65097-65104                   |      |    |            | Nexus Comm Boot Firmware Variation String 2              |                     |       | F1   | R   |
| 65105-65112                   |      |    |            | Nexus Comm Boot Firmware Variation String 3              |                     |       | F1   | R   |
| 65113-65120                   |      |    |            | Nexus Comm Boot Firmware Variation String 4              |                     |       | F1   | R   |
| 65121-65128                   |      |    |            | Nexus Comm Boot Firmware Variation String 5              |                     |       | F1   | R   |
| 65129-65136                   |      |    |            | Nexus Comm Boot Firmware Variation String 6              |                     |       | F1   | R   |
| 65137-65144                   |      |    |            | Nexus Comm Boot Firmware Variation String 7              |                     |       | F1   | R   |
| 65145-65152                   |      |    |            | Nexus Comm Boot Firmware Variation String 8              |                     |       | F1   | R   |
| 65153-65160                   |      |    |            | Nexus DSP Boot Firmware Variation String 1               |                     |       | F1   | R   |
| 65161-65168                   |      |    |            | Nexus DSP Boot Firmware Variation String 2               |                     |       | F1   | R   |
| 65168-65176                   |      |    |            | Nexus DSP Boot Firmware Variation String 3               |                     |       | F1   | R   |
| 65177-65184                   |      |    |            | Nexus DSP Boot Firmware Variation String 4               |                     |       | F1   | R   |
| 65185-65192                   |      |    |            | Nexus DSP Boot Firmware Variation String 5               |                     |       | F1   | R   |
| 65193-65200                   |      |    |            | Nexus DSP Boot Firmware Variation String 6               |                     |       | F1   | R   |
| 65201-65208                   |      |    |            | Nexus DSP Boot Firmware Variation String 7               |                     |       | F1   | R   |
| 65209-65216                   |      |    |            | Nexus DSP Boot Firmware Variation String 8               |                     |       | F1   | R   |
| 65217-65224                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 1           |                     |       | F1   | R   |
| 65225-65232                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 2           |                     |       | F1   | R   |
| 65233-65240                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 3           |                     |       | F1   | R   |
| 65241-65248                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 4           |                     |       | F1   | R   |
| 65249-65256                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 5           |                     |       | F1   | R   |
| 65257-65264                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 6           |                     |       | F1   | R   |
| 65265-65272                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 7           |                     |       | F1   | R   |
| 65273-65280                   |      |    |            | Nexus DSP Run-Time Firmware Variation String 8           |                     |       | F1   | R   |
| DSP Diagnostic Block          |      |    |            |  |                     |       |      |     |
| 65281-65312                   |      |    |            | DSP Diagnostic   |                     |       |      | R   |
| Password Block                |      |    |            |  |                     |       |      |     |
| 65316-65320                   |      |    |            | User Password  | Fixed Length String |       |      | W   |

| Address                     | Line | Pt | DNP<br>Obj | Description  | Range               | Units | Type | R/W |
|-----------------------------|------|----|------------|--|---------------------|-------|------|-----|
| 65321                       |      |    |            | Password State                                     | Enumeration         |       |      | R   |
| 65322                       |      |    |            | Sealing Switch State                               | Enumeration         |       |      | R   |
| 65326                       |      |    |            | Password Lock                                      | Enumeration         |       |      | R/W |
| 65327                       |      |    |            | Password Sequence / Status                         | Enumeration         |       |      | R   |
| 65328                       |      |    |            | Password Command                                   | Enumeration         |       |      | R/W |
| 65332-65336                 |      |    |            | New Password A                                     | Fixed Length String |       |      | W   |
| 65340-65344                 |      |    |            | New Password B                                     | Fixed Length String |       |      | W   |
| Dynamic Configuration Block |      |    |            |  |                     |       |      |     |
| 65345                       |      |    |            | NVRAM Configuration                                |                     |       |      | R   |
| 65346                       |      |    |            | IRIG-B State                                       |                     |       |      | R   |
| 65347                       |      |    |            | Network Card                                       |                     |       |      | R   |
| 65348                       |      |    |            | Modem Card   |                     |       |      | R   |
| 65349                       |      |    |            | Sealing Switch Installation                        |                     |       |      | R   |
| Hardware Options Block      |      |    |            |  |                     |       |      |     |
| 65361                       |      |    |            | Form / 4 KYZ                                       |                     |       |      | R   |
| 65362                       |      |    |            | Com Port 4 / Com Port 3                            |                     |       |      | R   |
| 65363                       |      |    |            | Com Port 2 / Com Port 1                            |                     |       |      | R   |
| 65364                       |      |    |            | 1 Amp / 300 V                                      |                     |       |      | R   |
| 65365                       |      |    |            | Sealing Switch / Memory                            |                     |       |      | R   |
| 65366                       |      |    |            |  |                     |       |      | R   |
| 65367                       |      |    |            |  |                     |       |      | R   |
| 65368                       |      |    |            |  |                     |       |      | R   |
| Flash Control Block         |      |    |            |  |                     |       |      |     |
| 65409                       |      |    |            | Nexus Comm Operation Indicator                     |                     |       |      | R   |
| 65410                       |      |    |            | Nexus Comm FLASH Sequence & Status / FLASH Command |                     |       |      | R   |
| 65411                       |      |    |            | FLASH Locked Port                                  |                     |       |      | R/W |
| 65412                       |      |    |            | Nexus Comm FLASH Code Checksum                     | 65535 / 0           | 1     |      | R/W |
| 65413                       |      |    |            | Nexus Comm FLASH Programmable Settings Checksum    | 65535 / 0           | 1     |      | R/W |
| 65414                       |      |    |            | Nexus DSP Operation Indicator                      |                     |       |      | R   |
| 65415                       |      |    |            | Nexus DSP FLASH Sequence & Status / FLASH Command  |                     |       |      | R   |
| 65416                       |      |    |            | Nexus DSP FLASH Code Checksum                      | 65535 / 0           | 1     |      | R/W |
| 65417                       |      |    |            | Port To Port Communications, Port 4 (I/O)          |                     |       |      | R/W |
| 65418                       |      |    |            | Port To Port Communications, Port 3                |                     |       |      | R/W |

| Address                | Line | Pt | DNP<br>Obj | Description                                     | Range             | Units | Type | R/W |
|------------------------|------|----|------------|---|-------------------|-------|------|-----|
| 65419                  |      |    |            | Port To Port Communications Port 2              |                   |       |      | R/W |
| 65420                  |      |    |            | Port To Port Communications Port 1 (232/485)    |                   |       |      | R/W |
| 65421                  |      |    |            | Port To Port Communications Port 5 (DIAG)       |                   |       |      | R/W |
| 65425-65434            |      |    |            | Nexus Comm FLASH Code Hex Line                  |                   |       |      | W   |
| 65441-65450            |      |    |            | Nexus Comm FLASH Extended Code Hex Line         |                   |       |      | W   |
| 65457-65466            |      |    |            | Nexus Comm FLASH Product History Hex Line       |                   |       |      | W   |
| 65473-65482            |      |    |            | Nexus Comm FLASH Programmable Settings Hex Line |                   |       |      | W   |
| 65489-65498            |      |    |            | Nexus DSP FLASH Code Hex Line                   |                   |       |      | W   |
| Enhanced Serial Number |      |    |            |   |                   |       |      |     |
| 65533-65534            |      |    |            | Enhanced Serial Number                          | 4,294,967,295 / 0 | 1     |      | R   |
| Serial Number          |      |    |            |   |                   |       |      |     |
| 65535-65536            |      |    |            | Serial Number                                   | 4,294,967,295 / 0 | 1     |      | R   |

## Chapter 3 Communication Data Formats

- This chapter expands upon information listed in the Nexus® meter Modbus Register Map (Chapter 2). Section Headings (F1, F2, etc) refer to the value in the Register Map’s “Type” column.

### 3.1: Type F1 Null Terminated ASCII String

- Length: Depends on the reading.
- Each register contains two bytes. Each byte stands for an ASCII character. The printable portion of the string is terminated with a Null character (ASCII 00H). Any characters after the terminating Null are ignored.

Example:

Registers 00001 – 00008, the Device Name, might contain the following data:

|                 |                   |     |       |     |       |     |       |     |       |     |       |     |       |     |       |      |
|-----------------|-------------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| <b>Address</b>  | 00001             |     | 00002 |     | 00003 |     | 00004 |     | 00005 |     | 00006 |     | 00007 |     | 00008 |      |
| <b>Value</b>    | 3031H             |     | 3037H |     | 204EH |     | 6578H |     | 7573H |     | 2031H |     | 3237H |     | 3200H |      |
| <b>Bytes</b>    | 30H               | 31H | 30H   | 37H | 20H   | 43H | 65H   | 78H | 75H   | 73H | 20H   | 31H | 32H   | 37H | 37H   | 32H  |
| <b>ASCII</b>    | '0'               | '1' | '0'   | '7' | ' '   | 'N' | 'e'   | 'x' | 'u'   | 's' | ' '   | '1' | '2'   | '7' | '2'   | Null |
| <b>Register</b> | "01"              |     | "07"  |     | " N"  |     | "ex"  |     | "us"  |     | " 1"  |     | "27"  |     | "2"   |      |
| <b>String</b>   | "0107 Nexus 1272" |     |       |     |       |     |       |     |       |     |       |     |       |     |       |      |

### 3.2: Type F2 Fixed Length ASCII String

- Length: Depends on the reading.
- Each register contains two bytes. Each byte stands for an ASCII character. All bytes are significant. There is no terminating character.

Example:

Registers 00073 – 00074, the Nexus® Comm Boot Version Number, might contain the following data:

|                 |        |     |       |     |
|-----------------|--------|-----|-------|-----|
| <b>Address</b>  | 00073  |     | 00074 |     |
| <b>Value</b>    | 3030H  |     | 3134H |     |
| <b>Bytes</b>    | 30H    | 30H | 31H   | 34H |
| <b>ASCII</b>    | '0'    | '0' | '1'   | '4' |
| <b>Register</b> | "00"   |     | "14"  |     |
| <b>String</b>   | "0014" |     |       |     |

### 3.3: Type F3 Time Stamp

- Length: 4 Registers (8 bytes)
- Each register contains two bytes. Each byte contains a binary number representing up to two digits in a part of date and time. The units for each byte are century, year, month, date, hour, minute, second and 10 millisecond. Hour is in 24-hour form, 00H = 0 = 12 AM, 01H = 1 = 1 AM, ..., 0BH = 11 = 11 AM, 0CH = 12 = 12 PM, 0DH = 13 = 1 PM, ..., 17H = 23 = 11 PM.

Example:

Registers 00081 – 00084, On Time, might contain the following data:

|                |                             |      |       |      |       |        |        |                |
|----------------|-----------------------------|------|-------|------|-------|--------|--------|----------------|
| <b>Address</b> | 00081                       |      | 00082 |      | 00083 |        | 00084  |                |
| <b>Value</b>   | 1404H                       |      | 0619H |      | 0913H |        | 3056H  |                |
| <b>Bytes</b>   | 14H                         | 04H  | 06H   | 19H  | 09H   | 13H    | 30H    | 56H            |
| <b>Decimal</b> | 20                          | 04   | 6     | 25   | 9     | 19     | 48     | 86             |
| <b>Unit</b>    | Century                     | Year | Month | Date | Hour  | Minute | Second | 10 Millisecond |
| <b>Date</b>    | June 25, 2004 9:19:48.86 AM |      |       |      |       |        |        |                |

### 3.4: Type F4 Day of Week

- Length: 1 Register (2 bytes)
- This register contains a 16-bit number, associated with the days of the week as follows:

| Value | Day of Week | Value | Day of Week |
|-------|-------------|-------|-------------|
| 0001H | Sunday      | 0005H | Thursday    |
| 0002H | Monday      | 0006H | Friday      |
| 0003H | Tuesday     | 0007H | Saturday    |
| 0004H | Wednesday   |       |             |

### 3.5: Type F5 Secondary 1 Cycle RMS Voltage or Current

- Length: 2 Registers (4 bytes)
- Range:  $+1,048,576 V^2 / 0 V^2$  or  $+65536 I^2 / 0 I^2$  (1262 or 1272)
- Unit:  $1/4906 V^2$  secondary or  $1/65536 A^2$  secondary (1262 or 1272)
- These registers together are a four-byte unsigned integer. Conversion into secondary voltage or current involves multiplying by the appropriate scale and taking the square root of that value.
- Depending on the unit and hardware, the range and unit of voltage readings differs. For a Nexus® 1262/72 meter, the range goes to  $+1,048,576 V^2$  with a unit of  $1/4096 V^2$ .

Example:

Registers 00094-00095, 1 cycle Phase A-N Voltage, on a Nexus® 1262/72 meter might contain the following data:

|  |  |       |
|--|--|-------|
| <b>Address</b>                           | 00094                                  | 00095 |
| <b>Value</b>                             | 378AH                                  | AC18H |
| <b>4-byte unsigned integer (Hex)</b>     | 378AAC18H                              |       |
| <b>4-byte unsigned integer (Decimal)</b> | 931834904                              |       |
| <b>V<sup>2</sup> secondary</b>           | 227498.755859 V <sup>2</sup> secondary |       |
| <b>V secondary</b>                       | 476.968 V secondary                    |       |

Example:

Registers 00102-00103, 1 cycle Phase A Current, might contain the following data:

|  |                                |       |
|--|--------------------------------|-------|
| <b>Address</b>                           | 00102                          | 00103 |
| <b>Value</b>                             | 0019H                          | 4000H |
| <b>4-byte unsigned integer (Hex)</b>     | 00194000H                      |       |
| <b>4-byte unsigned integer (Decimal)</b> | 1654784                        |       |
| <b>I<sup>2</sup> secondary</b>           | 25.25 A <sup>2</sup> secondary |       |
| <b>I secondary</b>                       | 5.5 A secondary                |       |



### 3.6: Type F6 High Speed Input Delta and Current State

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in each byte are associated with the 8 High Speed Inputs, the least significant bit with Input 1, through to the most significant bit with Input 8.
- The most significant byte contains Delta information about High Speed Inputs, the least significant byte contains the Current State of the High Speed Inputs. For Delta bits, a bit value of 1 means one or more were noticed on this input during the last cycle, a bit value of 0 means no changes were noticed on this input during the last cycle. For Current State bits, a bit value of 1 means the input is open, a bit value of 0 means the input is closed.

Example:

Register 00118, 1 cycle High Speed Input Delta and Current State, might contain the following data.

|                       |   |   |   |   |   |        |   |   |                                |     |     |      |      |      |      |     |
|-----------------------|---|---|---|---|---|--------|---|---|--------------------------------|-----|-----|------|------|------|------|-----|
| <b>Address</b>        | 00118   |   |   |   |   |        |   |   |                                |     |     |      |      |      |      |     |
| <b>Value</b>          | 0461H   |   |   |   |   |        |   |   |                                |     |     |      |      |      |      |     |
| <b>Bytes</b>          | 04H   |   |   |   |   |        |   |   | 61H                            |     |     |      |      |      |      |     |
|                       | 0   | 0 | 0 | 0 | 0 | 1      | 0 | 0 | 0                              | 1   | 1   | 0    | 0    | 0    | 0    | 1   |
|                       | High Speed Input Delta  |   |   |   |   |        |   |   | High Speed Input Current State |     |     |      |      |      |      |     |
|                       | 8   | 7 | 6 | 5 | 4 | 3      | 2 | 1 | 8                              | 7   | 6   | 5    | 4    | 3    | 2    | 1   |
| <b>Meaning</b>        | –   | – | – | – | – | Change | – | – | Clsd                           | Opn | Opn | Clsd | Clsd | Clsd | Clsd | Opn |
| <b>Interpretation</b> | Inputs 7, 6 and 1 are now open and Input 3 changed state at least once during the last cycle. |   |   |   |   |        |   |   |                                |     |     |      |      |      |      |     |

### 3.7: Type F7 Secondary Voltage, Current, VA, VAR, Watts, Hz or Flicker

- Length: 2 Registers (4 bytes)
- Range: +32767 / -32768
- Unit: 1/65536 V, A, VA, VAR, W or Hz
- The registers together contain a four-byte signed (2's compliment) integer. Positive values have the most significant bit clear, and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complimenting (inverting) all of the bits and adding 1.

Example:

Registers 00153 – 00154, Tenth second Phase A VAR might contain the following data:

|                                    |                     |       |
|------------------------------------|---------------------|-------|
| <b>Address</b>                     | 00153               | 00154 |
| <b>Value</b>                       | 0001H               | 4000H |
| <b>4-byte signed integer (Hex)</b> | 00014000H           |       |
| <b>Most significant bit</b>        | 0                   |       |
| <b>4-byte integer (Decimal)</b>    | +81920              |       |
| <b>1/65536 VAR secondary</b>       | +1.25 VAR secondary |       |

Register 00153 – 00154, Tenth second Phase A VAR, might contain the following data:

|  |                     |       |
|--|---------------------|-------|
| <b>Address</b>                         | 00153               | 00154 |
| <b>Value</b>                           | FFFEH               | C000H |
| <b>4-byte signed integer (Hex)</b>     | FFFE C000H          |       |
| <b>Most significant bit</b>            | 1                   |       |
| <b>Compliment</b>                      | 00013FFFH           |       |
| <b>Increment</b>                       | 00014000H           |       |
| <b>4-byte signed integer (Decimal)</b> | -81920              |       |
| <b>1/65536 VAR secondary</b>           | -1.25 VAR secondary |       |

### 3.8: Type F8 Power Factor

- Length: 1 Register (2 bytes)
- Range: 3.999 / 0.000
- Unit: 0.001 PF
- This register contains a 16 bit unsigned number. This number varies from 0000H – 0F9FH, or 0 to 3999 in decimal. This representation allows for expressing Power Factor from 0 to 1 in the four quadrants, as follows:

| Quadrant | Value |      | PF    | Value |      | PF    | Value |      | PF    |
|----------|-------|------|-------|-------|------|-------|-------|------|-------|
|          | Hex   | Dec  |       | Hex   | Dec  |       | Hex   | Dec  |       |
| 1        | 0000H | 0    | 0.000 | 01F4H | 500  | 0.500 | 03E7H | 999  | 0.999 |
| 4        | 03E8H | 1000 | 1.000 | 05DCH | 1500 | 0.500 | 07CFH | 1999 | 0.001 |
| 3        | 07D0H | 2000 | 0.000 | 09C4H | 2500 | 0.500 | 0BB7H | 2999 | 0.999 |
| 2        | 0BB8H | 3000 | 1.000 | 0DACH | 3500 | 0.500 | 0F9FH | 3999 | 0.001 |

- Application of sign and lead/lag labels (is 9CFH -0.500 Lead or +0.500 Lag) depends on the Programmable Setting called Power Factor Labeling, located in Register 46019, described in Section 7.19.

Example:

Register 00171, Tenth second Phase A Power Factor, might contain the following data:

|                |           |
|----------------|-----------|
| <b>Address</b> | 00171     |
| <b>Value</b>   | 0390H     |
| <b>Decimal</b> | 912       |
| <b>PF</b>      | Q1, 0.912 |

Example:

Register 00171, Tenth second Phase A Power Factor, might contain the following data:

|                |           |
|----------------|-----------|
| <b>Address</b> | 00171     |
| <b>Value</b>   | 0C10H     |
| <b>Decimal</b> | 3088      |
| <b>PF</b>      | Q2, 0.912 |

### 3.9: Type F9 Angle

- Length: 1 Register (2 byte)
- Range: +180 / -180
- Unit: 0.01 degree
- This register contains a 16-bit signed (2's compliment) number. Positive values have the most significant bit clear, and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complimenting (inverting) all of the bits and adding 1.

Example:

Register 00175, Tenth second Phase A-N Voltage to Auxiliary Voltage Phase Angle, might contain the following data:

|                             |                |
|-----------------------------|----------------|
| <b>Address</b>              | 00175          |
| <b>Value</b>                | 08BBH          |
| <b>Most significant bit</b> | 0              |
| <b>Decimal</b>              | +2235          |
| <b>Angle</b>                | +22.35 Degrees |

Example:

Register 00175, Tenth second Phase A-N Voltage to Auxiliary Voltage Phase Angle, might contain the following data.

|                             |                |
|-----------------------------|----------------|
| <b>Address</b>              | 00175          |
| <b>Value</b>                | F745H          |
| <b>Most significant bit</b> | 1              |
| <b>Compliment</b>           | 08BAH          |
| <b>Increment</b>            | 08BBH          |
| <b>Decimal</b>              | -2235          |
| <b>Angle</b>                | -22.35 Degrees |

### 3.10: Type F10 Percentage

- Length: 1 Register (2 bytes)
- Range: +327.67% / - 327.68%
- Unit: 0.01%
- This register contains a 16-bit signed (2's compliment) number. Positive values have the most significant bit clear, and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complimenting (inverting) all of the bits and adding 1.

Example:

Register 00234, One second Voltage Imbalance, might contain the following data:

|                             |         |
|-----------------------------|---------|
| <b>Address</b>              | 00234   |
| <b>Value</b>                | 08BBH   |
| <b>Most significant bit</b> | 0       |
| <b>Decimal</b>              | +2235   |
| <b>Percent</b>              | +22.35% |

Example:

Register 00234, One second Voltage Imbalance, might contain the following data:

|                             |         |
|-----------------------------|---------|
| <b>Address</b>              | 00234   |
| <b>Value</b>                | F745H   |
| <b>Most significant bit</b> | 1       |
| <b>Compliment</b>           | 08BAH   |
| <b>Increment</b>            | 08BBH   |
| <b>Decimal</b>              | -2235   |
| <b>Percent</b>              | -22.35% |

### 3.11: Type F11 Energy Counter (Packed BCD / Secondary)

- Length: 4 Registers (8 bytes)
- Range: 9,999,999,999,999,999 / 0 VAh, VARh or Wh secondary
- Unit: 1 VAh, VARh or Wh secondary
- These registers contain 8 bytes of Packed BCD. Each register contains 2 bytes. Each byte contains 2 nibbles. Each nibble represents a decimal digit from 0-9. All together, there are 16 nibbles, and therefore a 16-digit decimal number can be represented.

Example:

Registers 00982 – 00985, VAhour, might contain the following data:

|                |                           |    |     |    |       |    |     |    |       |    |     |    |       |    |     |    |       |  |  |  |
|----------------|---------------------------|----|-----|----|-------|----|-----|----|-------|----|-----|----|-------|----|-----|----|-------|--|--|--|
| <b>Address</b> | 00982                     |    |     |    | 00983 |    |     |    | 00984 |    |     |    | 00985 |    |     |    |       |  |  |  |
| <b>Value</b>   | 0000H                     |    |     |    |       |    |     |    | 0001H |    |     |    | 0534H |    |     |    | 1284H |  |  |  |
| <b>Bytes</b>   | 00H                       |    | 00H |    | 00H   |    | 01H |    | 05H   |    | 34H |    | 12H   |    | 84H |    |       |  |  |  |
| <b>Nibbles</b> | 0H                        | 0H | 0H  | 0H | 0H    | 0H | 0H  | 1H | 0H    | 5H | 3H  | 4H | 1H    | 2H | 8H  | 4H |       |  |  |  |
| <b>Digit</b>   | 0                         | 0  | 0   | 0  | 0     | 0  | 0   | 1  | 0     | 5  | 3   | 4  | 1     | 2  | 8   | 4  |       |  |  |  |
| <b>Unit</b>    | P                         | T  |     | G  |       | M  |     | k  |       |    |     |    |       |    |     |    |       |  |  |  |
| <b>VAh</b>     | 105,341,284 VAh secondary |    |     |    |       |    |     |    |       |    |     |    |       |    |     |    |       |  |  |  |

### 3.12: Type F12 Energy Counter (Binary / Secondary)

- Length: 4 Registers (8 bytes)
- Range: 9,999,999,999,999,999 / 0 VAh, VARh or Wh secondary
- Unit: 1 VAh, VARh or Wh secondary
- These registers contain an 8-byte unsigned integer.

Example:

Registers 01002-01005, VAhour, might contain the following data:

|                                |                           |       |       |       |
|--------------------------------|---------------------------|-------|-------|-------|
| <b>Address</b>                 | 01002                     | 01003 | 01004 | 01005 |
| <b>Value</b>                   | 0000H                     | 0000H | 0647H | 6164H |
| <b>8-byte unsigned integer</b> | 000000006476164H          |       |       |       |
| <b>Decimal</b>                 | 105341284                 |       |       |       |
| <b>VAh</b>                     | 105,341,284 VAh secondary |       |       |       |

### 3.13: Type F13 Phase Sequence

- Length: 1 Register (2 bytes)
- This register contains a 16-bit unsigned integer, associated with the Phase Sequence as follows:

| Value (Hex) | Phase Sequence |
|-------------|----------------|
| 0000H       | A-B-C          |
| 0001H       | C-B-A          |

### 3.14: Type F14 Average Status

- Length: 1 Register (2 bytes)
- This register contains a 16-bit unsigned integer, associated with the Average Status as follows:

| Value (Hex) | Average Status    |
|-------------|-------------------|
| 0000H       | Not yet available |
| 0001H       | Available         |

- This is the Status Register for **Block Window Average (02605-02683)** and **Rolling Window Average (02684-02768)**.

If a value is not yet computed by the Nexus® device, the Status value will be zero. When the value is zero, CommunicatorPQA™ software displays asterisks for values.

In Modbus, a value will be returned based on the type of reading.

Negative Maximums and Positive Minimums return: 7FFFFFFFH or 2,147,483,647.

Positive Maximums and Negative Minimums return: 80000000H or +/- 2,147,483,647.

No Timestamp will be assigned to the reading.

### 3.15: Type F15 Limit States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Limits, the most significant bit of the most significant byte with Limit 1 (or 17), through to the least significant bit of the least significant byte with Limit 16 (or 32).
- A bit value of 1 means that the particular limit has been passed, while a bit value of 0 means that the particular limit has not been passed.

Example:

Register 02769, Limit States, Value 1 Comparison, 1–16, might contain the following data:

|                       |  |    |    |    |    |     |    |    |     |     |     |    |    |    |    |     |
|-----------------------|--|----|----|----|----|-----|----|----|-----|-----|-----|----|----|----|----|-----|
| <b>Address</b>        | 02769  |    |    |    |    |     |    |    |     |     |     |    |    |    |    |     |
| <b>Value</b>          | 0461H  |    |    |    |    |     |    |    |     |     |     |    |    |    |    |     |
| <b>Bytes</b>          | 04H  |    |    |    |    |     |    |    | 61H |     |     |    |    |    |    |     |
| <b>Bits</b>           | 0  | 0  | 0  | 0  | 0  | 1   | 0  | 0  | 0   | 1   | 1   | 0  | 0  | 0  | 0  | 1   |
| <b>Points</b>         | 0  | 1  | 2  | 3  | 4  | 5   | 6  | 7  | 8   | 9   | 10  | 11 | 12 | 13 | 14 | 15  |
| <b>Limit</b>          | 1  | 2  | 3  | 4  | 5  | 6   | 7  | 8  | 9   | 10  | 11  | 12 | 13 | 14 | 15 | 16  |
| <b>Passed</b>         | No   | No | No | No | No | Yes | No | No | No  | Yes | Yes | No | No | No | No | Yes |
| <b>Interpretation</b> | Limits 6, 10, 11 and 16 are currently passed; all others are not passed. |    |    |    |    |     |    |    |     |     |     |    |    |    |    |     |



### 3.16: Type F16 Low Speed Input States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in the most significant byte are associated with the eight Status Inputs, the most significant bit with input 8, through to the least significant bit with Input 1. The least significant byte is undefined.
- A bit value of 1 means the input is open; a bit value of 0 means the input is closed.

Example:

Register 02773, Low Speed Input States, might contain the following data:

|                       |  |      |        |      |        |        |        |      |           |   |   |   |   |   |   |   |
|-----------------------|--|------|--------|------|--------|--------|--------|------|-----------|---|---|---|---|---|---|---|
| <b>Address</b>        | 02773  |      |        |      |        |        |        |      |           |   |   |   |   |   |   |   |
| <b>Value</b>          | 5100H  |      |        |      |        |        |        |      |           |   |   |   |   |   |   |   |
| <b>Byte</b>           | 51H  |      |        |      |        |        |        |      | 00H       |   |   |   |   |   |   |   |
| <b>Bits</b>           | 0  | 1    | 0      | 1    | 0      | 0      | 0      | 1    | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|                       |  |      |        |      |        |        |        |      | Undefined |   |   |   |   |   |   |   |
| <b>Input</b>          | 8  | 7    | 6      | 5    | 4      | 3      | 2      | 1    | 8         | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| <b>Meaning</b>        | Closed   | Open | Closed | Open | Closed | Closed | Closed | Open |           |   |   |   |   |   |   |   |
| <b>Interpretation</b> | Inputs 7, 5 and 1 are open; all other inputs are closed. |      |        |      |        |        |        |      |           |   |   |   |   |   |   |   |

### 3.17: Type F17 External Digital Input States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in the Least significant byte are associated with the eight External Digital Inputs in an External Digital Input Module, the most significant bit with input 8, through to the least significant bit with Input 1. The most significant byte is undefined.
- A bit value of 1 means the input is open; a bit value of 0 means the input is closed.

Example:  
 Register 02774, Digital Input States, Module 1, might contain the following data:

|                       |  |   |   |   |   |   |   |   |                               |      |        |      |        |        |        |      |
|-----------------------|--|---|---|---|---|---|---|---|-------------------------------|------|--------|------|--------|--------|--------|------|
| <b>Address</b>        | 02774  |   |   |   |   |   |   |   |                               |      |        |      |        |        |        |      |
| <b>Value</b>          | 0051H  |   |   |   |   |   |   |   |                               |      |        |      |        |        |        |      |
| <b>Bytes</b>          | 00H  |   |   |   |   |   |   |   | 51H                           |      |        |      |        |        |        |      |
| <b>Bits</b>           | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                             | 1    | 0      | 1    | 0      | 0      | 0      | 1    |
|                       | Undefined  |   |   |   |   |   |   |   | External Digital Input States |      |        |      |        |        |        |      |
| <b>Input</b>          | 8  | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 8                             | 7    | 6      | 5    | 4      | 3      | 2      | 1    |
| <b>Meaning</b>        |  |   |   |   |   |   |   |   | Closed                        | Open | Closed | Open | Closed | Closed | Closed | Open |
| <b>Interpretation</b> | Inputs 7, 5 and 1 are open; all other inputs are closed. |   |   |   |   |   |   |   |                               |      |        |      |        |        |        |      |

**3.18: Type F18 External Input Accumulations**

- Length: 2 Registers (4 bytes)
- Range: 4,294,967,295/0
- Unit: Accumulated Transitions
- These registers contain a 4-byte unsigned integer.

Example:  
 Register 02775-02776, Input Accumulations, Module 1, might contain the following data:

|                                |                                     |       |
|--------------------------------|-------------------------------------|-------|
| <b>Address</b>                 | 02775                               | 02776 |
| <b>Value</b>                   | 0647H                               | 6164H |
| <b>4-byte unsigned integer</b> | 06476164H                           |       |
| <b>Decimal</b>                 | 105341284                           |       |
| <b>Accumulated Transitions</b> | 105,341,284 Accumulated Transitions |       |

**3.19: Type F19 Energy Counter (Packed BCD / Primary)**

- Length: 4 Registers (8 bytes)
- Range: 9,999,999,999,999/0 VAh, VARh or Wh primary
- 1 VAh, VARh or Wh primary
- These registers contain 8 bytes of Packed BCD. Each register contains 2 bytes. Each byte contains 2 nibbles. Each nibble represents a decimal digit from 0-9. All together, there are 16 nibbles. Therefore, a 16-digit decimal number can be represented.

Example:  
 Register 02850-02853, VAhour, might contain the following data:

|                |                         |    |     |    |       |    |     |    |       |    |     |    |       |    |     |    |  |
|----------------|-------------------------|----|-----|----|-------|----|-----|----|-------|----|-----|----|-------|----|-----|----|--|
| <b>Address</b> | 02850                   |    |     |    | 02851 |    |     |    | 02852 |    |     |    | 02853 |    |     |    |  |
| <b>Value</b>   | 0000H                   |    |     |    | 0001H |    |     |    | 0534H |    |     |    | 1284H |    |     |    |  |
| <b>Bytes</b>   | 00H                     |    | 00H |    | 00H   |    | 01H |    | 05H   |    | 34H |    | 12H   |    | 84H |    |  |
| <b>Nibbles</b> | 0H                      | 0H | 0H  | 0H | 0H    | 0H | 0H  | 1H | 0H    | 5H | 3H  | 4H | 1H    | 2H | 8H  | 4H |  |
| <b>Digit</b>   | 0                       | 0  | 0   | 0  | 0     | 0  | 0   | 1  | 0     | 5  | 3   | 4  | 1     | 2  | 8   | 4  |  |
| <b>Unit</b>    | P                       | T  |     | G  |       | M  |     | k  |       |    |     |    |       |    |     |    |  |
| <b>VAh</b>     | 105,341,284 VAh primary |    |     |    |       |    |     |    |       |    |     |    |       |    |     |    |  |

### 3.20: Type F20 Energy Counter (Binary / Primary)

- Length: 4 Registers (8 bytes)
- Range: 9,999,999,999,999,999/0 VAh, VARh or Wh primary
- 1 VAh, VARh or Wh primary
- These registers contain an 8-byte unsigned integer.

Example:

Register 02898-02901, VAhour, might contain the following data:

|                                |                         |       |       |       |
|--------------------------------|-------------------------|-------|-------|-------|
| <b>Address</b>                 | 02898                   | 02899 | 02900 | 02901 |
| <b>Value</b>                   | 0000H                   | 0000H | 0647H | 6164H |
| <b>8 byte unsigned integer</b> | 000000006476164H        |       |       |       |
| <b>Decimal</b>                 | 105341284               |       |       |       |
| <b>VAh</b>                     | 105,341,284 VAh primary |       |       |       |

### 3.21: Type F21 Year

- Length: 1 Register (2 bytes)
- Each byte contains a binary number representing up to two digits in a part of a year. The units for each byte are century and year.

Example:  
 Register 34821, TOU Calendar Year 1 Calendar Year, might contain the following data:

|                |         |      |
|----------------|---------|------|
| <b>Address</b> | 34821   |      |
| <b>Value</b>   | 1363H   |      |
| <b>Bytes</b>   | 13H     | 63H  |
| <b>Decimal</b> | 19      | 99   |
| <b>Unit</b>    | Century | Year |
| <b>Date</b>    | 1999    |      |

### 3.22: Type F22 TOU Profile per Day

- Length: 1 Register (2 bytes)
- Each byte stands for a different day of the year. Days are listed in calendar order, including the allowance for a leap year. Each byte contains an enumeration indicating which TOU Profile to use for that day. The enumerations are as follows:

| Value (Hex) | Profile  |
|-------------|----------|
| 00H         | Profile1 |
| 01H         | Profile2 |
| 02H         | Profile3 |
| 03H         | Profile4 |
| 04H         | Profile5 |
| 05H         | Profile6 |
| 06H         | Profile7 |
| 07H         | Profile8 |

| Value (Hex) | Profile   |
|-------------|-----------|
| 08H         | Profile9  |
| 09H         | Profile10 |
| 0AH         | Profile11 |
| 0BH         | Profile12 |
| 0CH         | Profile13 |
| 0DH         | Profile14 |
| 0EH         | Profile15 |
| 0FH         | Profile16 |

Example:  
 Register 34954, TOU Calendar Year 1 Mar 2 (Mar1) / Mar 3 (Mar 2), might contain the following data:

|                            |                    |                    |
|----------------------------|--------------------|--------------------|
| <b>Address</b>             | 34954              |                    |
| <b>Value</b>               | 0305H              |                    |
| <b>Bytes</b>               | 03H                | 05H                |
| <b>Decimal</b>             | 3                  | 5                  |
| <b>Meaning</b>             | Profile 3          | Profile 5          |
| <b>Day</b>                 | Mar 2              | Mar 3              |
| <b>Day (Leap Year)</b>     | Mar 1              | Mar 2              |
| <b>Meaning</b>             | Profile 3 on Mar 2 | Profile 5 on Mar 3 |
| <b>Meaning (Leap Year)</b> | Profile 3 on Mar 1 | Profile 5 on Mar 2 |

### 3.23: Type F23 TOU Profile Status

- Length: 1 Register (2 bytes)
- This register contains an enumeration indicating the Status of the Profile. The enumeration is as follows:

| Value (Hex) | Status     |
|-------------|------------|
| 00H         | Not Used   |
| 01H         | Programmed |

Example:

Register 35107, TOU Calendar Year 1 Profile 1 Status, might contain the following data:

|                |                                    |
|----------------|------------------------------------|
| <b>Address</b> | 35107                              |
| <b>Value</b>   | 0001H                              |
| <b>Decimal</b> | 1                                  |
| <b>Meaning</b> | TOU Year 1 Profile 1 is programmed |

### 3.24: Type F24 TOU Daily Profile Register Assignment

- Length: 1 Register (2 bytes)
- Each register contains 2 bytes. Each byte contains 2 nibbles. Each nibble contains an enumeration indicating which TOU Register is to be used during the indicated 15-minute period. The enumerations are as follows:

| Value (Hex) | Register  |
|-------------|-----------|
| 0H          | Register1 |
| 1H          | Register2 |
| 2H          | Register3 |
| 3H          | Register4 |
| 4H          | Register5 |
| 5H          | Register6 |
| 6H          | Register7 |
| 7H          | Register8 |

Example:

Register 35108, TOU Calendar Year 1 Profile 1 for 00:00, 00:15, 00:30 & 00:45, might contain the following data:

|                |                            |             |             |             |
|----------------|----------------------------|-------------|-------------|-------------|
| <b>Address</b> | 35108                      |             |             |             |
| <b>Value</b>   | 1234H                      |             |             |             |
| <b>Bytes</b>   | 12H                        |             | 34H         |             |
| <b>Nibbles</b> | 1H                         | 2H          | 3H          | 4H          |
| <b>Decimal</b> | 1                          | 2           | 3           | 4           |
| <b>Period</b>  | 00:00-00:14                | 00:15-00:29 | 00:30-00:44 | 00:45-00:59 |
| <b>Meaning</b> | Profile 1 from 00:00-00:14 |             |             |             |
|                | Profile 2 from 00:15-00:29 |             |             |             |
|                | Profile 3 from 00:30-00:44 |             |             |             |
|                | Profile 4 from 00:45-00:59 |             |             |             |

**3.25: Type F25 TOU Profile Monthly End Day**

- Length: 1 Register (2 bytes)
- Each byte stands for a different month of the year. Each byte contains a binary number indicating what the last day of the monthly billing cycle should be for that month. Billing periods are up to and including the end day.

Example:  
 Register 35507, TOU Calendar Year 1 Monthly End Day Jan & Feb, might contain the following data:

|                |   |        |
|----------------|---|--------|
| <b>Address</b> | 35507   |        |
| <b>Value</b>   | 0E0FH   |        |
| <b>Bytes</b>   | 0EH   | 0FH    |
| <b>Decimal</b> | 14  | 15     |
| <b>Month</b>   | Jan   | Feb    |
| <b>Day</b>     | Jan 14  | Feb 15 |
| <b>Meaning</b> | Billing Months run through Jan 14, from Jan 15 through Feb 15 and start on Feb 16 |        |

**3.26: Type F26 TOU Calendar DST Enable / Average Selection**

- Length: 1 Register (2 bytes)
- The first byte contains an enumeration indicating whether Daylight Savings Time is enabled for TOU computations. The enumeration is as follows:

| <b>Value (Hex)</b> | <b>Selection</b>  |
|--------------------|---|
| 00H                | Daylight Savings Time is disabled.                        |
| 01H                | Daylight Savings Time is enabled with default parameters. |
| 02H                | Daylight Savings Time is enabled with custom parameters.  |

- The default parameters are to start on the first Sunday in April at 01:59:59.999 and to end on the last Sunday in October at 01:59:59.999. Custom parameters means to use of the dates programmed in the Start and End Date Daylight Savings Time registers from the appropriate TOU Calendar Year.



- The second byte contains an enumeration indicating which form of average is to be used for Peak and Coincident Demand functions. The enumeration is as follows:

| Value (Hex) | Average                |
|-------------|------------------------|
| 00H         | Block Window Average   |
| 01H         | Rolling Window Average |
| 02H         | Cumulative Demand      |

Example:

Register 35729, TOU Calendar Year0 DST Enable / Average Selection, might contain the following data:

|                |                      |  |
|----------------|----------------------|--|
| <b>Address</b> | 35729                |  |
| <b>Value</b>   | 0001H                |  |
| <b>Bytes</b>   | 00H                  | 01H  |
| <b>Decimal</b> | 0                    | 1  |
| <b>Purpose</b> | DST Enabled          | Average Selection  |
| <b>Meaning</b> | DST Disabled for TOU | Rolling Window Averages for TOU Peak & Coincident Demand |

### 3.27: Type F27 TOU Upload Calendar Window Sequence / Status

- Length: 1 Register (2 bytes)
- The first byte contains an unsigned integer acting as a sequence number for actions involving the Time of Use Upload Calendar Block. The sequence number increments with action performed.
- The second byte contains an enumeration indicating the status of the last action involving the Time of Use Upload Calendar Block. The enumeration is as follows:

| Value (Hex) | Status                      |
|-------------|-----------------------------|
| 00H         | Action Failed.              |
| 01H         | Action Passed.              |
| 02H         | Action is not yet Finished. |

Example:

Register 36608, TOU Upload Calendar Window Sequence / Status, might contain the following data:

|                |                            |            |
|----------------|----------------------------|------------|
| <b>Address</b> | 36608                      |            |
| <b>Value</b>   | 4202H                      |            |
| <b>Bytes</b>   | 42H                        | 02H        |
| <b>Decimal</b> | 66                         | 2          |
| <b>Purpose</b> | Sequence                   | Status     |
| <b>Meaning</b> | Sequence #66               | Unfinished |
| <b>Meaning</b> | Sequence #66 is Unfinished |            |

### 3.28: Type F28 TOU Upload Calendar Window ID

- Length: 1 Register (2 bytes)
- Range: 1 - 14
- This register contains an enumeration indicating which TOU Calendar Window is being uploaded through the Upload Window. The values 1 - 14 indicate Windows 1 - 14.

Example:

Register 36609, TOU Upload Calendar Window ID, might contain the following data:

|                |           |
|----------------|-----------|
| <b>Address</b> | 36609     |
| <b>Value</b>   | 0DH       |
| <b>Decimal</b> | 13        |
| <b>Meaning</b> | Window 13 |

### 3.29: Type F29 TOU Upload Calendar Window Data

- Length: 1 Register (2 bytes)
- This register contains data intended to update a portion of the TOU Calendar.

### 3.30: Type F30 TOU Upload Calendar Window Checksum

- Length: 1 Register (2 bytes)
- This register contains an unsigned integer which is the checksum for the rest of the TOU Upload Calendar Window.

Example:

Register 36736, TOU Upload Calendar Window Checksum, might contain the following data:

|                |                   |
|----------------|-------------------|
| <b>Address</b> | 36736             |
| <b>Value</b>   | 3245H             |
| <b>Decimal</b> | 12869             |
| <b>Meaning</b> | Checksum is 12869 |

### 3.31: Type F31 TOU Calendar Selection

- Length: 1 Register (2 bytes)
- This register is used to indicate the TOU Calendar Year desired to be loaded into the TOU Calendar Window. The enumeration is as follows:

| <b>Value (Hex)</b> | <b>Year</b>      |
|--------------------|------------------|
| 0000H              | Year 1           |
| 0001H              | Year 2           |
| 0002H - 0013H      | Year 3 - Year 20 |
| 0014H - FFFFH      | Undefined        |

### 3.32: Type F32 TOU Calendar Header Status / Year Status

- Length: 1 Register (2 bytes)
- The first byte indicates the status of the TOU Calendar Header Block. The second byte indicates the status of the requested TOU Calendar Year. The enumeration for each byte is as follows:

| <b>Value (Hex)</b> | <b>Status</b>               |
|--------------------|-----------------------------|
| 00H                | Action Failed.              |
| 01H                | Action Passed.              |
| 02H                | Action is not yet Finished. |

### 3.33: Type F33 Temperature

- Length: 1 Register (2 bytes)
- Range: +3276.7 C / - 3276.8 C
- Unit: 0.1 degree C
- This register contains a 16-bit signed (2's compliment) number. Positive values have the most significant bit clear and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complimenting (inverting) all of the bits and adding 1.

Example:  
 Register 05946, Nexus® meter's Internal Temperature, might contain the following data:

|                             |                |
|-----------------------------|----------------|
| <b>Address</b>              | 05946          |
| <b>Value</b>                | 08BBH          |
| <b>Most significant bit</b> | 0              |
| <b>Decimal</b>              | +223           |
| <b>Celsius</b>              | +22.3 degree C |

Register 05946, Nexus® meter's Internal Temperature, might contain the following data:

|                             |                |
|-----------------------------|----------------|
| <b>Address</b>              | 05946          |
| <b>Value</b>                | F745H          |
| <b>Most significant bit</b> | 1              |
| <b>Compliment</b>           | 08BAH          |
| <b>Increment</b>            | 08BBH          |
| <b>Decimal</b>              | -223           |
| <b>Celsius</b>              | -22.3 degree C |

### 3.34: Type F34 Limit and Relay Logic States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Limits or Relays, the most significant bit of the most significant byte with Limit 1 (or 17, or Relay 1), through to the least significant bit of the least significant byte with Limit 16 (or 32, or Relay 16).
- A bit value of 1 means TRUE, while a bit value of 0 means FALSE. TRUE and FALSE result from the AND, OR, XOR, Hysteresis and NOT of two input values of 1 or 0.

Example:

Register 05979, Limit States, Combinations, 1 - 16, might contain the following data:

|                       |  |   |   |   |   |   |   |   |     |    |    |    |    |    |    |    |
|-----------------------|--|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|----|
| <b>Address</b>        | 05979  |   |   |   |   |   |   |   |     |    |    |    |    |    |    |    |
| <b>Value</b>          | 0461H  |   |   |   |   |   |   |   |     |    |    |    |    |    |    |    |
| <b>Bytes</b>          | 04H  |   |   |   |   |   |   |   | 61H |    |    |    |    |    |    |    |
| <b>Bits</b>           | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0   | 1  | 1  | 0  | 0  | 0  | 0  | 1  |
| <b>Limit</b>          | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9   | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>Logic (T/F)</b>    | F  | F | F | F | F | T | F | F | F   | T  | T  | F  | F  | F  | F  | T  |
| <b>Interpretation</b> | Limit Combinations, 6, 10, 11 and 16 are currently TRUE; all others are FALSE. |   |   |   |   |   |   |   |     |    |    |    |    |    |    |    |

### 3.35: Type F35 Relay Delays

- Length: 1/2 Register (1 byte) (2 per Register)
- This register has two bytes. Each byte contains an unsigned integer which is a count-down delay. A relay logic tree must be stable for the duration of the delay before triggering a relay. Delays are preloaded when the Gate G value changes. They are decremented every pass thereafter, until they reach zero.

Example:

Register 06000, Delay Timer, Relay 1 / Relay 2, might contain the following data:

|                       |   |     |
|-----------------------|---|-----|
| <b>Address</b>        | 06000   |     |
| <b>Value</b>          | 0400H   |     |
| <b>Bytes</b>          | 04H   | 00H |
| <b>Interpretation</b> | Relay 1 has 4 seconds of delay remaining, Relay 2 has no delay remaining. |     |

### 3.36: Type F36 Desired Relay States

- Length: 1 Register (1 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant bit of the most significant byte with Relay 1, through the least significant bit of the least significant byte with Relay 16.
- A bit value of 1 means the relay should be energized (connected to Normal Open); a bit value of 0 means the relay should be de-energized (connected to Normal Close). These are states pending transmission to the relays.

Example:

Register 06008, Desired Relay States, Relays 1-16, might contain the following data:

|                       |   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
|-----------------------|---|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|
| <b>Address</b>        | 06008   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Value</b>          | 0461H   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Bytes</b>          | 04H   |    |    |    |    |    |    |    | 61H |    |    |    |    |    |    |    |
| <b>Bits</b>           | 0   | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 1  | 1  | 0  | 0  | 0  | 0  | 1  |
| <b>Limit</b>          | 1   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>State (NO/NC)</b>  | NC  | NC | NC | NC | NC | NO | NC | NC | NC  | NO | NO | NC | NC | NC | NC | NO |
| <b>Interpretation</b> | Relays 6, 10, 11 and 16 should be energized; all others de-energized. |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |

### 3.37: Type F37 Relays Pending Update

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

A bit value of 1 means the physical relay needs to be updated, a bit value of 0 means the physical relay does not need to be updated.

Example:

Register 06009, Relays Pending Updates 1-16, might contain the following data:

|                       |   |   |   |   |   |     |   |   |     |     |     |    |    |    |    |     |
|-----------------------|---|---|---|---|---|-----|---|---|-----|-----|-----|----|----|----|----|-----|
| <b>Address</b>        | 06009   |   |   |   |   |     |   |   |     |     |     |    |    |    |    |     |
| <b>Value</b>          | 0461H   |   |   |   |   |     |   |   |     |     |     |    |    |    |    |     |
| <b>Bytes</b>          | 04H   |   |   |   |   |     |   |   | 61H |     |     |    |    |    |    |     |
| <b>Bits</b>           | 0   | 0 | 0 | 0 | 0 | 1   | 0 | 0 | 0   | 1   | 1   | 0  | 0  | 0  | 0  | 1   |
| <b>Point</b>          | 0   | 1 | 2 | 3 | 4 | 5   | 6 | 7 | 8   | 9   | 10  | 11 | 12 | 13 | 14 | 15  |
| <b>Relay</b>          | 1   | 2 | 3 | 4 | 5 | 6   | 7 | 8 | 9   | 10  | 11  | 12 | 13 | 14 | 15 | 16  |
| <b>Update?</b>        |   |   |   |   |   | Yes |   |   |     | Yes | Yes |    |    |    |    | Yes |
| <b>Interpretation</b> | Relays 6, 10, 11 and 16 need to be updated, all others are in their correct states. |   |   |   |   |     |   |   |     |     |     |    |    |    |    |     |

### 3.38: Type F38 Shadowed Relay States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

A bit value of 1 means the relay is supposed to be energized (connected to Normal Open), a bit value of 0 means the relay is supposed to be de-energized (connected to Normal Close). These states have not necessarily been confirmed by polling the relay device.

Example:

Register 06010, Shadowed Relay States 1-16, might contain the following data:

|                       |  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
|-----------------------|--|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|
| <b>Address</b>        | 06010  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Value</b>          | 0440H  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Bytes</b>          | 04H  |    |    |    |    |    |    |    | 40H |    |    |    |    |    |    |    |
| <b>Bits</b>           | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 1  | 0  | 0  | 0  | 0  | 0  | 0  |
| <b>Point</b>          | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Relay</b>          | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>State (NO/NC)</b>  | NC   | NC | NC | NC | NC | NO | NC | NC | NC  | NO | NC | NC | NC | NC | NC | NC |
| <b>Interpretation</b> | Relays 6 and 10 are supposed to be energized, all other de-energized, not necessarily confirmed. |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |

### 3.39: Type F39 Confirmed Polled Relay States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

A bit value of 1 means the relay was energized (connected to Normal Open) when last polled, a bit value of 0 means the relay was de-energized (connected to Normal Close) when last polled. These states may not be current on the relays, since operations may have occurred since the last poll.

Example:

Register 06011, Confirmed Polled Relay States 1-16, might contain the following data:

|                       |  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
|-----------------------|--|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|
| <b>Address</b>        | 06011  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Value</b>          | 0461H  |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Bytes</b>          | 04H  |    |    |    |    |    |    |    | 61H |    |    |    |    |    |    |    |
| <b>Bits</b>           | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 1  | 1  | 0  | 0  | 0  | 0  | 1  |
| <b>Point</b>          | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Relay</b>          | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>State (NO/NC)</b>  | NC   | NC | NC | NC | NC | NO | NC | NC | NC  | NO | NO | NC | NC | NC | NC | NO |
| <b>Interpretation</b> | Relays 6, 10, 11 and 16 were energized when last polled; all others were de-energized. |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |

### 3.40: Type F40 Valid Flags for Confirmed Relay States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

A bit value of 1 means the confirmed states in Confirmed Polled Relay States register (06011) are valid, a bit value of 0 means the confirmed states have not yet been polled.

Example:

Register 06012, Valid Flags for Confirmed Relay States, might contain the following data:



|                       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Address</b>        | 06012   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Value</b>          | FFFOH   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Bytes</b>          | FFH   |     |     |     |     |     |     |     | FOH |     |     |     |     |     |     |     |
| <b>Bits</b>           | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   |
| <b>Point</b>          | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
| <b>Relay</b>          | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| <b>Valid?</b>         | Yes   | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| <b>Interpretation</b> | Confirmed states for Relays 13-16 have not yet been polled and are not yet valid. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

### 3.41: Type F41 Locked Relays, Relays 1-16

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

A bit value of 1 means the relay has been locked, overriding the Relay Logic Tree for this relay. A bit value of 0 means the relay is operating normally according to the Relay Logic Tree.

Example:

Register 06013, Locked Relays, Relays 1-16, might contain the following data:

|                       |   |   |   |   |   |      |   |   |     |      |      |    |    |    |    |      |
|-----------------------|---|---|---|---|---|------|---|---|-----|------|------|----|----|----|----|------|
| <b>Address</b>        | 06013   |   |   |   |   |      |   |   |     |      |      |    |    |    |    |      |
| <b>Value</b>          | 0461H   |   |   |   |   |      |   |   |     |      |      |    |    |    |    |      |
| <b>Bytes</b>          | 04H   |   |   |   |   |      |   |   | 61H |      |      |    |    |    |    |      |
| <b>Bits</b>           | 0   | 0 | 0 | 0 | 0 | 1    | 0 | 0 | 0   | 1    | 1    | 0  | 0  | 0  | 0  | 1    |
| <b>Point</b>          | 0   | 1 | 2 | 3 | 4 | 5    | 6 | 7 | 8   | 9    | 10   | 11 | 12 | 13 | 14 | 15   |
| <b>Relay</b>          | 1   | 2 | 3 | 4 | 5 | 6    | 7 | 8 | 9   | 10   | 11   | 12 | 13 | 14 | 15 | 16   |
| <b>Locked?</b>        |   |   |   |   |   | Lock |   |   |     | Lock | Lock |    |    |    |    | Lock |
| <b>Interpretation</b> | Relays 6, 10, 11 and 16 are locked; all other relays are under control of the Relay Logic Tree. |   |   |   |   |      |   |   |     |      |      |    |    |    |    |      |

### 3.42: Type F42 Locked Relay States

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the 16 Relays, the most significant byte with Relay 1 through to the least significant bit of the least significant byte with Relay 16.

These bits are valid only if the relays have been selected for locking, as reported in the Locked Relays register, 06013.

A bit value of 1 means the relay is locked energized (connected to Normal Open). A bit value of 0 means the relay is locked de-energized (connected to Normal Close).

Example:  
Register 06014, Locked Relay States, Relays 1-16, might contain the following data:

|                       |   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
|-----------------------|---|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|
| <b>Address</b>        | 06014   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Value</b>          | 0461H   |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |
| <b>Bytes</b>          | 04H   |    |    |    |    |    |    |    | 61H |    |    |    |    |    |    |    |
| <b>Bits</b>           | 0   | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 1  | 1  | 0  | 0  | 0  | 0  | 1  |
| <b>Point</b>          | 0   | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Relay</b>          | 1   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>NO/NC</b>          | NC  | NC | NC | NC | NC | NO | NC | NC | NC  | NO | NO | NC | NC | NC | NC | NO |
| <b>Interpretation</b> | Relays 6, 10, 11 and 16 are energized; all others are de-energized, if they are locked. |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |

### 3.43: Type F43 Miscellaneous Flags

- Length: 1 Register (2 bytes)
- This register has 2 bytes. Each byte has eight bits. The bits in these bytes are associated with various miscellaneous functions as follows:

| Bit      | Point | Meaning              |
|----------|-------|----------------------|
| 15 (MSB) | 0     | NVRAM Battery Status |
| 14-1     | 1-14  | Undefined            |
| 0 (LSB)  | 15    | Undefined            |

- NVRAM Battery Status:

For a Nexus® 1262/1272 meter using Mark II hardware and firmware and with the optional memory installed, this bit reports the status of the battery.

For a Nexus® 1252 meter, this bit is undefined.

A value of “0” indicates the battery is OK.

A value of “1” indicates that the battery is not OK.

Battery status is reevaluated on power-up and approximately every 24 hours thereafter.

Example:

Register 06039, Miscellaneous Flags, might contain the following data:

|                       |                       |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
|-----------------------|-----------------------|---|---|---|---|---|---|---|-----|---|----|----|----|----|----|----|
| <b>Addr</b>           | 06039                 |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Value</b>          | 8000H                 |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Bytes</b>          | 80H                   |   |   |   |   |   |   |   | 00H |   |    |    |    |    |    |    |
| <b>Bits</b>           | 1                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0   | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| <b>Point</b>          | 0                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8   | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Interpretation</b> | NVRAM Battery is Low. |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |

### 3.44: Type F44 Digital Input Module Data Status

- Length: 1 Register (2 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the status of the data received from the Digital Input Modules as follows:

| Bit        | Point | Meaning  |
|------------|-------|--|
| 15 (MSB)   | 0     | Status of Data from Digital Input Module 1 (Modbus Register 0AD5H) |
| 14         | 1     | Status of Data from Digital Input Module 2 (Modbus Register 0AE6H) |
| 13         | 2     | Status of Data from Digital Input Module 3 (Modbus Register 0AF7H) |
| 12         | 3     | Status of Data from Digital Input Module 4 (Modbus Register 0B08H) |
| 11-0 (LSB) |       | Undefined  |

Digital Input Module Data Status:

A bit value of 0 means that the data from this Digital Input Module is not yet valid. Either the module is not present or has not yet been polled.

A bit value of 1 means that the data from this Digital Input Module has been polled at least once and is valid.

Example:

Register 06111, Digital Input Module Data Status, might contain the following data:

|                             |  |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |
|-----------------------------|--|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|
| <b>Addr</b>                 | 06111  |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |
| <b>Value</b>                | 8000H  |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |
| <b>Bytes</b>                | 80H  |   |   |   |   |   |   |   | 00H |   |   |   |   |   |   |   |
| <b>Bits</b>                 | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <b>Point</b>                |  | 1 | 2 | 3 |   |   |   |   |     |   |   |   |   |   |   |   |
| <b>Digital Input Module</b> | 1  | 2 | 3 | 4 |   |   |   |   |     |   |   |   |   |   |   |   |
| <b>Status</b>               | OK   | - | - | - |   |   |   |   |     |   |   |   |   |   |   |   |
| <b>Interpretation</b>       | Data from Digital Input Module 1 (Register 0AD5H) is valid, data from Digital Input Modules 2-4 are not valid. |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |

### 3.45: Type F45 Analog Input Modules Data Status

- Length: 2 Registers (4 bytes)
- This register has two bytes. Each byte has eight bits. The bits in these bytes are associated with the status of the data received from the Analog Input Modules as follows:

| Reg | Bit      | Point | Meaning  |
|-----|----------|-------|--|
| 0   | 15 (MSB) | 0     | Status of Analog Input 1, Module 1 (Modbus Register 173AH)         |
| 0   | 14-8     | 1-7   | Status of Analog Input 2-8, Module 1 (Modbus Register 173BH-174IH) |
| 0   | 7-0      | 8-15  | Status of Analog Input 1-8, Module 2 (Modbus Register 1742H-1749H) |
| 1   | 15-8     | 16-23 | Status of Analog Input 1-8, Module 3 (Modbus Register 174AH-175IH) |
| 1   | 7-0      | 24-31 | Status of Analog Input 1-8, Module 4 (Modbus Register 1752H-1759H) |

- Analog Input Module Data Status:

A bit value of 0 means that the data from this Analog Input Module is not yet valid. Either the module is not present or has not yet been polled.

A bit value of 1 means that the data from this Analog Input Module has been polled at least once and is valid.

Example:

Register 06112, Analog Input Modules Data Status, might contain the following data:

|                            |  |    |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
|----------------------------|--|----|---|---|---|---|---|---|-----|---|----|----|----|----|----|----|
| <b>Addr</b>                | 06112  |    |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Value</b>               | 8000H  |    |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Bytes</b>               | 80H  |    |   |   |   |   |   |   | 00H |   |    |    |    |    |    |    |
| <b>Bits</b>                | 1  | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0   | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| <b>Point</b>               | 0  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8   | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Analog Input Module</b> | 1  | 1  | 1 | 1 | 1 | 1 | 1 | 1 | 2   | 2 | 2  | 2  | 2  | 2  | 2  | 2  |
| <b>Input</b>               | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 1   | 2 | 3  | 4  | 5  | 6  | 7  | 8  |
| <b>Status</b>              | OK   | OK | - | - | - | - | - | - | -   | - | -  | -  | -  | -  | -  | -  |
| <b>Interpretation</b>      | Inputs 1-2 of Analog Input Module 1 are valid (Registers 173AH-173BH),<br>Inputs 3-8 of Analog Input Module 1 are not valid,<br>Inputs 1-8 of Analog Input Module 2-4 are not valid. |    |   |   |   |   |   |   |     |   |    |    |    |    |    |    |

### **3.46: Type F46 High Byte of Modbus Register (Signed)**

- Length: 1 byte
- High Byte of Modbus Register, Signed
- Range: +127 / -128
- Unit: 1

### **3.47: Type F47 High Byte of Modbus Register (Unsigned)**

- Length: 1 byte
- High Byte of Modbus Register, Unsigned
- Range: 255 / 0
- Unit: 1

### **3.48: Type F4 Low Byte of Modbus Register (Signed)**

- Length: 1 byte
- Low Byte of Modbus Register, Signed
- Range: +127 / -128
- Unit: 1

### **3.49: Type F49 Low Byte of Modbus Register (Unsigned)**

- Length: 1 byte
- Low Byte of Modbus Register, Unsigned
- Range: 255 / 0
- Unit: 1

### **3.50: Type F50 Two-Byte (Signed)**

- Length: 2 bytes
- Two-Byte, Signed
- Range: +32,767 / -32,768
- Unit: 1

### **3.51: Type F51 Two-Byte (Unsigned)**

- Length: 2 bytes
- Two-Byte, Unsigned
- Range: 65,535 / 0
- Unit: 1

### **3.52: Type F52 Four-Byte (Signed)**

- Length: 4 bytes
- Four-Byte, Signed
- Range: +2,147,483,647 / -2,147,483,648
- Unit: 1

### **3.53: Type F53 Four-Byte (Unsigned)**

- Length: 4 bytes
- Four-Byte, Unsigned
- Range: 4,294,967,295 / 0
- Unit: 1

### **3.54: Type F54 Eight-Byte (Signed)**

- Length: 8 bytes
- Eight-Byte, Signed
- Range: +9,223,372,036,854,775,807 / -9,223,372,036,854,775,808
- Unit: 1

### **3.55: Type F55 Eight-Byte (Unsigned)**

- Length: 8 bytes
- Eight-Byte, Unsigned
- Range: 18,446,744,073,709,551,615 / 0
- Unit: 1



### 3.56: Type F56 Flicker Countdowns

- Length: 1 Register (2 bytes)
- Range: 65,535 / 0 seconds
- Unit: 1 second
- This register contains an unsigned integer which is count-down in seconds until the end of a Flicker interval, Short Term or Long Term.

Example:

Register 06489, Short Term Flicker Countdown, might contain the following data:

|                       |  |
|-----------------------|--|
| <b>Addr</b>           | 06489  |
| <b>Value</b>          | 0400H  |
| <b>Decimal</b>        | 1024   |
| <b>Interpretation</b> | 1024 seconds remain until the next Short Term Flicker is computed. |

### 3.57: Type F57 Accumulation in the Interval

- Length: 1 Register (2 bytes)
- Range: 465,535 / 0
- Unit: VAh, VARh, Wh secondary or pulses
- These registers contain a 2-byte unsigned integer.

Example:

Register 06397, Total VA hour (Quadrants 1+2+3+4) in the Interval, Secondary, might contain the following data:

|                      |                    |
|----------------------|--------------------|
| <b>Addr</b>          | 06397              |
| <b>Value</b>         | 0647H              |
| <b>Decimal</b>       | 1607               |
| <b>VAh Secondary</b> | 1607 VAh Secondary |

### 3.58: Type F58 12-bit RTU Sanity Register

- Length: 1 Register
- This register indicates the status of the meter. A normally functioning meter reports a value of 0x0000 or 0. Any non-zero value indicates that the unit is operating improperly.

### 3.59: Type F59 12-bit RTU Current, Voltage, W, VAR

- Length: 1 Register (2 bytes)
- Range: +5A / 0 A, + 150V / 0 V, +1500 W, VAR / -1500 W, VAR
- Unit: 5 / 2048 A, 150 / 2048 V, 1500 / 2048 W, VAR
- Each register contains a 16-bit integer. The integer is a 12-bit unsigned representation of an offset-encoded signed value. The 12-bit value, with an unsigned range of 0 to +4095, is actually a signed number that has been offset by 2048, with a range of -2048 to +2047.

#### Example:

Register D001H, Phase A Current, might contain the following data:

|                                   |             |
|-----------------------------------|-------------|
| Addr (Hex)                        | D001H       |
| Value                             | 0C00H       |
| 12-bit unsigned integer (Hex)     | C00H        |
| 12-bit unsigned integer (Decimal) | 3072        |
| Offset                            | 2048        |
| 12-bit signed integer (Decimal)   | +1024       |
| 5 / 2048 A sec                    | 2.500 A sec |

Register D007H, Total Watt, might contain the following data:

|                                   |            |
|-----------------------------------|------------|
| Addr (Hex)                        | D007H      |
| Value                             | 0400H      |
| 12-bit unsigned integer (Hex)     | 400H       |
| 12-bit unsigned integer (Decimal) | 1024       |
| Offset                            | 2048       |
| 12-bit signed integer (Decimal)   | -1024      |
| 1500 / 2048 W sec                 | -750 W sec |

### 3.60: Type F60 Energy Counter

- Length: 2 Registers (4 bytes)
- Range: +99,999,999 / 0 or 0 / -99,999,999 kWh, kVARh
- Unit: 1 kWh, kVARh
- Each pair of registers represents an Energy Counter in primary. Each register contains a value from 0 to 9,999 (0x00000 - 0x0270F), representing 4 digits of an Energy Counter. The first register is in units of 10's of MegaWatt-hour or Mega VAR-hour. The second register is in units of kilo Watt-hour or kilo VAR-hour. Combined, the pair of registers report up to 100 GWh primary of energy.

Example:

Registers 53267-53268, Positive Watt-hour, might contain the following data:

|                        |                        |   |   |   |       |   |   |   |
|------------------------|------------------------|---|---|---|-------|---|---|---|
| <b>Addr</b>            | 53267                  |   |   |   | 53268 |   |   |   |
| <b>Value (Hex)</b>     | 04D2H                  |   |   |   | 162EH |   |   |   |
| <b>Value (Decimal)</b> | 1234                   |   |   |   | 5678  |   |   |   |
| <b>Digit</b>           | 1                      | 2 | 3 | 4 | 5     | 6 | 7 | 8 |
| <b>Unit</b>            | G                      |   | M |   |       | k |   |   |
| <b>kWh primary</b>     | 12,345,678 kWh primary |   |   |   |       |   |   |   |

### 3.61: Type F61 12-bit RTU Frequency

- Length: 1 Register (2 bytes)
- Range: 75 Hz / 45 Hz
- Unit: 30 / 4096 Hz
- This register contains a 16-bit unsigned integer. The 16-bit integer has been constrained to the bounds of an unsigned 12-bit integer, 4095 to 0. The Frequency represented by this register is offset by 45 Hz.

Example:

Register 53250, Phase A Current, might contain the following data:

|  |           |
|--|-----------|
| <b>Addr</b>                              | 53250     |
| <b>Value</b>                             | 0810H     |
| <b>12-bit Unsigned Integer (Hex)</b>     | 810H      |
| <b>12-bit Unsigned Integer (Decimal)</b> | +2058     |
| <b>30 /4096 A sec</b>                    | 15.073 Hz |
| <b>+45 Hz Offset</b>                     | 60.073 Hz |

### 3.62: Type F62 Scaled Pulse Accumulation, Aggregation or Average

- Length: 4 Registers (8 bytes)
- Range: +9,223,372,036,854,776,807 / -9,223,372,036,854,776,808
- Unit: 1 Unit
- This register contains an 8-byte signed (2's complement) number. Positive values have the most significant bit clear and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complementing (inverting) all of the bits and adding 1.
- Type F62 does not use the multiplier from the Energy Scale Settings from the meter's Device Profile. It uses the multiplier from the Nexus® Internal Input Pulse Accumulations Setup screen (Device Profile > Revenue & Energy Settings > Pulse Accumulations).

Example:

Registers 05834 - 05837, Block Window Average Aggregation 1, might contain the following data:

|                                |                   |       |       |       |
|--------------------------------|-------------------|-------|-------|-------|
| <b>Addr</b>                    | 05834             | 05835 | 05836 | 05837 |
| <b>Value</b>                   | 0000H             | 0000H | 0001H | 2345H |
| <b>8 byte Signed Integer</b>   | 0000000000012345H |       |       |       |
| <b>Most Significant Bit</b>    | 0                 |       |       |       |
| <b>Decimal</b>                 | +74565            |       |       |       |
| <b>Accumulated Transitions</b> | +74,565 Units     |       |       |       |

Registers 05834- 05837, Block Window Average Aggregation 1, might contain the following data:

|                                |                    |       |       |       |
|--------------------------------|--------------------|-------|-------|-------|
| <b>Addr (Hex)</b>              | 05834              | 05835 | 05836 | 05837 |
| <b>Value</b>                   | FFFFH              | FFFFH | FFFEH | DCBBH |
| <b>8 byte Signed Integer</b>   | FFFFFFFFFFFFEDCBBH |       |       |       |
| <b>Most Significant Bit</b>    | 1                  |       |       |       |
| <b>Complement</b>              | 000000000012344H   |       |       |       |
| <b>Increment</b>               | 000000000012345H   |       |       |       |
| <b>Decimal</b>                 | -74565             |       |       |       |
| <b>Accumulated Transitions</b> | -74,565 Units      |       |       |       |

### 3.63: Type F63 Log Index

- Length: 1 Register (2 bytes)
- Range: 65,535 / 0
- Unit: 1 Unit
- This register contains a 2-byte MSB unsigned integer, which represents the First or Last Index for a given Log. First Indexes represent the Index of the First (Oldest) record in a log. Last Indexes represent the Index of the Last (Newest) record in a log. The value of 0x0FFFF for the Last Index indicates that the log is empty.

### 3.64: Type F64 Scaled Energy

- Length: 2 Registers (4 bytes)
- Range: 99 / 0 through 999,999,999 / 0 (variable, 2-9 digits)
- Unit:  $10^{-7}$  through  $10^6$  units (variable)
- This register contains an 4-byte signed integer. The range and resolution of a given reading is controlled by programmable Energy Scale Settings, which govern both the range of the reading (from 2 to 9 digits) and the units of the reading (from 7 decimal places of Wh ( $10^{-7}$ ) to no decimal places of MWh ( $10^6$ ). Refer to Type F65 for a description of the Scaled Energy Programmable Setting (Device Profile > Revenue & Energy Settings > Energy Scaling).

Example:

Registers 06912-06913, Total VAh (Quadrant 1+2+3+4) Scaled Primary, might contain the following data:

|                   |             |       |
|-------------------|-------------|-------|
| <b>Address</b>    | 06912       | 06913 |
| <b>Value</b>      | 075BH       | CD15H |
| <b>4-byte Hex</b> | 075HCD15H   |       |
| <b>Decimal</b>    | 123,456,789 |       |

If the Programmable Settings indicated 5 decimal places of WH, then the interpreted value would be 1,234.56789 Wh.

If the Programmable Settings indicated 0 decimal places of MWh, then the interpreted value would be 123,456,789 MWh.

### 3.65: Type F65 Scaled Energy Setting

- Length: 1/2 a Register (1 byte)
- Each register contains 2 bytes. Each byte contains settings for a base quantity. The format of a byte is as follows:

| Bit     | 7      | 6 | 5 | 4    | 3 | 2              | 1 | 0 |
|---------|--------|---|---|------|---|----------------|---|---|
| Meaning | Digits |   |   | Unit |   | Decimal Places |   |   |

Digits is a 3-bit field, which is offset by 2 to represent from 2 to 9 displayable digits.  
 Unit is a 2-bit field, where the values from 0 to 2 represent units of Wh ( $10^0$ ), k ( $10^3$ ) and M ( $10^6$ ).  
 The value 3 is undefined and is treated the same as 2, signifying M ( $10^6$ ).  
 Decimal Places is a 3-bit field, where the bits represent from 0 to 7 decimal places.

Examples:

For the following, the Q1234 VAh has a current value internally of 123,456,789.0123 VAh.

| Register CA00H |            | Digits   | Unit         | D.P. | Pattern       | Reading in Register 1AFFH-1B00H |          | Display        |
|----------------|------------|----------|--------------|------|---------------|---------------------------------|----------|----------------|
| Hex            | Binary     |          |              |      |               | Hex                             | Decimal  |                |
| 20xxH          | 001 00 000 | 3 digits | VAh, $10^0$  | 0    | xxx VAh       | 00000315H                       | 789      | 789 VAh        |
| 8BxxH          | 100 01 011 | 6 digits | kVAh, $10^3$ | 3    | xxx.xxx kVAh  | 0006F855H                       | 456789   | 456.789 kVAh   |
| 88xxH          | 100 01 000 | 6 digits | kVAh, $10^3$ | 0    | xxxxxx kVAh   | 0001E240H                       | 123456   | 123,456 kVAh   |
| 93xxH          | 100 10 011 | 6 digits | MVAh, $10^6$ | 3    | xxx.xxx MVAh  | 0001E240H                       | 123456   | 123.456 MVAh   |
| 72xxH          | 011 10 010 | 5 digits | MVAh, $10^6$ | 2    | xxx.xx MVAh   | 00003039H                       | 12345    | 123.45 MVAh    |
| C2xxH          | 110 00 010 | 8 digits | VAh, $10^0$  | 2    | xxxxxx.xx VAh | 02B90135H                       | 45678901 | 456,789.01 VAh |

- The Scaled Energy Programmable Setting can be accessed by clicking:  
 Device Profile > Revenue & Energy Settings > Energy Scaling.

### 3.66: Type 66 TOU Upload Calendar Window Locked to Port

- Length: 1 Register (2 bytes)
- When read, this register contains an enumeration indicating to which port the TOU Upload Calendar Window is locked. The enumeration is as follows:

|         |                        |
|---------|------------------------|
| 0x00000 | Port 4 (I/O)           |
| 0x00001 | Port 3                 |
| 0x00002 | Port 2                 |
| 0x00003 | Port 1 (RS232/RS485)   |
| 0x00004 | Diagnostic Port        |
| 0x000FF | Not locked to any port |

- Writing the value 0x00000 to this register requests the TOU Upload Calendar Window to be locked to that port.

Example:

Register 36607, TOU Upload Calendar Window Locked to Port, might contain the following data:

|                |   |
|----------------|---|
| <b>Address</b> | 36607   |
| <b>Value</b>   | 0002H   |
| <b>Decimal</b> | 2   |
| <b>Meaning</b> | TOU Calendar Upload Window is Locked to Port 2. |

### 3.67: Type 67 K-Factor

- Length: 1 Register (2 bytes)
- Range: +327.67 / - 327.68
- Unit: 0.01

This register contains a 16-bit signed (2's complement) number. Positive values have the most significant bit clear and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complementing (inverting) all of the bits and adding 1.

Example:

Register 00390, Maximum K-Factor Phase A Current, might contain the following data:

Example:

Register 00390, Maximum K-Factor Phase A Current, might contain the following data:

|                             |        |
|-----------------------------|--------|
| <b>Address</b>              | 00390  |
| <b>Value</b>                | 08BBH  |
| <b>Most significant bit</b> | 0      |
| <b>Decimal</b>              | +2235  |
| <b>K-Factor</b>             | +22.35 |

Register 0185H, Maximum K-Factor Phase A Current, might contain the following data:

|                             |        |
|-----------------------------|--------|
| <b>Address</b>              | 00390  |
| <b>Value</b>                | F745H  |
| <b>Most significant bit</b> | 1      |
| <b>Complement</b>           | 08BAH  |
| <b>Increment</b>            | 08BBH  |
| <b>Decimal</b>              | -2235  |
| <b>K-Factor</b>             | -22.35 |



# Chapter 4

## Modbus Register Map Notes

### 4.1: Modbus Register Map Notes

■ The information in this chapter refers to the Register Map's "Notes" column.

- 1) Time information can be supplied from one of two different sources, an internal Real Time Clock or an external GPS Clock. The internal Real Time Clock is a chip containing its own battery, which is used to maintain the passage of time when the Nexus® unit is without operational power. It is similar to those used in PCs and it reports time accurate to the second. The external GPS clock is supported through an IRIG-B connection, allowing synchronization and accuracy to the hundredth of a second (10 milliseconds).
- 2) These registers, when read, always report the time as reported by the Nexus® unit, either from the internal Real Time Clock or the external GPS Clock. Values written here for the purpose of updating the internal Real Time Clock are not read back.
- 3) These values are calculated by the Nexus® Comm Processor, as part of the Waveform Capture function. These values are only calculated if the Nexus® meter has Waveform Logging Capability.
- 4) Phase Voltages are in secondary Volts. To convert this value into primary Volts, multiply by the Phase Voltage PT Ratio, composed of the Phase Voltage PT Ratio Numerator and Denominator (Registers 45917 - 45918 and 45919 - 45920).
- 5) Auxiliary Voltage is in secondary Volts. To convert this value into primary Volts, multiply by the Auxiliary Voltage PT Ratio, composed of the Auxiliary Voltage PT Ratio Numerator and Denominator (Registers 45921 - 45922 and 45923 - 45924).
- 6) Phase and Calculated Neutral Currents are in secondary Amps. To convert this value into primary Amps, multiply by the Phase Current CT Ratio, composed of the Phase Current CT Ratio Numerator and Denominator (Registers 45909 - 45910 and 45911 - 45912).
- 7) Measured Neutral Current is in secondary Amps. To convert this value into primary Amps, multiply by the Measured Neutral Current CT Ratio, composed of the Measured Neutral Current CT Ratio Numerator and Denominator (Registers 45913 - 45914 and 45915 - 45916).
- 8) Measured Neutral is the RMS produced by samples from a CT around the Neutral Line and connected to the Neutral current terminals of the Nexus® 1252 meter. Calculated Neutral is the RMS produced by adding the three Phase Current samples together and treating the result as a sample of the neutral line.

- 9) VA, VAR and Watts are in secondary. To convert this value into primary VA, VAR or Watts, multiply by the Phase Voltage PT Ratio, composed of the Phase Voltage PT Ratio Numerator and Denominator (Registers 45917 - 45918 and 45919 - 45920) and by the Phase Current CT Ratio, composed of the Phase Current CT Ratio Numerator and Denominator (Registers 45909 - 45910 and 45911 - 45912).
  
- 10) VAhour, VARhour and Watthour are in secondary. To convert this value into primary VAhour, VARhour or Watthour, multiply by the Phase Voltage PT Ratio, composed of the Phase Voltage PT Ratio Numerator and Denominator (Registers 45917 - 45918 and 45919 - 45920) and by the Phase Current CT Ratio, composed of the Phase Current CT Ratio Numerator and Denominator (Registers 45909 - 45910 and 45911 - 45912).

# Chapter 5

## Logs, Port Control and Updating Programmable Settings

### 5.1: Downloading Logs - Overview

■ A Modbus Master uses a Log Window consisting of 64 Registers to retrieve logs from a Nexus® meter Slave. A log is divided into numbered sections called Indexes, which are transferred through the Log Window in sequence. Each of the Nexus® meter's four ports act independently, allowing multiple Modbus Masters access to all the retrievable data in a Nexus® meter Slave.

■ Downloading any log involves the following types of Registers:

■ **Log Snapshot Header:** Header blocks for the different logs begin at Register 36865: This block of Registers holds the following information about the log:

—**Memory Size:** 4-byte unsigned integers representing the amount of memory, in bytes, allocated to the log.

—**Record Size:** an unsigned integer representing the size, in bytes, of a record in the log.

—**First Index:** an unsigned integer representing the index of the first (oldest) record in the log.

—**Last Index:** an unsigned integer representing the index of the last (newest) record in the log. The value FFFFH indicates that the log is empty.

—**First Time Stamp:** These Registers hold the time stamp from the first (oldest) record in

| Byte | Range   | Description |
|------|---------|-------------|
| 0    | 0 – 255 | century     |
| 1    | 0 – 99  | year        |
| 2    | 1 – 12  | month       |
| 3    | 1 – 31  | day         |
| 4    | 0 – 23  | hour        |
| 5    | 0 – 59  | minute      |
| 6    | 0 – 59  | second      |
| 7    | 0 – 99  | centisecond |

—**Last Time Stamp:** These Registers hold the time stamp from the last (newest) record in the Log. The byte order and description are the same for the first time stamp.

—**Valid Bitmap:** These Registers hold the bit flags indicating whether the Nexus® meter Slave recognizes the lines in the Historical Log Settings block (the block beginning at Register 45204). The first bit represents the validity of the last Data Pointer in the Historical Log Settings. A value of 1 means the Data Pointer is acceptable and can be stored. A value of 0 means that the Data Pointer is invalid or unrecognized and can not be stored.

—**Max Records:** an unsigned integer representing the total number of records the log is capable of holding. In order to maintain a one-for-one relationship in parallel logs (Sequence of Events State and Sequence of Events Snapshot logs, for example), the maximum number of records that a log can store is defined by the log that holds the fewest records. Logs capable of holding more records are restricted.

- **Window Index** tells the Modbus Master which 128-byte section of the log the Window is using to retrieve the log. The block of Window Index Registers for the different logs begin at 38145. When the Modbus Master writes a new value to the Window Index, a new section of the log will fill the Window. For example, when the Index is 0000H, the first 128 bytes of the log are available in the Window; when the Index is 0001H, the second 128 bytes of the log are available in the Window, and so on. The designation “first 128 bytes of the log” is a physical description based on the absolute addresses of the memory allocated to the log. The first (oldest) record in the log may not be located at the beginning of the log.

—When a value other than FFFFH is written to the Window Index, the Index is updated and the log is paused, preventing the addition of new records while the log is accessed. A 30-second timer is initiated on these writes. Should the timer expire (a new index is not written within 30 seconds), the log will continue logging.

—Should multiple ports access the same log simultaneously, the log will pause while any 30-second timer is running. The log will continue logging only when all ports time-out or write FFFFH to their Index Register.

—When read, the Window Index returns the number of the Index currently in use by the Window. When written, the Window Index sets a new Index for the Window to retrieve the log.

- **Window Mode** defines the two available modes the Window may use to retrieve a log; **Download Mode** and **Time Stamp Mode**. The Window Mode block begins at Register 38209.

—**Download Mode:** In Download Mode, the Log Window accesses consecutive 128-byte blocks of the log. For example, when the Window Index is 0000H, the first 128 bytes of the log are available in the Window; when the Index is 0001H, the second 128 bytes of the log are available in the Window. The designation “first 128 bytes of the log” is a physical description based on the absolute addresses of the memory allocated to the log. The first (oldest) record in the log may not be located at the beginning of the log.

—**Time Stamp Mode:** In Time Stamp Mode, the Log Window access the time stamps of the records in blocks of 16 time stamps at a time. When the Window Index is 0000H, the time stamps of the first 16 records (records 0–15) in the log are available in the Window; when the Window Index is 0001H, the time stamps of the second 16 records (records 16–31) in the log are available in the Window, and so on. The designation “first 128 bytes of the log” is a physical description based on the absolute addresses of the memory allocated to the log. The first (oldest) record in the log may not be located at the beginning of the log.

- **Log Window:** The Log Window is a 64-register, 128-byte view of a log. The Window Index defines which part of a log is currently available in the Window. Log Windows begin at Register 38273.

- **Log Reset:** This Register (located at 57345), when written to, causes all logs to be cleared. This

action should be performed only under the following two circumstances:

- When the programmable settings are modified, such that data already in the logs is invalidated. For example, any modifications involving the record size or organization of the contents of a snapshot would require the logs to be cleared of any previous data.
- When the Run-Time code is upgraded, resulting in one of the following: a redefinition of the layout or meaning of the programmable settings or in altered behavior or capabilities of the logs.
- Note:** This action should be performed automatically by software in either of these cases, and should not be an action directly available to the user.

### **5.1.1: Steps for Downloading a Log**

■ The steps below outline the process for downloading a log. Details and examples for downloading time stamps and records follow in Sections 5.1.2 and 5.1.3.

1. Read the Nexus® meter's Programmable Settings Block (Registers 45057–53248). This information will be used to interpret the data retrieved from the log.
2. Pause the log by writing an initial, non-FFFFH value to the Log Window Index Register.
3. Read and store the Log Header information.
4. Determine the starting Window Index and Window offset.
5. Determine the largest Window Index and Window offset.
6. Determine the ending Window Index and Window offset.
7. Set the Window Mode to Download Mode.
8. Set the Log Window Index to the starting Window Index.
9. Read the Window from starting offset to the end of the Window.
10. Increment the Window Index.
11. Read the Window from beginning to end.
12. Repeat steps 10 and 11 until the largest or ending Window Index is reached.
  - If the largest is reached, go to step 13.
  - If the ending is reached, go to step 15.
13. Read window from beginning up to (but not including) the largest offset.
14. Set Window Index to 0. Go to step 12.

15. Read Window from the beginning up to (but not including) the ending offset.
16. Un-pause the log by writing FFFFH to the Log Window Index Register.

### 5.1.2: Downloading Time Stamps with Examples

■ The following steps detail the process for downloading time stamps from a log, using values from Historical Log 1 as an example.

1. Read the Nexus® meter's Programmable Settings Block (Registers 45057–53248).
2. Pause the log by writing an initial, non-FFFFH value to the Log Window Index Register.

Example: Write 0000H to the Window Index for Historical Log 1, Register 38145.

3. Read and store the Log Header information.

Example: Historical Log 1 Snapshot Header

| Address     | Description                                | Example Value        |
|-------------|--|----------------------|
| 36865–36866 | Historical Log 1 Snapshot Memory Size      | 1851392              |
| 36867       | Historical Log 1 Snapshot Record Size      | 64                   |
| 36868       | Historical Log 1 Snapshot First Index      | 501                  |
| 36869       | Historical Log 1 Snapshot Last Index       | 500                  |
| 36870–36873 | Historical Log 1 Snapshot First Time Stamp | 7/10/99 12:32:00.000 |
| 36874–36877 | Historical Log 1 Snapshot Last Time Stamp  | 7/30/99 14:40:00.000 |
| 35878–36881 | Historical Log 1 Snapshot Valid Bitmap     | FFFC 0000            |
| 36882       | Historical Log 1 Snapshot Max Records      | 28928                |

4. Determine the starting Window Index and starting Window Offset using these formulas:  
Starting Window Index =  $\text{Int}([8 \times \text{First Index}] / 128)$ .  
Starting Window Offset =  $(8 \times \text{First Index}) \% 128$ .

Example:

Starting Window Index:  $\text{Int}(8 \times 501 / 128) = \text{Int}(31.3125) = 31$ .

Starting Window Offset:  $(8 \times 501) \% 128 = 40$ .

5. Determine the largest Window Index and the largest Window Offset using these formulas:  
Largest Window Index =  $\text{Int}([8 \times \text{Max Records}] / 128)$ .  
Largest Window Offset =  $(8 \times \text{Max Records}) \% 128$ .

Example:

Largest Window Index =  $\text{Int}([8 \times 28928] / 128) = \text{Int}(1808) = 1808$

Largest Window Offset =  $(8 \times 28928) \% 128 = 0$

6. Determine the ending Window Index and the ending Window Offset using these formulas:  
Ending Window Index =  $\text{Int}([8 \times \{\text{Last Index} + 1\}] / 128)$   
Ending Window Offset =  $(8 \times [\text{Last Index} + 1]) \% 128$

Example:

Ending Window Index =  $\text{Int}([8 \times \{500 + 1\}] / 128) = \text{Int}(31.3125) = 31$

Ending Window Offset =  $(8 \times [500 + 1]) \% 128 = 40$

7. Set the Window Mode to Download Mode by writing the Download Mode code (0000H) to the Log Window Mode Register.

Example:

Write the value 0000H to the Window Mode for Historical Log 1, Register 38209.

8. Set the Window Index to the Starting Window Index.

Example:

Write the value 31 (001FH) to the Historical Log 1 Window Index, Register 38145.

9. Read Window from starting offset to end of Window:  
Starting offset = First Register of Window + (starting Window offset/2).

Example:

$38273 + (40/2) = 38293$

Read from 38293 – 38336.

10. Increment the Window Index.

Example:

Write the value 32 (0020H) to the Historical Log 1 Window Index, Register 38145.

11. Read the Window from beginning to end.

Example:

Read the Historical Log 1 Window from Register 38273 to 38336.

12. Repeat steps 10 and 11 until the Largest or Ending Window Index is reached.

—If the Largest Window Index is reached, go to step 13.

—If the Ending Window Index is reached, go to step 15.

Example:

If Window Index = 1808, go to step 13. If Window Index = 31, go to step 15.

13. Read Window from beginning up to (but not including) the Largest Offset.  
Largest Offset = First Register of Window + (largest Window offset/2).

Example: (Index = 1808).

$38273 + (0/2) = 38273$ .

Read from 38273 up to 38273; therefore, read nothing.

14. Set Window Index to 0. Go to step 12.

Example:

Write the value 0 (0000H) to the Window Index Historical Log 1, Register 38145.

15. Read Window from the beginning up to (but not including) the Ending Offset.  
Ending Offset = First Register of Window + (Ending Window Offset/2).

Example: (Index = 31).

$38273 + 40/2 = 38293$ .

Read from 38273 up to (but not including) 38293; therefore, read 38273 – 38292.

16. Un-pause the log by writing FFFFH to the Window Index.

Example:

Write the value FFFFH to the Window Index for Historical Log 1, Register 38145.

### 5.1.3: Downloading Records with Examples

- The following steps detail the process for downloading records from a log, using values from an Historical Log 1 as an example.

1. Read the Nexus® meter's Programmable Settings Block (Registers 45057–53248).
2. Pause the log by writing an initial, non-FFFFH value to the Log Window Index Register.

Example: Write 0000H to the Window Index for Historical Log 1, Register 38145.

3. Read and store the Log Header information.

Example: Historical Log 1 Snapshot Header

| <u>Address</u> | <u>Description</u>                        | <u>Example Value</u> |
|----------------|---|----------------------|
| 36865–36866    | Historical Log 1 Snapshot Memory Size     | 1851392              |
| 36867          | Historical Log 1 Snapshot Record Size     | 64                   |
| 36868          | Historical Log 1 Snapshot First Index     | 501                  |
| 36869          | Historical Log 1 Snapshot Last Index      | 500                  |
| 36870–36873    | Historical Log 1 Snapshot First Timestamp | 7/10/99 12:32:00.000 |
| 36874–36877    | Historical Log 1 Snapshot Last Timestamp  | 7/30/99 14:40:00.000 |
| 36878–36881    | Historical Log 1 Snapshot Valid Bitmap    | FFFC 0000            |
| 36882          | Historical Log 1 Snapshot Max Records     | 28928                |

4. Determine the starting Window Index and starting Window Offset using these formulas:  
Starting Window Index =  $\text{Int}([\text{Record Size} \times \text{First Index}]/128)$ .  
Starting Window Offset =  $(\text{Record Size} \times \text{First Index}) \% 128$ .

Example:

Starting Window Index:  $\text{Int}(64 \times 501/128) = \text{Int}(250.5) = 250$ .

Starting Window offset:  $(64 \times 501) \% 128 = 64$ .

5. Determine the largest Window Index and the largest Window Offset using these formulas:  
Largest Window Index =  $\text{Int}([\text{Record Size} \times \text{Max Records}]/128)$ .



Largest Window Offset = (Record Size x Max Records) % 128.

Example:

Largest Window Index =  $\text{Int}([64 \times 28928]/128) = \text{Int}(14464) = 14464$ .

Largest Window Offset =  $(64 \times 28928) \% 128 = 0$ .

- Determine the ending Window Index and the ending Window offset using these formulas:

Ending Window Index =  $\text{Int}([\text{Record Size} \times \{\text{Last Index} + 1\}]/128)$ .

Ending Window Offset =  $(\text{Record Size} \times [\text{Last Index} + 1]) \% 128$ .

Example:

Ending Window Index =  $\text{Int}([64 \times \{500 + 1\}]/128) = \text{Int}(250.5) = 250$ .

Ending Window Offset =  $(64 \times [500 + 1]) \% 128 = 64$ .

- Set the Window Mode to Download Mode by writing the Download Mode code (0000H) to the Log Window Mode Register.

Example:

Write the value 0000H to the Window Mode for Historical Log 1, Register 38209.

- Set the Window Index to the Starting Window Index.

Example:

Write the value 250 (00FAH) to the Historical Log 1 Window Index, Register 38145.

- Read Window from starting offset to end of Window:

Starting offset = First Register of Window + (starting Window offset/2).

Example:

$38273 + (64/2) = 38305$ .

Read from 38305 – 38356.

- Increment the Window Index.

Example:

Write the value 251 (00FBH) to the Historical Log 1 Window Index, Register 38145.

- Read the Window from beginning to end.

Example:

Read the Historical Log 1 Window from Register 38273 to 38336.

- Repeat steps 10 and 11 until the largest or ending Window Index is reached.

—If the largest Window Index is reached, go to step 13.

—If the ending Window Index is reached, go to step 15.

Example:

If Window Index = 14464, go to step 13.

If Window Index = 250, go to step 15.

13. Read Window from beginning up to (but not including) the Largest Offset.  
Largest Offset = First Register of Window + (Largest Window Offset/2).

Example: (Index = 14464).

$38273 + (0/2) = 38273$ .

Read from 38273 up to 38273; therefore, read nothing.

14. Set Window Index to 0. Go to step 12.

Example:

Write the value 0 (0000H) to the Window Index Historical Log 1, Register 38145.

15. Read Window from the beginning up to (but not including) the ending offset.  
Ending offset = First Register of Window + (ending Window offset/2).

Example: (Index = 250).

$38273 + 64/2 = 38305$ .

Read from 38272 up to (but not including) 38304; therefore, read 38273 – 38304.

16. Un-pause the log by writing FFFFH to the Window Index.

Example:

Write the value FFFFH to the Window Index for Historical Log 1, Register 38145.

#### **5.1.4: Downloading Logs with Auto Index and Modbus Extensions**

##### **■ Auto Incrementing Interface**

##### **■ Auto Increment Configuration (Register 39423, 0x099FE)**

When read, this register returns the configuration in use by the Auto Increment Log Window, below, to access logs on this port. When written, this register sets the configuration used by the Auto Increment Log Window, below, to access logs on this port. Each port accesses a separate, independent configuration through this register allowing all four ports to access logs with different configurations.

The least significant byte indicates which log is being accessed. The appropriate values are:

|       |                                 |
|-------|---------------------------------|
| 0x000 | Historical Log 1                |
| 0x001 | Historical Log 2                |
| 0x002 | Sequence of Events State Log    |
| 0x003 | Sequence of Events Snapshot Log |
| 0x004 | Digital Input State Log         |
| 0x005 | Digital Input Snapshot Log      |
| 0x006 | Digital Output State Log        |
| 0x007 | Digital Output Snapshot Log     |
| 0x008 | Flicker Log                     |
| 0x009 | Waveform Trigger Log            |
| 0x00A | System Event Log                |

|             |                     |
|-------------|---------------------|
| 0x00B       | Waveform Sample Log |
| 0x00C       | PQ Log              |
| 0x00D       | Reset Log           |
| 0x00E-0x0FF | Undefined           |

The most significant byte defines the following modes, Paused Download Mode (0x000), and Running Download Mode (0x001).

In Paused Download mode (0x000), the log being accessed is paused - new records are not added to the log while it is paused.

In Running Download mode (0x001), the log being accessed is not paused - new records may be added to the log. When downloading in this mode, it is possible that records may be overwritten before, or even during, access to that record.

#### ■ **Auto Increment Window Index (0x099FF)**

When read, this register returns the index used by the Auto Increment Log Window, below, to access logs on this port. When written, this register sets the index used by the Auto Increment Log Window, below, to access logs on this port. Each port accesses a separate, independent index through this register, allowing all four ports to access different areas of logs at the same time.

When read, the index is incremented before being returned in the Modbus response. If the Auto Increment Mode is Paused Download Mode (0x001xx in register 0x099FE), the appropriate log is paused, preventing the addition of new records while the log is being accessed. A 30-second timer is initiated on these reads. Should the timer run out (the index is not incremented/read in 30 seconds), the appropriate log will be allowed to continue logging.

When a value of 0x0FFFF is written to this register, this signifies that the port is finished accessing the appropriate log, and the 30-second timer is canceled and the appropriate log will be allowed to continue logging.

Should multiple ports access the same log simultaneously, the log will be paused while either 30-second timer is running; the log will be allowed to continue logging only when both ports time-out or write 0x0FFFF to their index register.

#### ■ **Auto Increment Log Window (0x09A3F)**

These registers are a 128-byte window into a log, as specified in the Auto Increment Configuration (register 0x099FE). Depending on the Auto Increment Window Index, a different 128-byte area of a log can be accessed.

#### ■ **Download using Auto Increment Window Sequence**

1. Software should select the appropriate Download mode and log through the Auto Increment Configuration register (0x000xx or 0x001xx to register 0x099FE).
2. Software should read the appropriate Header Information.
3. Software should initialize the window index by writing a value 1 less than the desired starting index to the Auto Increment Window Index register (Example: To start at window 0, write

0x0FFFF to Register 0x099FF).

4. Software should store the Historical Log 1 Header Information.
5. Software should read the Auto Increment Window Index and Auto Increment Log Window (Registers 0x099FF-0x09A3F)
6. Software should verify the expected value for the Auto Increment Window Index.
7. Software should store the first 128 bytes of the log from the Auto Increment Log Window.

Repeat steps 5-7 until the desired amount of the log has been read and stored. The Number of Reads of the Window can be determined by dividing the Total Memory in the Log (registers 0x09000 -0x09001) by the Window Size (128 bytes).

8. Software should release the pause on the log (0x0FFFF to 0x099FF).

#### ■ Download using Auto Increment Window Sequence and Function Code 35

1. Software should select the appropriate Download mode and log through the Auto Increment Configuration register (0x000xx or 0x001xx to register 0x099FE).
2. Software should read the appropriate Header Information.
3. Software should initialize the window index by writing a value 1 less then the desired starting index to the Auto Increment Window Index register (to start at window 0, write 0x0FFFF to register 0x099FF).
4. Software should store the Historical Log 1 Header Information.
5. Software should read the Auto Increment Window Index and Auto Increment Log Window (registers 0x099FF-0x09A3F) n times using the non-standard Modbus Function Code 35 (0x023) Read Holding Registers Multiple Times.
6. Software should verify the expected values for the Auto Increment Window Index.
7. Software should store the each 128 bytes of the log from the Auto Increment Log Window.

Repeat steps 5-7 until the desired amount of the log has been read and stored. The number of Reads of the Window can be determined by dividing the Total Memory in the Log (registers 0x09000 - 0x09001) by the Window Size (128 bytes), and again by dividing by the Number of Repeats being used with Function Code 35.

8. Software should release the pause on the log (0x0FFFF to 0x099FF).

## 5.2: Port Locking - Overview

- At times it may be necessary for a Master connected to one port of a Nexus® meter to communicate directly to a Slave device connected to a different port of the same Nexus® meter. For example, software on a computer connected to port 1 of the meter might need to change settings on an external device connected to Port 4 of the meter. To accomodate this need, the following steps allow a Master to control the Transmit and Receive buffers of another port.
- To prevent contention, one Master at a time may control a given port. This is referred to as “**Locking a Port.**” If Port 1 is controlling Port 4, no other ports may control Port 4 until Port 1 is finished.

### **5.2.1: Sequence for Port Locking**

■ To lock a port, follow the steps below:

1. Determine the port to which the Modbus Master is currently attached: Register 65411.
2. Determine that the desired port is currently unlocked: Registers 41730 – 41732.
3. Write to lock the desired port: write 0100H – 0104H to Register 41729.
4. Verify that the port is successfully locked: Registers 41730 – 41732.
5. Read the current states of the pointers: 41733 – 41752.

### **5.2.2: Transmission**

1. Decide which transmit buffer to use: Registers 43265, 43521, 43777, 44033, 44289.
2. Find the current position of the TrmIn pointer: Registers 41735, 41739, 41743, 41747, 41751.
3. Add bytes to the transmit buffer starting at the position indexed by the TrmIn pointer up to the position before that indexed by the TrmOut pointer.
4. Write the new value for the TrmIn pointer (the position after the last byte added) to the TrmIn pointer.

### **5.2.3: Reception**

1. Decide which receive buffer to use: 41985, 42241, 42497, 42753, 43009.
2. Find the current position of the RecOut pointer: 41734, 41738, 41742, 41746, 41750.
3. Read bytes starting at the position after that indexed by the RecOut pointer, up to the position before the position indexed by the RecIn pointer.
4. Write the new value for the RecOut pointer (the position of the last byte read) to the RecOut pointer.

### **5.2.4: Port Unlocking Sequence**

■ To unlock a port, follow the steps below:

1. Empty the receive buffer (RecOut written so it is the position before RecIn).
2. Write to unlock the desired port: write 0200H – 0204H to Register 41729.
3. Verify that the port is successfully unlocked: Registers 41730 – 41732.

### **5.3: Updating Programmable Settings - Overview**

- Programmable settings in the Nexus® meter are stored in FLASH. With FLASH, bytes are not rewritable; the entire sector must be erased and rewritten.

#### **5.3.1: Sequence for Updating Programmable Settings**

- Device Address and Communication Settings should be as programmed for the port in use.
  1. Verify a Nexus® meter is connected at the appropriate address, protocol and communications settings.
  2. Check the Nexus® Comm Operation Indicator (Register 65409), verifying that it is in Normal Operation.
  3. Transmit the Reset to FLASH Operation, Programmed Communications Settings command: write 0101H to Register 65410.
  4. Poll the Nexus® Comm Operation Indicator and FLASH sequence number (Registers 65409 and 65410) until it returns that the unit is in FLASH Operation and notes the initial FLASH sequence number.
  5. Transmit the Lock Port command: write 0000H to Register 65410.
  6. Poll for the next FLASH sequence and an Action Passed status: Register 65410.
  7. Verify that it is the port that is locked into FLASH operation: Register 65411.
  8. Transmit the “Erase the Programmable Settings Block” command: write 0003H to Register 65410.
  9. Poll the next FLASH sequence and an Action Passed status: Register 65410.
  10. Write a line from the Programmable Settings HEX file (FFH padded) to the Nexus® Comm FLASH Programmable Settings Hex Line Registers: 65473 – 65482.
  11. Poll the next FLASH sequence and an Action Passed status: Register 65410.
  12. Repeat steps 10 and 11 until whole HEX file processed.
  13. Transmit the “Calculate the Programmable Settings Checksum” command: write 0004H to Register 65410.
  14. Upgrade software polls for the next FLASH sequence and an Action Passed status (Register 65410).
  15. Upgrade software reads the Nexus® Comm FLASH Programmable Settings Checksum (Register 65413).
  16. If the checksum is correct, upgrade software writes the Correct Checksum to the Nexus® Comm

FLASH Programmable Settings Checksum (Register 65413).

17. Upgrade software transmits the Reset to Normal Operation Command (writes 0100H to Register 65410).
18. Upgrade software polls Nexus® Comm Operation Indicator (Register 65409) until it returns that the unit is in Normal Operation.

**Note:** Register 00001 in our mapping is equivalent to 40001 in most third party polling packages and RTUs.

#### **5.4: Modifications to Time of Use**

Time of Use had provided delta values computed at two time rates - Monthly and Seasonally. The following modifications will be provided in the 1252/1262/1272.

The functionality of what had been the Current Season/Prior Season registers are being altered to provide options of Seasonal, Monthly, Weekly, Daily or Hourly behavior. As such, they will no longer be properly called Current Season or Prior Season. Depending on the storage rate chosen, the "Current Season" will be referred to as the "Active Season", "Active Week", etc, while the "Prior Season" will be referred to as the "Frozen Season", "Frozen Week", etc. This will not change the operation of the "Current Month" or "Prior Month" registers, which will continue to operate according to the Monthly Billing Dates entered in the Time of Use calendar.

Additionally, a new capability is being added to the behavior of both the Current Month and Active registers when a new period starts. In the previous implementation, the Current Month or Current Season registers are cleared at the start of a new month or season. This is being altered to allow the option of not clearing at the start of a new period.

The following settings are being added to the Time of Use Calendars:

| <b>Register</b> | <b>Meaning</b>                                |
|-----------------|---|
| 35730 (0x08B91) | Clear on new period / Freeze Period Selection |
| 35731 (0x08B92) | Weekly Freeze day of week / Freeze Hour       |

#### **■ Clear on New Period / Freeze Period Selection**

The most significant byte indicates whether the Current Monthly and Active registers should clear when a new period starts. The value 0x000 indicates that they should clear, compatible with the previous implementation, while the values 0x001 - 0x0FF indicate that they should continue the Current Month or Active registers where the Prior Month or Frozen registers left off.

The least significant byte indicates the period to use for the Active and Frozen registers (what had been the Current and Previous Season registers).

| <b>Value</b> | <b>Meaning</b> |
|--------------|----------------|
| 0x000        | Seasonal       |
| 0x001        | Weekly         |

|             |                                |
|-------------|--------------------------------|
| 0x002       | Daily                          |
| 0x003       | Hourly                         |
| 0x004-0x0FF | Undefined, behaves as Seasonal |

Seasonal operation freezes the Active registers at the selected hour of the day four times a year. The hour to freeze at is entered as the Freeze Hour, described below, while the four days to freeze at are the previously defined Season Start Times.

Weekly operation freezes the Active registers at the selected hour of the day once a week. The hour to freeze at is entered as the Freeze Hour, described below, while the day of the week (Sunday, Tuesday, etc.) is entered as the Weekly Freeze day of week, also described below.

Daily operation freezes the Active registers at the selected hour of the day once a day. The hour to freeze at is entered as the Freeze Hour, described below.

Hourly Operation freezes the Active registers once an hour at the top of the hour.

#### ■ **Weekly Freeze Day of Week / Freeze Hour**

The most significant byte indicates the day of the week to freeze the Active registers if configured for Weekly freezes. Legal values are from 1-7 (0x001 - 0x007), indicating operation on Sunday through Saturday. All other values will cause operation on Sunday.

The least significant byte indicates the hour of the day at which to freeze the Active registers if configured for Seasonal, Monthly, Weekly or Daily freezes. Valid values are from 0-23 (0x000 - 0x017), indicating from midnight through 11 PM. All other values cause operation at midnight. All freezes take place at the top of the selected hour.



## 5.5: Calibration Interface

### ■ Manual Adjustment Interface

| Modbus Register Address |         | Dual Port Address | Name   |
|-------------------------|---------|-------------------|--|
| Decimal                 | Hex     |                   |  |
| 57349                   | 0x0E004 | 0x00083           | Select Voltage 120V Gain (240V if 300V Option)             |
| 57350                   | 0x0E005 | 0x00084           | Select Current 150mA Gain (30mA if Class 2 Option)         |
| 57351                   | 0x0E006 | 0x00085           | Select Current 250mA Gain (50mA if Class 2 Option)         |
| 57352                   | 0x0E007 | 0x00086           | Select Current 500mA Gain (100mA if Class 2 Option)        |
| 57353                   | 0x0E008 | 0x00087           | Select Current 1A Gain (200mA if Class 2 Option)           |
| 57354                   | 0x0E009 | 0x00088           | Select Current 2.5A Gain (200mA if Class 2 Option)         |
| 57355                   | 0x0E00A | 0x00089           | Select Current 5A Gain (1A if Class 2 Option)              |
| 57356                   | 0x0E00B | 0x0008A           | Autocalibrate the above gain point on all phases           |
| 57357                   | 0x0E00C | 0x0008B           | Increment selected calibration value for A Phase           |
| 57358                   | 0x0E00D | 0x0008C           | Decrement selected calibration value for A Phase           |
| 57359                   | 0x0E00E | 0x0008D           | Increment selected caliabrations value for B Phase         |
| 57360                   | 0x0E00F | 0x0008E           | Decrement selected calibration value for B Phase           |
| 57361                   | 0x0E010 | 0x0008F           | Increment selected calibration value for C Phase           |
| 57362                   | 0x0E011 | 0x00090           | Decrement selected calibration value for C Phase           |
| 57363                   | 0x0E012 | 0x00091           | Increment selected calibration value for X Phase           |
| 57364                   | 0x0E013 | 0x00092           | Decrement selected calibration value for X Phase           |
| 57365                   | 0x0E014 | 0x00093           | Enter Calibration Mode                                     |
| 57366                   | 0x0E015 | 0x00094           | Manual Calibration of Gains                                |
| 57367                   | 0x0E016 | 0x00095           | First Time CTPT Compensation selection                     |
| 57368                   | 0x0E017 | 0x00096           | Manual Calibration of Phase Compensation                   |
| 57369                   | 0x0E018 | 0x00097           | Increment/Decrement by 1 count                             |
| 57370                   | 0x0E019 | 0x00098           | Increment/Decrement by 10 counts                           |
| 57371                   | 0x0E01A | 0x00099           | Manual Reference Calibration                               |
| 57372                   | 0x0E01B | 0x0009A           | Calibration Status Reset                                   |
| 57373                   | 0x0E01C | 0x0009B           | Select Current 500mA Phase Compensation (100mA if Class 2) |
| 57374                   | 0x0E01D | 0x0009C           | Select Current 1A Phase Compensation (200mA if Class 2)    |
| 57375                   | 0x0E01E | 0x0009D           | Select Current 5A Phase Compensation (1A if Class 2)       |
| 57376                   | 0x0E01F | 0x0009E           | Select Current 10A Phase Compensation (2A if Class 2)      |
| 57377                   | 0x0E020 | 0x0009F           | Select Current 2.5A Phase Compensation (500mA if Class 2)  |
| 57378                   | 0x0E021 | 0x000A0           | Preload CTPT Compensation with Initial Calibration Values  |

In the dual port, activation of a function is performed by the communication processor writing the value 0x0AA to a given location. When acknowledged, the location is cleared to the value 0x055.

By communication, activation of a function is performed by issuing a write (the value is unimportant) to a given Modbus register. When acknowledged, the register will read 0x00055.

In order to modify any calibration information, it is necessary to enter Calibration Mode. Calibration Mode is entered by writing to Modbus Address 57365 (0x0E014), which starts a 30 second timer. While in Calibration Mode, bit 3 of the 196 Health Status register is set. It is only while in Calibration Mode that all of the other above features will operate. This register can either be written to prior to each and every above listed action, or continuously at a rate more frequent than every 30 seconds.

The Manual Reference Calibration instructs the meter to test the voltage levels provided by the reference chip. This is used to adjust for gradual changes in offset and gain as a function of time or temperature. Reference Calibrations are automatically performed every 12 hours, or when the internal temperature changes by more than 1.5 degrees C after at least 15 minutes from the previous reference calibration.

The meter contains two sets of calibration tables - a Factory Table, and a Customer Configurable Table for CTPT Compensation. Operation with CTPT Compensation can only take place if CTPT Compensation is enabled in the Programmable Settings and if a valid CTPT Compensation Calibration has been performed; otherwise, the factory calibration is used. If the CTPT Compensation factors are being used, then bit 4 of the 196 Health Status register is set.

In order to perform the first CTPT Compensation Calibration procedure, the Programmable Setting must be enabled and Modbus Register 57365 (0x0E014) must be written. This activates CTPT Compensation Calibration, even though a valid calibration has not yet been performed. Next, Initial Values must be provided by writing to Modbus Register 57367 (0x0E016).

The Autocalibration of Gains is performed by **selecting a Range** and **initiating Autocalibration**. First, the appropriate inputs should be applied to the meter. Then the appropriate Range should be selected by writing to Modbus Register 57349-57355 (0x0E004-0x0E00A). Finally, Autocalibration should be initiated by writing to Modbus Register 57356 (0x0E00B).

Manual Adjustment of Calibration Values is performed by selecting Gain vs. Phase Compensation, indicating whether Adjustment should be 1 count or 10, selecting a Range and then by indicating which Phase should be incremented or decremented. First, either Gain or Phase Compensation Adjustment should be selected by writing to Register 57366 (0x0E015) or 57368 (0x0E017). Next, 1 or 10 count Adjustments should be selected by writing to Register 57369 (0x0E018) or 57370 (0x0E019). Then the appropriate Range should be selected by writing to Modbus Register 57349-57355 (0x0E004-0x0E00A) or 57373-57377 (0x0E01C-0x0E020). Finally, indicate which Phase is being adjusted and in which direction by writing to Modbus register 57357-57364 (0x0E00C-0x0E013).

■ **Direct Adjustment Interface**

|  | <b>Factory Read</b> | <b>CTPT Read</b> | <b>Modification</b> |
|--|---------------------|------------------|---------------------|
| <b>Block Timestamp</b>   | 60929-60932         | 61027-61030      |                     |
| <b>Calibration Modification Selection</b>  |                     |                  | 61185               |
| <b>Calibration Timestamp</b>   | 60933-60936         | 61030-61034      | 61186-61189         |
| <b>Gain Factors <math>V_{AN}</math>, <math>V_{BN}</math>, <math>V_{CN}</math>, <math>V_{XN}</math></b> | 60937-60944         | 61035-61042      | 61190-61197         |
| <b>Gain Factor <math>I_A</math>, 150mA, 250mA, 500mA, 1A, 2.5A, 5A</b>                                 | 60945-60956         | 61043-61054      | 61198-61209         |
| <b>Gain Factors <math>I_B</math>, <math>I_C</math>, <math>I_{NM}</math></b>                            | 60957-60992         | 61055-61090      | 61210-61245         |
| <b>Unused</b>  | 60993               | 61091            | 61246               |
| <b>Phase Comp <math>I_A</math>, 500mA, 1A, 2.5A, 5A, 10A</b>   | 60994-60998         | 61092-61096      | 61247-61251         |
| <b>Phase Comp <math>I_B</math>, <math>I_C</math></b>   | 60999-61025         | 61097-61106      | 61252-61278         |
| <b>Unused</b>  | 61009-61025         | 61107-61123      | 61262-61278         |
| <b>Calibration Checksum</b>  | 61026               | 61124            | 61279               |
| <b>Block Checksum</b>  |                     |                  | 61280               |

Calibration data can be read and modified using the above registers.

Factory Calibration and CT/PT Compensation Calibration are available in the above blocks.

The Block Timestamp indicates when the data you are reading was last refreshed for viewing.

The Calibration Timestamp indicates when calibration information was last modified. This is either updated automatically when manual adjustments are performed, or is provided as part of the block when direct adjustments are performed.

The Calibration Checksum is a CRC16 checksum computed over all calibration information from the Calibration Timestamp through to the last unused byte before the Calibration Checksum. It is either automatically computed when manual adjustments are performed, or is provided as part of the block when direct adjustments are performed.

When performing a direct adjustment, in addition to providing a properly checksummed table of calibration data, a selection indicating whether the table should update the Factory calibration or the CT/PT calibration needs to be provided. This selection should be 0x00000 for Factory Calibration and 0x00100 for CT/PT Compensation. To verify the selection, a Block Checksum must be computed from the Calibration Modification Selection through to the Calibration Checksum.

- **Voltage Gain Factor:** 4 byte signed LSB values with 15 bits of fraction that are used as a multiplicative factor.

| <b>As Stored (LSB)</b> | <b>MSB</b>  | <b>Decimal</b> | <b>Scaled</b> | <b>Meaning</b>             |
|------------------------|-------------|----------------|---------------|----------------------------|
| 0x000800000            | 0x000008000 | 32768          | 1.00000       | x*1.00 (unity)             |
| 0x0CC8C0000            | 0x000008CCC | 36044          | 1.09998       | x*1.10 (magnification 10%) |
| 0x033730000            | 0x000007333 | 29491          | 0.89999       | x*0.90 (diminution 10%)    |

- To increase/decrease a voltage reading by y percent, **multiply the gain factor by (100 + y)/100.**

| Change by   | y  | Multiply by    |
|-------------|----|----------------|
| Increase 2% | +2 | 102/100 = 1.02 |
| Decrease 5% | -5 | 95/100 = 0.95  |

- **Current Gain Factors:** 4-byte signed LSB values with 16 bits of fraction that are used as a divisive factor.

| As Stored (LSB) | MSB         | Decimal | Scaled  | Meaning                       |
|-----------------|-------------|---------|---------|-------------------------------|
| 0x000000100     | 0x000010000 | 65536   | 1.00000 | x/1.00 (unity)                |
| 0x0711C0100     | 0x00000E8BA | 59578   | 0.90909 | x/0.90909 (magnification 10%) |
| 0x0711C0100     | 0x000011C71 | 72817   | 1.11110 | x/1.11110 (diminution 10%)    |

- To increase/decrease a current reading by y percent, **multiply the gain factor by 100 (100 + y).**

| Change by   | y  | Multiply by       |
|-------------|----|-------------------|
| Increase 2% | +2 | 100/102 = 0.98039 |
| Decrease 5% | -5 | 100/95 = 1.05263  |

- **Phase Compensation Factors:** 2 -byte signed LSB values in units of 0.01” of additive Power Factor shift.

| As Stored (LSB) | MSB     | Decimal | Scaled | Meaning         |
|-----------------|---------|---------|--------|-----------------|
| 0x00000         | 0x00000 | 0       | 0.00   | No Phase Shift  |
| 0x00200         | 0x00002 | 2       | 0.02   | +0.02° PF Shift |
| 0x0FEFF         | 0x0FFFE | -2      | -0.02  | -0.02° PF Shift |

- To increase/decrease power at 60 in Quadrant 1 by y percent, **modify the Phse Compensation by**

$$60^\circ - \cos^{-1} \left[ \frac{50}{100 + y} \right]$$

| Change by   | y  | Modified by   |
|-------------|----|---|
| Increase 2% | +2 | $60^\circ - \cos^{-1} (50/102) = 60^\circ - \cos^{-1} (0.49020) = 60^\circ - 60.65^\circ = -0.65^\circ$ |
| Decrease 5% | -2 | $60^\circ - \cos^{-1} (50/95) = 60^\circ - \cos^{-1} (0.52632) = 60^\circ - 58.24^\circ = +1.76^\circ$  |

# Chapter 6

## Nexus® Meter Log Formats

### 6.1: Log Formats Overview

- **Historical Log 1:** Historical Log 1 will fill to the total allocated memory. The number of records possible in Historical Log 1 is the total memory allocated divided by the record size (size of a Historical Log 1 snapshot).
- **Historical Log 2:** Historical Log 2 will fill to the total allocated memory. The number of records possible in Historical Log 2 is the total memory allocated divided by the record size (size of a Historical Log 2 snapshot).
- **Limit Trigger Log:** The Limit Trigger Log is designed to hold as many records as will fill either the Limit Snapshot or Limit Trigger Logs, whichever fills first. A one-for-one relationship is maintained between two logs. If the Limit Snapshot Log can only hold 256 snapshots, then only the first 256 Limit Trigger records will be used, even if the allocated memory for the Limit Trigger Log could hold 1024 records.
- **Limit Snapshot Log:** The Limit Snapshot Log will hold as many records as will fill either the Limit Snapshot or Limit Trigger Logs, whichever fills first. A one-for-one relationship is maintained between the two logs. The maximum number of records possible in the Limit Snapshot Log is the total memory allocated divided by the record size (size of a Historical Log 1 snapshot). If the Limit Trigger Log can only hold 1024 records, and the Limit Snapshot Log can hold up to 2048 snapshots, only the first 1024 snapshots will be used. If the Limit Snapshot Log can only hold 256 snapshots, then the only the first 256 records in the Limit Trigger Log will be used.
- **Waveform Trigger Log:** The Waveform Trigger Log is designed to hold as many records as will fit in the Waveform Samples Log. A one-for-one relationship is maintained between the three waveform logs. If the Samples Log can only hold 96 captures, then only the first 96 triggers will be used, even if the allocated memory for the Triggers Log could hold 128 records.
- **Waveform Samples Log:** The Waveform Samples Log will fill to the total allocated memory. The number of records possible in the Waveform Samples Log is the total memory allocated divided by the record size. Records in the Waveform Samples Log do not contain timestamps. Time Stamp Mode will not work on accesses to this log. Instead, use Time Stamp Mode to access the Waveform Triggers Log.
- **Power Quality (CBEMA) Log:** The PQ Log records in response to surges and sags of programmed High Speed Limit Triggers on enabled High Speed channels. The information it provides allows the calculation of duration and magnitude of the surges and sags as well as information for locating the start and end of the surge and sag in the Waveform Captures.
- **Digital Input Log:** The Digital Input Snapshot Log stores records in order to document the transitions of Internal and External Digital Inputs.

- **Digital Input Snapshot Log:** The Digital Input Log will fill to the total allocated memory. The number of records possible in the Digital Input Log is the total memory allocated divided by the record size (size of a Digital Input Snapshot).
- **Digital Output Log:** The Digital Output Snapshot Log stores records in order to document the stages used when changing states of Digital Outputs.
- **Digital Output Snapshot Log:** The Digital Output Log will fill to the total allocated memory. The number of records possible in the Digital Output Log is the total memory allocated divided by the record size (size of a Digital Output Snapshot).
- **Flicker Log:** The Flicker Log stores records to document Short Term and Long Term Flicker.
- **System Event Log:** The System Event Log will record the system changes made into the meter. Password changes, Power Reset and Programmable Setting changes are recorded in this log.

## 6.2: Historical Log 1 Format

### Profile Information is in the Programmable Settings Block

- **Historical Log 1:** Historical Log 1 will fill to the total allocated memory. The number of records possible in Historical Log 1 is the total memory allocated divided by the record size (size of a Historical Log 1 snapshot).
- **Historical Log 1 Record Size: (45463)**  
This Register is an enumeration for the size of a record in the Historical Log. The valid values are:
  - 0x00000 = 32 byte records
  - 0x00001 = 64 byte records
  - 0x00002 = 128 byte records
  - 0x00003 = 256 byte records
  - 0x00004 = 16 byte records
- **Historical Log 1 Data Pointers: (45205-45332)**  
These Registers indicate which information to include in a record in the Historical Log. Each Data Pointer has the following 4 (four) byte structure:

| Size   | Format        | Description  |
|--------|---------------|--------------|
| 2 byte | unsigned int  | Line Number  |
| 1 byte | unsigned char | Point number |
| 1 byte | unsigned char | Reserved     |

A Line Number is an index into the Communication Table. Example - Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into the Communication Table.

**Example:** Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the second in the twelfth line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of

points for the line are ignored.

- **Record Format:** A Record contains as many bytes as specified by the Historical Log 1 Record Size Field in the Programmable Settings Block (45463). The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| <b>Byte</b> | <b>Format</b> | <b>Range</b> | <b>Description</b> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0 – 99       | century            |
| 1           | binary        | 0 – 99       | year               |
| 2           | binary        | 1 – 12       | month              |
| 3           | binary        | 1 – 31       | day                |
| 4           | binary        | 0 – 23       | hour               |
| 5           | binary        | 0 – 59       | minute             |
| 6           | binary        | 0 – 59       | second             |
| 7           | binary        | 0 – 100      | centisecond        |

If this historical record was recorded while the meter was in test mode, then only energy readings will be recorded. All other values requested will be stored with the byte values of 0x055. The most significant bit of the centisecond byte indicates whether this record was recorded while the meter was in test mode.

If the historical record was recorded after powering up or the log was reset, the record does not contain information covering a full interval and the most significant bit of the second's byte will be set.

If the historical record was recorded after time was adjusted, the record might contain more or less than a full interval's worth of data. If time is advanced within the current interval, or advanced or rolled back to outside the current interval, the record contains less than a full interval's worth of data and the most significant bit of the minute byte will be set. If time is rolled back within the same interval, the record contains more than a full interval's worth of data and the bit before the most significant bit (bit 6) of the minute byte will be set.

- The remaining bytes are the values requested by the Historical Log 1 Data Pointers (45205-45332). If the first Data Pointer is requesting  $V_{BN}$  a 4 byte value, then the next 4 bytes in the Record are  $V_{BN}$ . This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Historical Log 1 Record Size.

### 6.3: Historical Log 2 Format

**Profile Information is in the Programming Settings Block.**

- **Historical Log 2:** Historical Log 2 will fill to the total allocated memory. The number of records possible in Historical Log 2 is the total memory allocated divided by the record size (size of a Historical Log 2 snapshot).

■ **Historical Log 2 Record Size: (45464)**

This Register is an enumeration for the size of a record in the Historical Log. The valid values are:

- 0x00000 = 32 byte records
- 0x00001 = 64 byte records
- 0x00002 = 128 byte records
- 0x00003 = 256 byte records
- 0x00004 = 16 byte records

■ **Historical Log 2 Data Pointers: (45333-45460)**

These Registers indicate which information to include in a record in the Historical Log. Each Data Pointer has the following 4 (four) byte structure:

| Size   | Format        | Description  |
|--------|---------------|--------------|
| 2 byte | unsigned int  | Line Number  |
| 1 byte | unsigned char | Point number |
| 1 byte | unsigned char | Reserved     |

A Line Number is an index into the Communication Table. Example - Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into the Communication Table.

**Example:** Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the second in the twelfth line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of points for the line are ignored.

■ **Record Format:** A Record contains as many bytes as specified by the Historical Log 2 Record Size Field in the Programmable Settings Block (45464). The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| Byte | Format | Range   | Description |
|------|--------|---------|-------------|
| 0    | binary | 0 – 99  | century     |
| 1    | binary | 0 – 99  | year        |
| 2    | binary | 1 – 12  | month       |
| 3    | binary | 1 – 31  | day         |
| 4    | binary | 0 – 23  | hour        |
| 5    | binary | 0 – 59  | minute      |
| 6    | binary | 0 – 59  | second      |
| 7    | binary | 0 – 100 | centisecond |

If this historical record was recorded while the meter was in test mode, then only energy readings will be recorded. All other values requested will be stored with the byte values of 0x055. The most significant bit of the centisecond byte indicates whether this record was recorded while the meter was in test mode.



If the historical record was recorded after powering up or the log was reset, the record does not contain information covering a full interval and the most significant bit of the second's byte will be set. If the historical record was recorded after time was adjusted, the record might contain more or less than a full interval's worth of data. If time is advanced within the current interval, or advanced or rolled back to outside the current interval, the record contains less than a full interval's worth of data and the most significant bit of the minute byte will be set. If time is rolled back within the same interval, the record contains more than a full interval's worth of data and the bit before the most significant bit (bit 6) of the minute byte will be set.

- If the Historical Log 2 Time of Use Enable byte (45952) is disabled, the remaining bytes are the values requested by the Historical Log 2 Data Pointers (45333-45460). If the first Data Pointer is requesting  $V_{BN}$  a 4 byte value, then the next 4 bytes in the Record are  $V_{BN}$ . This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Historical Log 2 Record Size.

## 6.4: Limit Trigger Log Format

Profile Information is in the Programmable Settings Block.

- The Limit Trigger Log records an entry every time limit values monitored by the Nexus® meter change their state. The log records information about the limits—for example, which limits are currently exceeded, which limits have just changed—and records a snapshot of values as specified by the Historical Profile for Log 1.
- Record Format: A Record contains 32 bytes.
  - The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| Byte | Format | Range        | Description |
|------|--------|--------------|-------------|
| 0    | binary | 0 – 99       | century     |
| 1    | binary | 0 – 99       | year        |
| 2    | binary | 1 – 12       | month       |
| 3    | binary | 1 – 31       | day         |
| 4    | binary | 0 – 23       | hour        |
| 5    | binary | 0 – 59       | minute      |
| 6    | binary | 0 – 59       | second      |
| 7    | binary | 0 – 99 + MSB | centisecond |

**Note:** This log does not record records during Test Mode.

An additional piece of information is contained in the centisecond byte. The most significant bit indicates whether this SOE record is contiguous in monitoring with the previous record. If the bit is 1, then this is the first record recorded after a power-down, reset or download and all unfinished durations prior to this record are lost. If the bit is zero, then monitoring was continuous between the last record and this one.

- The next four bytes are a bitmap for the current state of the Value 1 Comparisons of the Limits. The first bit (the most significant bit of the first byte) is the current state of the 1<sup>st</sup> Limit's Value 1 Comparison. The last bit (the least significant bit of the fourth byte) is the current state of the

32<sup>nd</sup> Limit's Value 1 Comparison. A bit value of 1 means that the Comparison is exceeded: less than or equal to Value 1 for a below limit, greater than Value 1 for an above limit. A bit value of 0 means that the Comparison is not exceeded: greater than Value 1 for a below limit, less than or equal to Value 1 for an above limit.

- The next four bytes are the same bitmap as above, but for the current state of the Value 2 Comparisons of the Limits.
- The next four bytes are a bitmap for the delta of the Value 1 Comparisons of the Limits. The order of the bits is the same as above. A bit value of 1 means that the state of the Value 1 Comparison changed since the last Alarm occurred; a bit value of 0 means that the state of the Value 1 Comparison did not change since the last Alarm.
- The next four bytes are the same bitmap as above, but for the delta of the Value 2 Comparisons of the limits.
- The next four bytes are a bitmap for the current state of the Combination of the Limits. The first bit(the most significant bit of the first byte) is the current state of the 1<sup>st</sup> Limit's Combination of the Value 1 Comparison and the Value 2 Comparison. The last bit (the least significant bit of the fourth byte) is the current state of the 32<sup>nd</sup> Limit's Combination of the Value 1 Comparison and the Value 2 comparison. A bit value of 1 means that the Combination is true, a bit value of 0 means that the Combination is false.
- The last 4 bytes are the same bitmap as above, but for the delta of the Combination of the Limits.

## 6.5: Limit Snapshot Log Format

Profile Information is in Programmable Settings Block/Limit Settings  
(Comm version 102 or above).

### ■ Limit Data Pointers: (45077-45204)

These Registers indicate which values are being monitored by limits. Each Data Pointer has the following 8 (eight) byte structure:

| Size   | Format        | Description        |
|--------|---------------|--------------------|
| 2 byte | unsigned int  | Line Number        |
| 1 byte | unsigned char | Point number       |
| 1 byte | unsigned char | Limit Mode         |
| 2 byte | unsigned int  | Comparison 1 Value |
| 2 byte | unsigned int  | Comparison 2 Value |

A Line Number is an index into the Communication Table.

**Example:** Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into the Communication Table.

**Example:** Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the second in the twelfth line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of points for the line are ignored.

■ **Record Format:** A Record contains 16, 32, 64, 128 or 256 bytes, depending on how many channels have limits assigned to them.

- The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| <u>Byte</u> | <u>Format</u> | <u>Range</u> | <u>Description</u> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0 – 99       | century            |
| 1           | binary        | 0 – 99       | year               |
| 2           | binary        | 1 – 12       | month              |
| 3           | binary        | 1 – 31       | day                |
| 4           | binary        | 0 – 23       | hour               |
| 5           | binary        | 0 – 59       | minute             |
| 6           | binary        | 0 – 59       | second             |
| 7           | binary        | 0 – 100      | centisecond        |

**Note:** This log does not record records during Test Mode.

- The remaining bytes are the values monitored by Limits (45077-45204). If the first Data Pointer is requesting  $V_{BN}$ , a 4 byte value, then the next 4 bytes in the record is  $V_{BN}$ . This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Historical Log 1 Record Size.

## 6.6: Waveform Trigger Log Format

- The Waveform Trigger Log stores records in response to High Speed Limit Triggers. It records descriptive information about records in the Waveform Samples Log.
- **Record Format:** A Record contains 256 Bytes.
  - The first eight bytes in each record is the Trigger Time Stamp, representing the time of the last sample of the triggering cycle. The format of the Time Stamp is:

| Byte | Format | Range   | Description |
|------|--------|---------|-------------|
| 0    | binary | 0 – 99  | century     |
| 1    | binary | 0 – 99  | year        |
| 2    | binary | 1 – 12  | month       |
| 3    | binary | 1 – 31  | day         |
| 4    | binary | 0 – 23  | hour        |
| 5    | binary | 0 – 59  | minute      |
| 6    | binary | 0 – 59  | second      |
| 7    | binary | 0 – 100 | centisecond |

**Note:** This log does not record records during Test Mode.

- The next 48 bytes are 12 4-byte MSB signed integers representing the RMS values recorded in the triggering cycle. The order of these readings is:

$V_{AN}$

$V_{BN}$

$V_{CN}$

$V_{AUX}$

$I_A$

$I_B$

$I_C$

$I_{AUX}$

$I_N$

$V_{AB}$

$V_{BC}$

$V_{CA}$

There are currently five hookups available, where the following RMS values are computable in each:

|                   |  |
|-------------------|--|
| 3 Element Wye     | $V_{AN}, V_{BN}, V_{CN}, I_A, I_B, I_C, I_{AUX}$                         |
| 3 CT Delta        | $I_A, I_B, I_C, I_{AUX}, V_{AB}, V_{BC}, V_{CA}$                         |
| 2 CT Delta        | $I_A, I_C, I_{AUX}, V_{AB}, V_{BC}, V_{CA}$                              |
| 2-1/2 Element Wye | $V_{AN}, V_{CN}, I_A, I_B, I_C, I_{AUX}$                                 |
| Broken Delta      | $V_{AN}, V_{BN}, V_{CN}, I_A, I_B, I_C, I_{AUX}, V_{AB}, V_{BC}, V_{CA}$ |

If the unit is a Nexus® 1252 meter with regular hardware, RMS values are in units of squared secondary, with two bytes of fraction. That is, each count is 1/65536 of a squared volt.

If the unit is a Nexus® 1252 meter with 300 V hardware, RMS values are in units of squared secondary, with 14 bits of fraction. That is, each count is 1/16384 of a squared volt. Units that are 300 V hardware can be identified by the appropriate setting in the programmable settings or Hardware Option for 300V, Modbus Register 0x0FF53.

If the unit is a Nexus® 1262/1272 meter, RMS values are in units of squared secondary, with 12 bits of fraction. That is, each count is 1/4096 of a squared volt.

Example:

Nexus® 1252 meter with regular hardware:  
 VAN = 0x038B84000 = 14,520.25 v<sup>2</sup> secondary, or 120.5 v secondary

Nexus® 1252 meter with 300 V hardware:  
 VAN = 0x038B84000 = 58,081 v<sup>2</sup> secondary, or 241 v secondary

Nexus® 1262/1272 meter:  
 VAN = 0x038B84000 = 232,324 v<sup>2</sup> secondary, or 482 v secondary

- The next byte holds eight bits representing the Delta of the High Speed Input States. High Speed Digital Input States are in the following format:

| Table 6.1 High Speed Digital Input States |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|
| Bits                                      |       |       |       |       |       |       |       |
| 7   | 6     | 5     | 4     | 3     | 2     | 1     | 0     |
| HSI 8                                     | HSI 7 | HSI 6 | HSI 5 | HSI 4 | HSI 3 | HSI 2 | HSI 1 |

A bit value of 1 means the input changed in the last cycle. A bit value of 0 means the input is closed.

- The next byte holds eight bits representing the current states of the High Speed Inputs. High Speed Digital Inputs are in the following format:

| Table 6.2: Current States of the High Speed Inputs |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|
| Bits   |       |       |       |       |       |       |       |
| 7  | 6     | 5     | 4     | 3     | 2     | 1     | 0     |
| HSI 8  | HSI 7 | HSI 6 | HSI 5 | HSI 4 | HSI 3 | HSI 2 | HSI 1 |

A bit value of 1 means the input is open. A bit value of 0 means the input is closed.

- The next byte is a supplement to the Trigger Time Stamp. It is in milliseconds for the Trigger Time Stamp and a binary value in the range 0–9.
- The next byte tells which capture contains the trigger. For example, a device records a surge lasting for two cycles. The surge triggers the first capture and the first capture contains the triggering cycle for that first capture. However, the cycle that is the subsequent return to normal is also contained in the first capture. It triggers the second capture. In the first Trigger Record, this byte would contain the value 0x000, identifying the triggering sample to be in the first capture at the index given by the above index value. In the second Trigger Record, this byte would also contain the value 0x000, identifying the triggering sample also contained in the first capture at the index and time given by its index value.
- The next two bytes are a signed integer with the index of the sample that was at the end of the triggering cycle.
- The next two bytes are a signed integer with a count of the number of samples used in the triggering cycle.
- The next two bytes are a signed integer with the index of the sample that was the first sample of the capture.
- The next four bytes are a bitmap of the States of the High Speed Limits after a triggering cycle. These bits represent the true states of all the limits, regardless of trigger enable settings.

The first two bytes are for the Above Limits, in the following order:

| Table 6.3: Above Limits |                 |                 |                  |                |                |                |                  |                |                 |                 |                 |   |   |   |   |
|-------------------------|-----------------|-----------------|------------------|----------------|----------------|----------------|------------------|----------------|-----------------|-----------------|-----------------|---|---|---|---|
| Above Limit             |                 |                 |                  |                |                |                |                  |                |                 |                 |                 |   |   |   |   |
| 15                      | 14              | 13              | 12               | 11             | 10             | 9              | 8                | 7              | 6               | 5               | 4               | 3 | 2 | 1 | 0 |
| V <sub>AN</sub>         | V <sub>BN</sub> | V <sub>CN</sub> | V <sub>AUX</sub> | I <sub>A</sub> | I <sub>B</sub> | I <sub>C</sub> | I <sub>AUX</sub> | I <sub>N</sub> | V <sub>AB</sub> | V <sub>BC</sub> | V <sub>CA</sub> | — | — | — | — |

The other two bytes are for the below limits, and are in the same order as above.

- The next four bytes are a bitmap of the Latched Delta states of the High Speed Limits. For the first cycle in which a limit changes state, the change of state is recognized as a Delta. If waveform capture parameters require multiple captures for a given change, subsequent captures would be recognized as having no new Deltas. Therefore, every time a Delta occurs, the new Delta is latched, so that consecutive captures for the original Delta contain information on the Delta that triggered the first capture. The order of the bits is the same as for the states of the High Speed Limits, as above. These bits will only report changes in limits that are enabled for Waveform Triggering.
- The next byte indicates whether this capture is contiguous with the previous capture. A value of 0x001 indicates that the first sample of this capture immediately follows the last sample of the previous capture, with no gap. Contiguous does not imply that they were both captured for the same cause, only that they follow one after the other. A value of 0x000 means that a gap in time

occurred between the two captures.

- The next byte is a counter for Consecutive Captures. If programmed to record 4 captures per event, the four captures will have values of 0x000, 0x001, 0x002 and 0x003, respectively, for this byte.
- The next 8 bytes are a Time Stamp of the format above. It is the Timing Point Time Stamp. Since captures may be triggered by events in previous captures, every capture designates a point within itself upon which to base the time for samples within that capture.
- The next byte is the Timing Point millisecond. It is a binary value in the range 0x000 – 0x009, and represents the millisecond of the Timing Point Time Stamp.
- The next byte is unused.
- The next 2 bytes are a signed integer with an index of the point used as the Timing Point. This index always refers to a sample in this capture, regardless of the location of the triggering cycle for this capture.
- The next 32 bytes represent eight, 4-byte Sample Gain Factors. The order of these readings is:

$V_{AN}$

$V_{BN}$

$V_{CN}$

$V_{AUX}$

$I_A$

$I_B$

$I_C$

$I_{AUX}$

For Nexus® 1252 meters with regular hardware or Nexus® 1262/1272 meters, Sample Gain Factors are a four-byte unsigned value with two bytes of fraction, covering a range of 0 – 65535.999985, where each count represents 1/65536 gain.

For Nexus® 1252 meters with 300 V hardware, sample Gain Factors are a four byte unsigned value with 15 bits of fraction, covering a range of 0-131071.999969, where each count represents 1/32768 gain.

These gain factors are a multiplicative factor to scale samples, represented in percent of A/D full scale, into secondary units.

**The formula to use for Nexus® 1252 meters with regular hardware or Nexus® 1262/72 meters is:**

$$\frac{\text{Ungained\_Sample}}{16384} \times \frac{\text{Gain\_Factor}}{65536} = \text{Gained\_Sample}$$

**The formula to use for Nexus® 1252 meters with 300V hardware is:**

$$\frac{\text{Ungained\_Sample}}{16384} \times \frac{\text{Gain\_Factor}}{32768} = \text{Gained\_Sample}$$

**Example for Nexus® 1252 meter with regular hardware or Nexus® 1262/72 meters:**

Ungained Voltage Sample = 0x01234 = 4660

Gain Factor = 421.905579 = 0x001A5E7D4 = 27650004

$$\frac{4660}{16384} \times \frac{27650004}{65536} = 120.000000$$

The resulting answer is 120.000000 Volts secondary (240.000000 for the example below).

**Example for Nexus® 1252 meter with 300V hardware:**

Ungained Voltage Sample 0x01234 = 4660

Gain Factor = 834.81116 = 0x01A5E7D4 = 27650004

$$\frac{4660}{16384} \times \frac{27650004}{32768} = 240.000000$$

- The next 22 bytes are the RMS Gain Factors. The order of these factors is:

V<sub>CA</sub>

V<sub>BC</sub>

V<sub>AB</sub>

V<sub>AUX</sub>

V<sub>CN</sub>

V<sub>BN</sub>

V<sub>AN</sub>

I<sub>AUX</sub>

I<sub>C</sub>

I<sub>B</sub>

I<sub>A</sub>

- The remaining 114 bytes are unused.



## 6.7: Waveform Samples Log Format

- The Waveform Samples Log responds to High Speed Limit Triggers. It records samples from the requested channels at the requested sample rate.
- A Record contains 16,384 bytes. Depending on the number of requested channels, a record is segmented in the following ways:

|   |   |
|---|---|
| 7 Analog & 8 Digital Channels for Sampling Rate 16, 32, 64, 128 | 1024 sets of 16 bytes, containing 15-bit samples for $I_A$ , $I_B$ , $I_C$ , $I_{AUX}$ , $V_{AN}$ , $V_{BN}$ and $V_{CN}$ , an 8-bit sample for High Speed Digital Inputs States and an unused byte.                                |
| 3 Analog & 8 Digital Channels for Sampling Rate 256             | 2048 sets of 8 bytes, containing 15-bit samples for $V_{AN}$ , $V_{BN}$ and $V_{CN}$ or $I_A$ , $I_B$ and $I_C$ , an 8-bit sample for High Speed Digital Input States and an unused byte.   |
| 1 Analog & 8 Digital Channels for Sampling Rate 512             | 4096 sets of 4 bytes, containing a 15-bit sample for a single analog channel (only one of $V_{AN}$ , $V_{BN}$ , $V_{CN}$ , $I_A$ , $I_B$ , $I_C$ and $I_{AUX}$ ), an 8-bit sample for High Speed Digital States and an unused byte. |

- Graphically, the three segmentations could be represented as the following:

| Table 6.4: 7 Analog & 8 Digital Channels |    |       |    |       |    |           |    |          |    |          |    |          |    |     |    |
|--|----|-------|----|-------|----|-----------|----|----------|----|----------|----|----------|----|-----|----|
| $I_A$                                    |    | $I_B$ |    | $I_C$ |    | $I_{AUX}$ |    | $V_{AN}$ |    | $V_{BN}$ |    | $V_{CN}$ |    |     |    |
| Low                                      | Hi | Low   | Hi | Low   | Hi | Low       | Hi | Low      | Hi | Low      | Hi | Low      | Hi | HSI | —  |
| 0  | 1  | 2     | 3  | 4     | 5  | 6         | 7  | 8        | 9  | 10       | 11 | 12       | 13 | 14  | 15 |
| 16                                       | 17 | 18    | 19 | 20    | 21 | 22        | 23 | 24       | 25 | 26       | 27 | 28       | 29 | 30  | 31 |

| Table 6.5: 3 Analog & 8 Digital Channels |    |          |    |          |    |     |    |          |    |          |    |          |    |     |    |
|--|----|----------|----|----------|----|-----|----|----------|----|----------|----|----------|----|-----|----|
| $V_{AN}$                                 |    | $V_{BN}$ |    | $V_{CN}$ |    |     |    | $V_{AN}$ |    | $V_{BN}$ |    | $V_{CN}$ |    |     |    |
| Low                                      | Hi | Low      | Hi | Low      | Hi | HSI | —  | Low      | Hi | Low      | Hi | Low      | Hi | HSI | —  |
| 0  | 1  | 2        | 3  | 4        | 5  | 6   | 7  | 8        | 9  | 10       | 11 | 12       | 13 | 14  | 15 |
| 16                                       | 17 | 18       | 19 | 20       | 21 | 22  | 23 | 24       | 25 | 26       | 27 | 28       | 29 | 30  | 31 |

| Table 6.6: 1 Analog & 8 Digital Channels |    |     |    |        |    |     |    |        |    |     |    |        |    |     |    |
|--|----|-----|----|--------|----|-----|----|--------|----|-----|----|--------|----|-----|----|
| Analog                                   |    |     |    | Analog |    |     |    | Analog |    |     |    | Analog |    |     |    |
| Low                                      | Hi | HSI | —  | Low    | Hi | HSI | —  | Low    | Hi | HSI | —  | Low    | Hi | HSI | —  |
| 0  | 1  | 2   | 3  | 4      | 5  | 6   | 7  | 8      | 9  | 10  | 11 | 12     | 13 | 14  | 15 |
| 16                                       | 17 | 18  | 19 | 20     | 21 | 22  | 23 | 24     | 25 | 26  | 27 | 28     | 29 | 30  | 31 |

■ Each analog sample uses 2 bytes to represent a 15-bit sample. There are three different forms that the two bytes might occupy, one form for voltage samples and two forms for current samples.

- For all three forms, the first byte is the least significant byte and contains the lower order bits, 7-0.
- For voltage samples, the second byte contains the high order bits, 14 – 7, in a modified two's complement format. It is modified in that while a standard two's complement would represent values between +127 and -128, these values have been rounded up based on the value of bit 6, stored in the lower byte and represent values from +128 to –128. This byte is used by the meter to calculate the High Speed RMS value used for waveform capture. This rounding centers the scale around the true zero of the full range of the A/D.

The full 15-bit voltage value can be recovered from these two bytes using the following steps:

1. If bit 6, stored in the first byte, is 0, skip to step 3.
2. Decrement the 8-bit two's complement value of bits 14 – 7, stored in the second byte.
3. Combine bits 14 – 7 of the second byte with bits 6-0 of the first byte.
4. The resulting 15-bit value is the two's complement value of the sample.
5. Sign extend the 15-bit value by one bit (copy bit 14 to bit 15) to produce a standard 16-bit integer.

Since the range of the A/D is +2.5 – -2.5, one bit of the high byte represents 0.019531V, while one bit of the 15-bit value represents 0.000153V.

**Note:** This log does not record records during Test Mode.

Table 6.7 on the following page gives several examples.

**Table 6.7 Voltage Sample Examples**

| Actual Voltage | A/D15-A/D0 | 1st Byte  | 2nd Byte            |                     | HS RMS Voltage | Stored Voltage |
|----------------|------------|-----------|---------------------|---------------------|----------------|----------------|
|                |            | A/D8-A/D1 | Straight A/D15-A/D8 | Adjusted A/D15-A/D8 |                |                |
| +2.500000      | 0x07FFF    | 0x0FF     | 0x07F               | 0x080               | +2.500000      | +2.499847      |
| +2.499924      | 0x07FFF    | 0x0FF     | 0x07F               | 0x080               | +2.500000      | +2.499847      |
| +2.499847      | 0x07FFE    | 0x0FF     | 0x07F               | 0x080               | +2.500000      | +2.499847      |
| +2.499771      | 0x07FFD    | 0x0FE     | 0x07F               | 0x080               | +2.500000      | +2.499696      |
| +2.499696      | 0x07FFC    | 0x0FE     | 0x07F               | 0x080               | +2.500000      | +2.499696      |
| +2.499619      | 0x07FFB    | 0x0FD     | 0x07F               | 0x080               | +2.500000      | +2.499542      |
| +2.490234      | 0x07F80    | 0x080     | 0x07F               | 0x080               | +2.500000      | +2.490234      |
| +2.480392      | 0x07F7F    | 0x07F     | 0x07F               | 0x07F               | +2.480469      | +2.490082      |
| +2.480469      | 0x07F00    | 0x000     | 0x07F               | 0x07F               | +2.480469      | +2.480469      |
| +2.480392      | 0x07EFF    | 0x0FF     | 0x07E               | 0x07F               | +2.480469      | +2.480316      |
| +2.470703      | 0x07E80    | 0x080     | 0x07E               | 0x07F               | +2.480469      | +2.470703      |
| +2.470627      | 0x07E7F    | 0x07F     | 0x07E               | 0x07E               | +2.460938      | +2.470551      |
| +0.009766      | 0x00080    | 0x080     | 0x000               | 0x001               | +0.019531      | +0.009766      |
| +0.009689      | 0x0007F    | 0x07F     | 0x000               | 0x000               | +0.000000      | +0.009613      |
| +0.000000      | 0x00000    | 0x000     | 0x000               | 0x000               | +0.000000      | +0.000000      |
| -0.000076      | 0x0FFFF    | 0x0FF     | 0x0FF               | 0x000               | +0.000000      | -0.000153      |
| -0.009766      | 0x0FF80    | 0x0C0     | 0x0FF               | 0x000               | +0.000000      | -0.009766      |
| -0.009842      | 0x0FF7F    | 0x0BF     | 0x0FF               | 0x0FF               | -0.019531      | -0.009918      |
| -2.490234      | 0x08080    | 0x040     | 0x080               | 0x081               | -2.480469      | -2.490234      |
| -2.490310      | 0x0807F    | 0x03F     | 0x080               | 0x080               | -2.500000      | -2.490387      |
| -2.499847      | 0x08001    | 0x000     | 0x080               | 0x080               | -2.500000      | -2.500000      |
| -2.500000      | 0x08000    | 0x000     | 0x080               | 0x080               | -2.500000      | -2.500000      |

- For current samples, there are two forms for the second byte. The two forms are signaled by the most significant bit of the second byte. If the bit is clear, the second byte represents a coarse representation and contains information on bits 14 – 8 in modified two’s complement format. If the bit is set, the second byte represents a fine representation and contains information on bits 14 – 5 in a modified two’s complement format. Values in the fine representation carry three more bits of information. Values in the coarse representation are weighted by a factor of 8.

Values in the coarse representation are modified in that they have been rounded up based on the value of bit 7, stored in the lower byte and represent values from  $+64*8$  to  $-64*8$ .

Values in the fine representation are modified in that they have been rounded up based on the value of bit 4, stored in the lower byte and represent values from  $+64$  to  $-64$ .

The second byte is used by the meter to calculate the High Speed RMS value used for waveform capture. The two ranges allow the samples to cover a wide range, with greater precision on smaller signals than larger ones, while the rounding centers the scales around the true zero of the full range of the A/D. The full 15 - bit current value can be recovered from these two bytes using the following steps:

1. If the most significant bit of the second byte is set, skip to step 6.
2. If bit 7, stored in the first byte, is 0, skip to step 4.
3. Decrement the 7 - bit two’s complement value of bits 14 - 8, stored in the second byte.
4. Combine bits 14- 8 of the second byte with bits 7 - 0 of the first byte.
5. Skip to step 10.
6. If bit 4, stored in the first byte, is 0, skip to step 8.
7. Decrement the 7 - bit two’s complement value of bits 11 - 5, stored in the second byte.
8. Combine bits 11 - 5 of the second byte with bits 4 - 0 of the first byte.
9. Sign extend the 12 - bit value by three bits (copy bit 11 to bits 14 - 12) to produce a 15 - bit two’s complement value.
10. The resulting 15 - bit value is the two’s complement value of the sample.
11. Sign extend the 15 - bit value by one bit (copy bit 14 to bit 15) to produce a standard 16 - bit integer.

Since the range of the A/D is  $+2.5 - -2.5$ , one bit of the coarse representation represents 0.039063V, one bit of the fine representation represents 0.004883V and one bit of the 15 - bit value represents 0.000153V.

Table 6.8 on the following pages gives several examples.

**Table 6.8 Current Sample Examples**

| <b>Actual Voltage</b> | <b>A/D15-A/D0</b> | <b>1st Byte A/D8-A/D1</b> | <b>2nd Byte Straight A/D15-A/D9</b> | <b>Straight A/D15-A/D6</b> | <b>2nd Byte Adjusted A/D15-A/D(9/6)</b> | <b>HS RMS Voltage</b> | <b>Stored Voltage</b> |
|-----------------------|-------------------|---------------------------|-------------------------------------|----------------------------|---|-----------------------|-----------------------|
| +2.500000             | 0x07FFF           | 0x0FF                     | 0x03F                               | 0x01FF                     | 0x040                                   | +2.500000             | +2.499847             |
| +2.499924             | 0x07FFF           | 0x0FF                     | 0x03F                               | 0x01FF                     | 0x040                                   | +2.500000             | +2.499847             |
| +2.499847             | 0x07FFE           | 0x0FF                     | 0x03F                               | 0x01FF                     | 0x040                                   | +2.500000             | +2.499847             |
| +2.499771             | 0x07FFD           | 0x0FE                     | 0x03F                               | 0x01FF                     | 0x040                                   | +2.500000             | +2.499695             |
| +2.480621             | 0x07F02           | 0x081                     | 0x03F                               | 0x01FC                     | 0x040                                   | +2.500000             | +2.480621             |
| +2.480545             | 0x07F01           | 0x080                     | 0x03F                               | 0x01FC                     | 0x040                                   | +2.500000             | +2.480469             |
| +2.480469             | 0x07F00           | 0x080                     | 0x03F                               | 0x01FC                     | 0x040                                   | +2.500000             | +2.480469             |
| +2.480392             | 0x07EFF           | 0x07F                     | 0x03F                               | 0x01FB                     | 0x03F                                   | +2.460938             | +2.480316             |
| +2.480316             | 0x07EFE           | 0x07F                     | 0x03F                               | 0x01FB                     | 0x03F                                   | +2.460938             | +2.480316             |
| +2.480240             | 0x07EFD           | 0x07E                     | 0x03F                               | 0x01FB                     | 0x03F                                   | +2.460938             | +2.480164             |
| +2.461090             | 0x07E02           | 0x001                     | 0x03F                               | 0x01F8                     | 0x03F                                   | +2.460938             | +2.461090             |
| +2.461014             | 0x07E01           | 0x000                     | 0x03F                               | 0x01F8                     | 0x03F                                   | +2.460938             | +2.460938             |
| +2.460938             | 0x07E00           | 0x000                     | 0x03F                               | 0x01F8                     | 0x03F                                   | +2.460938             | +2.460938             |
| +2.460861             | 0x07DFF           | 0x0FF                     | 0x03E                               | 0x01F7                     | 0x03F                                   | +2.460938             | +2.460785             |
| +2.460785             | 0x07DFE           | 0x0FF                     | 0x03E                               | 0x01F7                     | 0x03F                                   | +2.460938             | +2.460785             |
| +2.460709             | 0x07DFD           | 0x0FE                     | 0x03E                               | 0x01F7                     | 0x03F                                   | +2.460938             | +2.460632             |
| +2.441559             | 0x07D02           | 0x081                     | 0x03E                               | 0x01F4                     | 0x03F                                   | +2.460938             | +2.441559             |
| +2.441483             | 0x07D01           | 0x080                     | 0x03E                               | 0x01F4                     | 0x03F                                   | +2.460938             | +2.441406             |
| +2.441406             | 0x07D00           | 0x080                     | 0x03E                               | 0x01F4                     | 0x03F                                   | +2.460938             | +2.441406             |
| +2.441330             | 0x07CFF           | 0x07F                     | 0x03E                               | 0x01F3                     | 0x03E                                   | +2.421875             | +2.441254             |
| +2.441254             | 0x07CFE           | 0x07F                     | 0x03E                               | 0x01F3                     | 0x03E                                   | +2.421875             | +2.441254             |
| +2.441177             | 0x07CFD           | 0x07E                     | 0x03E                               | 0x01F3                     | 0x03E                                   | +2.421875             | +2.441101             |
| +2.422028             | 0x07C02           | 0x001                     | 0x03E                               | 0x01F0                     | 0x03E                                   | +2.421875             | +2.422028             |
| +2.421951             | 0x07C01           | 0x000                     | 0x03E                               | 0x01F0                     | 0x03E                                   | +2.421875             | +2.421875             |
| +2.421875             | 0x07C00           | 0x000                     | 0x03E                               | 0x01F0                     | 0x03E                                   | +2.421875             | +2.421875             |

**Table 6.8 Current Sample Examples, Continued**

| <b>Actual Voltage</b> | <b>A/D15-A/D9</b> | <b>1st Byte A/D8-A/D1</b> | <b>Straight A/D15-A/D9</b> | <b>Straight A/D15-A/D6</b> | <b>2nd Byte Adjusted A/D15-A/D(9-6)</b> | <b>HS RMS Voltage</b> | <b>Stored Voltage</b> |
|-----------------------|-------------------|---------------------------|----------------------------|----------------------------|---|-----------------------|-----------------------|
| +2.421799             | 0x07BFF           | 0x0FF                     | 0x03D                      | 0x01EF                     | 0x03E                                   | +2.421875             | +2.421722             |
| +2.421722             | 0x07BFE           | 0x0FF                     | 0x03D                      | 0x01EF                     | 0x03E                                   | +2.421875             | +2.421772             |
| +2.421646             | 0x07BFD           | 0x0FE                     | 0x03D                      | 0x01EF                     | 0x03E                                   | +2.421875             | +2.421570             |
| +0.312653             | 0x01002           | 0x001                     | 0x008                      | 0x0040                     | 0x008                                   | +0.312500             | +0.312653             |
| +0.312576             | 0x01001           | 0x000                     | 0x008                      | 0x0040                     | 0x008                                   | +0.312500             | +0.312500             |
| +0.312500             | 0x01000           | 0x000                     | 0x008                      | 0x0040                     | 0x008                                   | +0.312500             | +0.312500             |
| +0.312424             | 0x00FFF           | 0x0FF                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.312347             |
| +0.312347             | 0x00FFE           | 0x0FF                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.312347             |
| +0.312271             | 0x00FFD           | 0x0FE                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.312195             |
| +0.312653             | 0x00FE2           | 0x0F1                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.310211             |
| +0.312576             | 0x00FE1           | 0x0F0                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.310059             |
| +0.312500             | 0x00FE0           | 0x0F0                     | 0x007                      | 0x003F                     | 0x0C0                                   | +0.312500             | +0.310059             |
| +0.312424             | 0x00FDF           | 0x0EF                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.309906             |
| +0.312347             | 0x00FDE           | 0x0EF                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.309906             |
| +0.312271             | 0x00FDD           | 0x0EE                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.309753             |
| +0.307770             | 0x00FC2           | 0x0E1                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.307770             |
| +0.307693             | 0x00FC1           | 0x0E0                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.307617             |
| +0.307617             | 0x00FC0           | 0x0E0                     | 0x007                      | 0x003F                     | 0x0BF                                   | +0.307617             | +0.307617             |
| +0.307541             | 0x00FBF           | 0x0DF                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.307465             |
| +0.307465             | 0x00FBE           | 0x0DF                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.307465             |
| +0.307388             | 0x00FBD           | 0x0DE                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.307312             |
| +0.305328             | 0x00FA2           | 0x0D1                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.305328             |
| +0.305252             | 0x00FA1           | 0x0D0                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.305176             |
| +0.305176             | 0x00FA0           | 0x0D0                     | 0x007                      | 0x003E                     | 0x0BF                                   | +0.307617             | +0.305176             |
| +0.305099             | 0x00F9F           | 0x0CF                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.305023             |
| +0.305023             | 0x00F9E           | 0x0CF                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.305023             |
| +0.304947             | 0x00F9D           | 0x0CE                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.304871             |

**Table 6.8 Current Sample Examples, Continued**

| <b>Actual Voltage</b> | <b>A/D15-A/D0</b> | <b>1st Byte A/D8-A/D9</b> | <b>Straight A/D15-A/D9</b> | <b>Straight A/D15-A/D6</b> | <b>2nd Byte Adjusted A/D15-A/D(9/6)</b> | <b>HS RMS Voltage</b> | <b>Stored Voltage</b> |
|-----------------------|-------------------|---------------------------|----------------------------|----------------------------|---|-----------------------|-----------------------|
| +0.302887             | 0x00F82           | 0x0C1                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.302887             |
| +0.302810             | 0x00F81           | 0x0C0                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.302734             |
| +0.302734             | 0x00F80           | 0x0C0                     | 0x007                      | 0x003E                     | 0x0BE                                   | +0.302734             | +0.302734             |
| +0.302658             | 0x00F7F           | 0x0BF                     | 0x007                      | 0x003D                     | 0x0BE                                   | +0.302734             | +0.302582             |
| +0.302582             | 0x00F7E           | 0x0BF                     | 0x007                      | 0x003D                     | 0x0BE                                   | +0.302734             | +0.302582             |
| +0.302505             | 0x00F7D           | 0x0BE                     | 0x007                      | 0x003D                     | 0x0BE                                   | +0.302734             | +0.302429             |
| +0.002441             | 0x00020           | 0x010                     | 0x000                      | 0x0000                     | 0x081                                   | +0.004883             | +0.002441             |
| +0.002365             | 0x0001F           | 0x00F                     | 0x000                      | 0x0000                     | 0x080                                   | +0.000000             | +0.002289             |
| +0.000076             | 0x00001           | 0x000                     | 0x000                      | 0x0000                     | 0x080                                   | +0.000000             | +0.000000             |
| +0.000000             | 0x00000           | 0x000                     | 0x000                      | 0x0000                     | 0x080                                   | +0.000000             | +0.000000             |
| -0.000076             | 0x0FFFF           | 0x0FF                     | 0x07F                      | 0x03FF                     | 0x080                                   | +0.000000             | -0.000153             |
| -0.000153             | 0x0FFFE           | 0x0FF                     | 0x07F                      | 0x03FF                     | 0x080                                   | +0.000000             | -0.000153             |
| -0.002441             | 0x0FFE0           | 0x0F0                     | 0x07F                      | 0x03FF                     | 0x080                                   | +0.000000             | -0.002441             |
| -0.002518             | 0x0FFDF           | 0x0EF                     | 0x07F                      | 0x03FF                     | 0x0FF                                   | -0.004883             | -0.002594             |
| -0.312347             | 0x0F002           | 0x001                     | 0x078                      | 0x03C0                     | 0x0C0                                   | -0.312500             | -0.312347             |
| -0.312424             | 0x0F001           | 0x000                     | 0x078                      | 0x03C0                     | 0x0C0                                   | -0.312500             | -0.312500             |
| -0.312500             | 0x0F000           | 0x000                     | 0x078                      | 0x03C0                     | 0x0C0                                   | -0.312500             | -0.312500             |
| -0.312576             | 0x0EFFF           | 0x0FF                     | 0x077                      | 0x03BF                     | 0x077                                   | -0.312500             | -0.312653             |
| -0.312653             | 0x0EF FE          | 0x0FF                     | 0x077                      | 0x03BF                     | 0x077                                   | -0.312500             | -0.312653             |
| -0.312729             | 0x0E FFD          | 0x0FE                     | 0x077                      | 0x03BF                     | 0x077                                   | -0.312500             | -0.312805             |
| -2.480469             | 0x08100           | 0x080                     | 0x081                      | 0x081                      | 0x081                                   | -2.480469             | -2.480469             |
| -2.480545             | 0x080FF           | 0x07F                     | 0x080                      | 0x080                      | 0x081                                   | -2.480469             | -2.480621             |
| -2.499771             | 0x08002           | 0x001                     | 0x080                      | 0x080                      | 0x080                                   | -2.500000             | -2.499847             |
| -2.499847             | 0x08001           | 0x000                     | 0x080                      | 0x080                      | 0x080                                   | -2.500000             | -2.500000             |
| -2.500000             | 0x08000           | 0x000                     | 0x080                      | 0x080                      | 0x080                                   | -2.500000             | -2.500000             |

- High Speed Digital Input States contain the states of the 8 High Speed Digital Inputs in the following format:

| Table 6.9 High Speed Digital Input States |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|
| 7   | 6     | 5     | 4     | 3     | 2     | 1     | 0     |
| HSI 8                                     | HSI 7 | HSI 6 | HSI 5 | HSI 4 | HSI 3 | HSI 2 | HSI 1 |

A bit value of 1 means the input is open. A bit value of 0 means the input is closed.

- When sampling at 15,360 samples/second, RMS is calculated within the meter on every other sample, always starting with the first sample of a cycle. At all other sampling rates, RMS is calculated using every sample in the cycle.



## 6.8: Power Quality (CBEMA) Log Format

■ **PQ (CBEMA) Log Format:** The PQ (CBEMA) Log records in response to surges and sags of programmed High Speed Limit Triggers on enabled High Speed channels. The information it provides allows the calculation of duration and magnitude of the surges and sags, as well as information for locating the start and end of the surge or sag in the Waveform Captures.

■ **Record Format:** A Record contains 128 Bytes.

- The first eight bytes in each record is the Starting Time Stamp, representing the time of the last sample of first cycle of the surge or sag. The format of the Time Stamp is:

| Byte | Format | Range   | Description |
|------|--------|---------|-------------|
| 0    | binary | 0 – 99  | century     |
| 1    | binary | 0 – 99  | year        |
| 2    | binary | 1 – 12  | month       |
| 3    | binary | 1 – 31  | day         |
| 4    | binary | 0 – 23  | hour        |
| 5    | binary | 0 – 59  | minute      |
| 6    | binary | 0 – 59  | second      |
| 7    | binary | 0 – 100 | centisecond |

**Note:** This log does not record records during Test Mode.

- The next byte is the millisecond value for the Starting Time Stamp, a binary value in the range of 0 – 9.
- The next four bytes are a bitmap of the States of the High Speed Limits after the triggering cycle. These bits report the true state of all the limits, regardless of PQ Enable settings.

| Table 6.10: Above Limits |                 |                 |                  |                |                |                |                  |                |                 |                 |                 |   |   |   |   |
|--------------------------|-----------------|-----------------|------------------|----------------|----------------|----------------|------------------|----------------|-----------------|-----------------|-----------------|---|---|---|---|
| Above Limit              |                 |                 |                  |                |                |                |                  |                |                 |                 |                 |   |   |   |   |
| 15                       | 14              | 13              | 12               | 11             | 10             | 9              | 8                | 7              | 6               | 5               | 4               | 3 | 2 | 1 | 0 |
| V <sub>AN</sub>          | V <sub>BN</sub> | V <sub>CN</sub> | V <sub>AUX</sub> | I <sub>A</sub> | I <sub>B</sub> | I <sub>C</sub> | I <sub>AUX</sub> | I <sub>N</sub> | V <sub>AB</sub> | V <sub>BC</sub> | V <sub>CA</sub> | – | – | – | – |

The first two bytes are for the above limits, shown in the following order:

The other two bytes are for the below limits, and are in the same order as shown in Table 6.10 above.

There are currently five hookups available where the following high speed limits are computable in each:

|                   |   |
|-------------------|---|
| 3 Element Wye     | V <sub>AN</sub> , V <sub>BN</sub> , V <sub>CN</sub> , I <sub>A</sub> , I <sub>B</sub> , I <sub>C</sub> , I <sub>AUX</sub>   |
| 3 CT Delta        | I <sub>A</sub> , I <sub>B</sub> , I <sub>C</sub> , I <sub>AUX</sub> , V <sub>AB</sub> , V <sub>BC</sub> , V <sub>CA</sub>   |
| 2 CT Delta        | I <sub>A</sub> , I <sub>C</sub> , I <sub>AUX</sub> , V <sub>AB</sub> , V <sub>BC</sub> , V <sub>CA</sub>  |
| 2-1/2 Element Wye | V <sub>AN</sub> , V <sub>CN</sub> , I <sub>A</sub> , I <sub>B</sub> , I <sub>C</sub> , I <sub>AUX</sub>   |
| Broken Delta      | V <sub>AN</sub> , V <sub>BN</sub> , V <sub>CN</sub> , I <sub>A</sub> , I <sub>B</sub> , I <sub>C</sub> , I <sub>AUX</sub> , V <sub>AB</sub> , V <sub>BC</sub> , V <sub>CA</sub> |

- The next four bytes are a bitmap of the Latched Delta states of the High Speed Limits. For the first cycle that a limit changes state, the change of state is recognized as a Delta. If waveform capture parameters require multiple captures for a given change, subsequent captures would be recognized as having no new Deltas. Therefore, every time a Delta occurs, the new Delta is latched, so that consecutive captures for the original Delta can still indicate what Delta triggered the first capture. The order of the bits is the same as for the states of the High Speed Limits, as above. These bits will only report the changes in limits that are Enabled for PQ Triggering.
- The next byte tells you in which capture to find the trigger. For example, a device records a surge lasting for two cycles. The surge triggers the first capture and the triggering cycle for the first capture is in the first capture. However, the cycle which is the subsequent return to normal is also in the first capture. It triggers the second capture. In the first Trigger Record, this byte would contain the value 0x000, identifying the triggering sample to be in the first capture, at the index as given by the above index value. In the second Trigger Record, this byte would also contain the value 0x000, identifying the triggering sample to also be in the first capture, at the index and time given by its index value.
- The next two bytes are a signed integer with the index of the sample that was at the end of the triggering cycle.
- The next 48 bytes are 12 4-byte MSB signed integers representing the RMS values recorded in the triggering cycle. Following is the order of these readings:

$V_{AN}$

$V_{BN}$

$V_{CN}$

$V_{AUX}$

$I_A$

$I_B$

$I_C$

$I_{AUX}$

$I_N$

$V_{AB}$

$V_{BC}$

$V_{CA}$

For a capture in WYE configuration,  $V_{AB}$ ,  $V_{BC}$  and  $V_{CA}$  are not computed.

For a capture in DELTA configuration,  $V_{AN}$ ,  $V_{BN}$  and  $V_{CN}$  are not computed.

Currently,  $I_N$  and  $I_{AUX}$  are not computed.

If the unit has regular hardware, RMS values are in units of squared secondary, with two bytes of fraction. That is, each count is 1/65536 of a squared volt. If the unit is supplied with 300V hardware, RMS values are in units of squared secondary, with 14 bits of fraction. That is, each count is 1/16384 of a squared volt. Units that have 300V hardware can be identified by the appropriate setting in the programmable settings.

For example:

Regular Hardware

$$V_{AN} = 0x038B84000 = 14520.25 \text{ v}^2 \text{ secondary, or } 120.5 \text{ v secondary}$$

300V Hardware

$$V_{AN} = 0x038B84000 = 58081 \text{ v}^2 \text{ secondary, or } 241 \text{ v secondary}$$

- The next byte holds eight bits representing the Delta of the High Speed Input States.

These RMS values report the maximum or minimum value during a surge or sag. A given reading is only valid in the record recorded when a surge or sag ends and only for the channel or channels on which surges or sags ended.

High Speed Digital Input States are in the following format:

| Table 6.11: High Speed Digital Input States |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|
| Bits  |       |       |       |       |       |       |       |
| 7   | 6     | 5     | 4     | 3     | 2     | 1     | 0     |
| HSI 8                                       | HSI 7 | HSI 6 | HSI 5 | HSI 4 | HSI 3 | HSI 2 | HSI 1 |

A bit value of 1 means the input changed in the last cycle. A bit value of 0 means the input did not change.

- The next byte holds eight bits representing the Current States of the High Speed Inputs.

The Current States of the High Speed Digital Inputs are in the following format:

| Table 6.12: Current States of the High Speed Digital Inputs |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|
| Bits  |       |       |       |       |       |       |       |
| 7   | 6     | 5     | 4     | 3     | 2     | 1     | 0     |
| HSI 8   | HSI 7 | HSI 6 | HSI 5 | HSI 4 | HSI 3 | HSI 2 | HSI 1 |

A bit value of 1 means the input is open. A bit value of 0 means the input is closed.

- The next byte indicates whether this PQ record is continuous in monitoring with the previous record. If the byte is non-zero, then this is the first record recorded after a power-down, reset or download, and all unfinished durations prior to this record are lost. If the byte is zero, then monitoring was continuous between the last record and this one.
- The next 22 bytes are the RMS Gain Factors. Following is the order of these factors:

$V_{CA}$   
 $V_{BC}$   
 $V_{AB}$   
 $V_{AUX}$   
 $I_{CN}$   
 $I_{BN}$   
 $I_{AN}$   
 $I_{AUX}$   
 $I_C$   
 $I_B$   
 $I_A$

- The remaining 35 bytes are unused.

## 6.9: Digital Input Log Format

- **Digital Input Log Format:** The Digital Input Log stores records in order to document the transitions of Internal and External Digital Inputs.
- **Record Format:** A Record contains 16 Bytes.
  - The first eight bytes in each record is the Time Stamp, representing the time of the event the record is recording. The format of the Time Stamp is:

| Byte | Format | Range   | Description |
|------|--------|---------|-------------|
| 0    | binary | 0 - 99  | century     |
| 1    | binary | 0 - 99  | year        |
| 2    | binary | 1 - 12  | month       |
| 3    | binary | 1 - 31  | day         |
| 4    | binary | 0 - 23  | hour        |
| 5    | binary | 0 - 59  | minute      |
| 6    | binary | 0 - 59  | second      |
| 7    | binary | 0 - 100 | centisecond |

**Note:** This log does not record records during Test Mode.

An additional piece of information is contained in the centisecond byte. The most significant bit indicates whether this Digital Input record is contiguous in monitoring with the previous record. If the bit is 1,

then this is the first record recorded after a power-down, reset or download, and it is possible that some transitions were not recorded. If the bit is zero, then monitoring was continuous between the last record and this one.

- The next byte contains the States of the Internal Digital Inputs in the following format:

| <b>Table 6.13: States of the Internal Digital Inputs</b> |         |         |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|---------|---------|
| <b>Bits</b>  |         |         |         |         |         |         |         |
| 7  | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Input 8  | Input 7 | Input 6 | Input 5 | Input 4 | Input 3 | Input 2 | Input 1 |

A bit value of 1 means the input is open. A bit value of 0 means the input is closed.

- The next 4 bytes contain the States of the External Digital Inputs in the following format:

| <b>Table 6.14: States of the External Digital Inputs</b> |         |         |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|---------|---------|
| <b>Bits</b>  |         |         |         |         |         |         |         |
| 7  | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Input 8  | Input 7 | Input 6 | Input 5 | Input 4 | Input 3 | Input 2 | Input 1 |
| Module 1 External Digital Input States                   |         |         |         |         |         |         |         |
| Module 2 External Digital Input States                   |         |         |         |         |         |         |         |
| Module 3 External Digital Input States                   |         |         |         |         |         |         |         |
| Module 4 External Digital Input States                   |         |         |         |         |         |         |         |

A bit value of 1 means the input is open. A bit value of 0 means the input is closed.

- The next byte indicates whether information presented from the External Modules is valid. If the main unit has not yet established contact with an External Module, the information recorded as being from that module is not valid.

| <b>Table 6.15: Valid Information from a Module</b> |          |          |          |   |   |   |   |
|--|----------|----------|----------|---|---|---|---|
| <b>Bits</b>  |          |          |          |   |   |   |   |
| 7  | 6        | 5        | 4        | 3 | 2 | 1 | 0 |
| Module 1   | Module 2 | Module 3 | Module 4 |   |   |   |   |

A bit value of 1 indicates the information from that module is valid. A bit value of 0 indicates the information from that module is not valid.

- The last 2 bytes are unused.

## 6.10: Digital Input Snapshot Log Format

- **Digital Input Snapshot Log:** The Digital Input Snapshot Log will fill to the total allocated memory. The number of records possible in the Digital Input Log is the total memory allocated divided by the record size (size of a Digital Input Snapshot).

- **Profile Information is in the Programmable Settings Block.**

- **Digital Input Snapshot Record Size: (45463)**

This Register is an enumeration for the size of a record in the Digital Input Snapshot Log. The valid values are:

0x00000 = 32 byte records  
 0x00001 = 64 byte records  
 0x00002 = 128 byte records  
 0x00003 = 256 byte records  
 0x00004 = 16 byte records

- **Digital Input Snapshot Data Pointers: (45205-45332)**

These Registers indicate which information to include in a record in the Digital Input Snapshot Log. Each Data Pointer has the following 4 (four) byte structure:

| <u>Size</u> | <u>Format</u> | <u>Description</u> |
|-------------|---------------|--------------------|
| 2 byte      | unsigned int  | Line Number        |
| 1 byte      | unsigned char | Point number       |
| 1 byte      | unsigned char | Reserved           |

A Line Number is an index into the Communication Table. Example - Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into the Communication Table.

**Example:** Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the second in the twelfth line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of points for the line are ignored.

- **Record Format:** A Record contains as many bytes as specified by the Digital Input Snapshot Record Size Field in the Programmable Settings Block (45463). The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| <u>Byte</u> | <u>Format</u> | <u>Range</u> | <u>Description</u> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0 – 99       | century            |
| 1           | binary        | 0 – 99       | year               |
| 2           | binary        | 1 – 12       | month              |
| 3           | binary        | 1 – 31       | day                |
| 4           | binary        | 0 – 23       | hour               |

|   |        |         |             |
|---|--------|---------|-------------|
| 5 | binary | 0 – 59  | minute      |
| 6 | binary | 0 – 59  | second      |
| 7 | binary | 0 – 100 | centisecond |

**Note:** This log does not record records during Test Mode.

- The remaining bytes are the values requested by the Digital Input Snapshot Data Pointers (45205-45332). If the first Data Pointer is requesting  $V_{BN}$  a 4 byte value, then the next 4 bytes in the Record are  $V_{BN}$ . This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Digital Input Snapshot Record Size.

## 6.11: Digital Output Log Format

■ **Digital Output Log Format:** The Digital Output Log stores records in order to document the stages used when changing states of Digital Outputs. Records are stored for four reasons - When the delay at the end of a Relay Logic Tree is finished, indicating that a relay needs to change state, when a communication port requests to lock or unlock a relay, when the command is transmitted to the external device and when the response is returned from the external device.

■ **Record Format:** A Record contains 64 Bytes.

- The first eight bytes in each record is the Time Stamp, representing the time of the event the record is recording. The format of the Time Stamp is:

| <u>Byte</u> | <u>Format</u> | <u>Range</u> | <u>Description</u> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0 - 99       | century            |
| 1           | binary        | 0 - 99       | year               |
| 2           | binary        | 1 - 12       | month              |
| 3           | binary        | 1 - 31       | day                |
| 4           | binary        | 0 - 23       | hour               |
| 5           | binary        | 0 - 59       | minute             |
| 6           | binary        | 0 - 59       | second             |
| 7           | binary        | 0 - 100      | centisecond        |

**Note:** This log does not record records during Test Mode.

An additional piece of information is contained in the centisecond byte. The most significant bit indicates whether this DO record is contiguous in monitoring with the previous record. If the bit is 1, then this is the first record recorded after a power-down, reset or download, and all unfinished relay interactions prior to this record are lost. If the bit is zero, then monitoring was continuous between the last record and this one.

- The next byte indicates the stage, or reason, for the record. The stages are as follows:

0x001 Stage 1 ElectroLogic or communication command now desires to change the state of one or more relays.

0x002 Stage 2 Command is being transmitted to an (one) external relay.

0x003 Stage 3 Confirmation has been received from a command that was sent.

- The next 2 bytes indicate whether information about a relay is valid or not. Modules which are unused, or which are not responding to communication, are not valid. The bytes are formatted as follows:



| Table 6.16: Relay Valid Bits |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
|------------------------------|----|----|----|----------|----|---|---|----------|---|---|---|----------|---|---|---|
| Bits                         |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
| 15                           | 14 | 13 | 12 | 11       | 10 | 9 | 8 | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |
| Module 1                     |    |    |    | Module 2 |    |   |   | Module 3 |   |   |   | Module 4 |   |   |   |
| 1                            | 2  | 3  | 4  | 1        | 2  | 3 | 4 | 1        | 2 | 3 | 4 | 1        | 2 | 3 | 4 |

A bit value of 0 indicates that information for this relay is not yet valid; a bit value of 1 indicates that information for this relay is valid.

- The next 16 bytes represent the inputs to the Relay Logic Trees arranged as follows:

| Table 6.17: Relay Logic Tree Inputs |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
|-------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Bits                                |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| 0                                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Input 1                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 2                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 3                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 4                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 5                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 6                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 7                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Input 8                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |

- Each bit represents the state of an input into a Relay Logic Tree. A bit value of 0 indicates a false input value; a bit value of 1 indicates a true input value. These are the values for an input before a possible NOT setting. If NOT is not set, the value remains the same. If NOT is set, the value becomes the opposite.
- The next 14 bytes represent the gate outputs of the Relay Logic Trees arranged as follows:

| Table 6.18: Relay Logic Gate Ouputs |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
|-------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Bits                                |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| 0                                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Gate A                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate B                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate C                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate D                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate E                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate F                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate G                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| Gate H                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |

Each bit represents the state of a gate output in a Relay Logic Tree.

A bit value of 0 indicates a false output value; a bit value of 1 indicates a true output value.

- The next 2 bytes indicate whether a relay is locked or unlocked. The bits are in the following order:

| Table 6.19: Relay Locked Bits |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
|-------------------------------|----|----|----|----------|----|---|---|----------|---|---|---|----------|---|---|---|
| Bits                          |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
| 15                            | 14 | 13 | 12 | 11       | 10 | 9 | 8 | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |
| Module 1                      |    |    |    | Module 2 |    |   |   | Module 3 |   |   |   | Module 4 |   |   |   |
| 1                             | 2  | 3  | 4  | 1        | 2  | 3 | 4 | 1        | 2 | 3 | 4 | 1        | 2 | 3 | 4 |

A bit value of 0 indicates the relay is not locked; a bit value of 1 indicates the relay is locked.

- The next 2 bytes indicate whether a relay was previously locked or unlocked. The bits are in the following order:

| Table 6.20: Previously Locked Bits |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
|------------------------------------|----|----|----|----------|----|---|---|----------|---|---|---|----------|---|---|---|
| Bits                               |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
| 15                                 | 14 | 13 | 12 | 11       | 10 | 9 | 8 | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |
| Module 1                           |    |    |    | Module 2 |    |   |   | Module 3 |   |   |   | Module 4 |   |   |   |
| 1                                  | 2  | 3  | 4  | 1        | 2  | 3 | 4 | 1        | 2 | 3 | 4 | 1        | 2 | 3 | 4 |

A bit value of 0 indicates the relay was not locked; a bit value of 1 indicates the relay was locked.

- The next 2 bytes indicate the desired state of the relay, in the same order as above. If the relay is locked, as indicated in the previous 2 bytes, then the relay should be locked to this relay. If the relay is unlocked, then this is the state in which the relay should be as indicated by the Relay Logic Tree for this relay. A bit value of 0 indicates de-energized, or connected to Normal Close; a bit value of 1 indicates energized, or connected to Normal Open.
- The next 2 bytes indicate that a command has begun to be sent to an external module to change the state of a relay, in the same order as above.

The first byte indicates to which relay the command is being sent:

|             |                     |
|-------------|---------------------|
| 0x000-0x003 | Module 1, Relay 1-4 |
| 0x004-0x007 | Module 2, Relay 1-4 |
| 0x008-0x00B | Module 3, Relay 1-4 |
| 0x00C-0x00F | Module 4, Relay 1-4 |
| other       | No command sent     |

The second byte indicates whether the command being sent was to energize or de-energize the relay. A value of 0x000 indicates the relay command was to de-energize the relay; any other value indicates the command was to energize the relay.

- The last 2 bytes indicate successfully changed relay states, as recorded by the reception of the response from the relay module, in the same order as above. A bit value of 0 indicates the relay is de-energized, or connected to Normal Close; a bit value of 1 indicates the relay is energized, or connect to Normal Open.
- The remaining 13 bytes are unused.

■ The normal sequence for a relay change would involve three records.

The first record would be a Stage 1 record. Stage 1 records are when the Relay Tree for an unlocked relay has changed state for longer than the delay time for that Relay Tree, or when a command is received over communication that locks or unlocks a relay.

The second record would be a Stage 2 record. Stage 2 records are recorded approximately with the beginning of the transmission of the first byte of the command. Records of this type will report one and only one relay command being issued at a time.

The third record would be a Stage 3 record. Stage 3 records are recorded when an acknowledgement for a transmitted command to an external relay is received.

Should a problem occur with a response, multiple Stage 2 records can occur before a concluding Stage 3 record.

Should a Relay Logic Tree reverse itself, it might be possible to have two opposing Stage 1 records without intervening or subsequent Stage 2 or 3 records, or to have a sequence of 1-2-1-3-2-3.

## 6.12: Digital Output Snapshot Log Format

- **Digital Output Snapshot Log:** The Digital Output Snapshot Log will fill to the total allocated memory. The number of records possible in the Digital Output Log is the total memory allocated divided by the record size (size of a Digital Output Snapshot).

**Profile Information is in the Programmable Settings Block.**

- **Digital Output Snapshot Record Size: (45463)**

This Register is an enumeration for the size of a record in the Digital Output Snapshot Log. The valid values are:

0x00000 = 32 byte records  
0x00001 = 64 byte records  
0x00002 = 128 byte records  
0x00003 = 256 byte records  
0x00004 = 16 byte records

- **Digital Output Snapshot Data Pointers: (45205-45332)**

These Registers indicate which information to include in a record in the Digital Output Snapshot Log. Each Data Pointer has the following 4 (four) byte structure:

| <u>Size</u> | <u>Format</u> | <u>Description</u> |
|-------------|---------------|--------------------|
| 2 byte      | unsigned int  | Line Number        |
| 1 byte      | unsigned char | Point number       |
| 1 byte      | unsigned char | Reserved           |

A Line Number is an index into the Communication Table. Example - Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into the Communication Table.

**Example:** Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the second in the twelfth line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of points for the line are ignored.

- **Record Format:** A Record contains as many bytes as specified by the Digital Output Snapshot Record Size Field in the Programmable Settings Block (45463).

- The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| <b>Byte</b> | <b>Format</b> | <b>Range</b> | <b>Description</b> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0 – 99       | century            |
| 1           | binary        | 0 – 99       | year               |
| 2           | binary        | 1 – 12       | month              |
| 3           | binary        | 1 – 31       | day                |
| 4           | binary        | 0 – 23       | hour               |
| 5           | binary        | 0 – 59       | minute             |
| 6           | binary        | 0 – 59       | second             |
| 7           | binary        | 0 – 100      | centisecond        |

**Note:** This log does not record records during Test Mode.

- The remaining bytes are the values requested by the Digital Output Snapshot Data Pointers (45205-45332). If the first Data Pointer is requesting  $V_{BN}$  a 4 byte value, then the next 4 bytes in the Record are  $V_{BN}$ . This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Digital Output Snapshot Record Size.

### 6.13: Flicker Log Format

- Flicker Log Format: The Flicker Log stores records in order to document Short Term and Long Term Flicker.
- Record Format: A Record contains 32 Bytes.  
The first eight bytes in each record is the Time Stamp, representing the time when the record was recorded. The format of the Time Stamp is:

| <u>Byte</u> | <u>Format</u> | <u>Range</u> | <u>Description</u> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0-99         | century            |
| 1           | binary        | 0-99         | year               |
| 2           | binary        | 1-12         | month              |
| 3           | binary        | 1-31         | day                |
| 4           | binary        | 0-23         | hour               |
| 5           | binary        | 0-59         | minute             |
| 6           | binary        | 0-59         | second             |
| 7           | binary        | 0-100        | centisecond        |

The next eight bytes is a time stamp (in the same format as above), representing the time at the end of the interval for the included Short Term or Long Term Flicker values.

The next twelve bytes are three, four byte signed (2's compliment) integers, which are the Short Term or Long Term Flicker values, in the order:

- Phase A
- Phase B
- Phase C

The next byte is indicates whether this record contains information on Short Term or Long Term Flicker.

|             |                    |
|-------------|--------------------|
| 0x000       | Short Term Flicker |
| 0x001       | Long Term Flicker  |
| 0x002-0x0FF | Undefined          |

The last three bytes are unused.

### 6.14: System Event Log Format

- Record Format: A Record contains 16 Bytes.  
The first eight bytes in each record is the Time Stamp. The format of the Time Stamp is:

| <u>Byte</u> | <u>Format</u> | <u>Range</u> | <u>Description</u> |
|-------------|---------------|--------------|--------------------|
| 0           | binary        | 0-99         | century            |
| 1           | binary        | 0-99         | year               |
| 2           | binary        | 1-12         | month              |
| 3           | binary        | 1-31         | day                |
| 4           | binary        | 0-23         | hour               |
| 5           | binary        | 0-59         | minute             |

|   |        |       |             |
|---|--------|-------|-------------|
| 6 | binary | 0-59  | second      |
| 7 | binary | 0-100 | centisecond |

The source or meaning of the timestamp depends on the type of record being recorded.

If this record was recorded while the meter was in Test Mode, then the most significant bit of the centisecond byte will be set.

The next byte is a code to indicate the type of record:

|             |                              |
|-------------|------------------------------|
| 0x000       | Power                        |
| 0x001       | Password                     |
| 0x002       | Change Programmable Settings |
| 0x003       | Change Firmware              |
| 0x004       | Change Time                  |
| 0x005       | Test Mode                    |
| 0x006       | Log Download                 |
| 0x007       | Feature Reset                |
| 0x008-0x0FF | Undefined                    |

The meaning of the remaining 7 bytes (from now on referred to as sub-fields) depends on the type of record.

#### ■ Power Record

The first byte of the sub-fields indicates whether power was lost or regained at the recorded time:

|             |                               |
|-------------|-------------------------------|
| 0x000       | Power was lost                |
| 0x001       | Normal operation was restored |
| 0x002-0x0FF | Undefined                     |

The remaining 6 bytes of the sub-fields are undefined.

#### ■ Password Record

The first byte of the sub-fields indicates what action occurred at the recorded time:

|             |                                   |
|-------------|-----------------------------------|
| 0x000       | Password Protection was Enabled.  |
| 0x001       | Password Protection was Disabled. |
| 0x002       | The Level 1 Password was changed. |
| 0x003       | The Level 2 Password was changed. |
| 0x004       | Level 1 access was granted.       |
| 0x005       | Level 2 access was granted.       |
| 0x006       | An invalid password was supplied. |
| 0x007-0x0FF | Undefined                         |

The second byte of the sub-fields indicates what port was used for the action:

|             |           |
|-------------|-----------|
| 0x000       | Port 4    |
| 0x001       | Port 3    |
| 0x002       | Port 2    |
| 0x003       | Port 1    |
| 0x004-0x0FF | Undefined |

The remaining 5 bytes of the sub-fields are undefined.

#### ■ **Change Programmable Settings**

The 7 bytes of the sub-fields are undefined.

#### ■ **Change Firmware**

The first byte of the sub-fields indicates which firmware has been changed:

|             |               |
|-------------|---------------|
| 0x000       | Comm Run Time |
| 0x001       | DSP Run Time  |
| 0x002-0x0FF | Undefined     |

The next 4 bytes of the sub-fields indicates the old version number of the changed firmware.

The next 2 bytes of the sub-fields are undefined.

#### ■ **Change Time**

This record is used to indicate manual changes of the time of the meter, as performed via communication commands. Automatic functions, such as IRIG-B or Daylight Savings, are not indicated by this record.

The first byte of the sub-fields indicates which part of the time change this record shows:

|             |   |
|-------------|---|
| 0x000       | Old Time - The time stamp is the old time of the meter. |
| 0x001       | New Time - The time stamp is the new time of the meter. |
| 0x002-0x0FF | Undefined   |

The second byte of the sub-fields indicates what port was used to change the time:

|             |           |
|-------------|-----------|
| 0x000       | Port 4    |
| 0x001       | Port 3    |
| 0x002       | Port 2    |
| 0x003       | Port 1    |
| 0x004-0x0FF | Undefined |

The remaining 5 bytes of the sub-fields are undefined.



## ■ Test Mode

The first byte of the sub-fields indicates which Test Mode action occurred.

|                      | TLC       | TLC & CTPT | Uncompensated | CTPT  |
|----------------------|-----------|------------|---------------|-------|
| Test Mode Ended      | 0x000     | 0x000      | 0x000         | 0x000 |
| Wh Test (Del & Rcv)  | 0x001     | 0x009      | 0x011         | 0x019 |
| VARh Test (Q1 & Q2)  | 0x002     | 0x00A      | 0x012         | 0x01A |
| VARh Test (Q3 & Q4)  | 0x003     | 0x00B      | 0x013         | 0x01B |
| VAh Test (Q1 & Q4)   | 0x004     | 0x00C      | 0x014         | 0x01C |
| VAh Test (Q2 & Q3)   | 0x005     | 0x00D      | 0x015         | 0x01D |
| Block Average Test   | 0x006     | 0x00E      | 0x016         | 0x01E |
| Rolling Average Test | 0x007     | 0x00F      | 0x017         | 0x01F |
| Wh Test (Del & Rcv)  | 0x008     | 0x010      | 0x018         | 0x020 |
| 0x021-0x0FF          | Undefined |            |               |       |

## ■ Log Download

The first byte indicates the log download action:

|       |   |
|-------|---|
| 0x000 | Download Started, Log records while downloading |
| 0x001 | Download Started, Log Paused while downloading  |
| 0x002 | Download Ended.                                 |

The second byte of the sub-fields indicates which Log was being downloaded:

|             |                                 |
|-------------|---------------------------------|
| 0x000       | Historical Log 1                |
| 0x001       | Historical Log 2                |
| 0x002       | Sequence of Events State Log    |
| 0x003       | Sequence of Events Snapshot Log |
| 0x004       | Digital Input State Log         |
| 0x005       | Digital Input Snapshot Log      |
| 0x006       | Digital Output State Log        |
| 0x007       | Digital Output Snapshot Log     |
| 0x008       | Flicker Log                     |
| 0x009       | Waveform Trigger Log            |
| 0x00A       | System Event Log                |
| 0x00B       | Waveform Sample Log             |
| 0x00C       | PQ Log                          |
| 0x00D       | Reset Log                       |
| 0x00E-0x0FF | Undefined                       |

The third byte of the sub-fields indicates what port was used to download the log:

|            |           |
|------------|-----------|
| 0x000      | Port 4    |
| 0x001      | Port 3    |
| 0x002      | Port 2    |
| 0x003      | Port 1    |
| 0x004-0xFF | Undefined |

The remaining 4 bytes of the sub-fields are undefined.

## ■ Feature Reset

The first byte indicates what feature was being reset:

|       |   |
|-------|---|
| 0x000 | All Logs Reset                                |
| 0x001 | Maximum Reset                                 |
| 0x002 | Minimum Reset                                 |
| 0x003 | Energy Reset                                  |
| 0x004 | Time of Use Current Month                     |
| 0x005 | Internal Input Accumulations and Aggregations |
| 0x006 | KYZ Output Accumulations                      |
| 0x007 | Cumulative Demand                             |
| 0x008 | Historical Log 1 Reset                        |
| 0x009 | Historical Log 2 Reset                        |
| 0x00A | Sequence of Events Log Reset                  |
| 0x00B | Digital Input Log Reset                       |
| 0x00C | Digital Output Log Reset                      |
| 0x00D | Flicker Log Reset                             |
| 0x00E | Waveform Log Reset                            |
| 0x00F | PQ Log Reset                                  |
| 0x010 | System Event Log Reset                        |
| 0x011 | Total Average Power Factor Reset              |
| 0x012 | Time of Use Active Registers                  |

The second byte of the sub-fields indicates what port was used to request the reset.

|            |           |
|------------|-----------|
| 0x000      | Port 4    |
| 0x001      | Port 3    |
| 0x002      | Port 2    |
| 0x003      | Port 1    |
| 0x004-0xFF | Undefined |

The remaining 5 bytes of the sub-fields are undefined.

# Chapter 7

## Nexus® Meter Programmable Settings Blocks

- The Nexus® Meter Modbus Register Map can be found in Chapter 2. This chapter gives a detailed description of each of the Programmable Settings Blocks.

### 7.1: Communication Settings Block (45057-45074)

- Device Address - 2 bytes, unsigned integer, ranging from 0000H to FFFFH
- Protocol - 1 byte, unsigned integer.
- Baud Rate - 1 byte, unsigned integer.
- Parity - 1 byte, unsigned integer.
- Stop Bits - 1 byte, unsigned integer.
- Data Bits - 1 byte, unsigned integer.
- Response Delay - 1 byte, unsigned integer.
- Port Mode - 1 byte, unsigned integer. The value 1 means Master; value 0 means Slave. Port 1 is always a Slave.

| Communication Settings Block Specifications |              |           |        |           |           |                     |
|---|--------------|-----------|--------|-----------|-----------|---------------------|
| Value                                       | Protocol     | Baud Rate | Parity | Stop Bits | Data Bits | Response Delay (ms) |
| 0   | Modbus ASCII | 4800      | None   |           | 5         | 0.00                |
| 1   | Modbus RTU   | 9600      | Even   |           | 6         | 0.25                |
| 2   | DNP 3.0      | 19200     | Odd    |           | 7         | 0.50                |
| 3   |              | 38400     | Mark   |           | 8         | 0.75                |
| 4   |              | 57600     | Space  |           |           | 1.00                |
| 5   |              | 115200    |        |           |           | 1.25                |
| 6   |              |           |        |           |           | 1.50                |
| 7   |              |           |        | 1 stop    |           | 1.75                |
| 8   |              |           |        | 1.5 stop  |           | 2.00                |
| 9-14  |              |           |        |           |           | 2.25-3.50           |
| 15  |              |           |        | 2 stop    |           | 3.75                |
| 16-255                                      |              |           |        |           |           | 4.00-63.75          |

### 7.2: Limit Settings Block (45077-45204)

Limit Comparisons - Internal Representations

A Nexus® meter has 32 Limits Objects.

- Each Limit Object performs two independent comparisons with a selected computed value and combines them into a combined output. Information needed to perform these actions: channel identification, comparison values, comparison directions and combination type.

- Channel identification is performed by referencing the internal data table of the Nexus® meter, by specifying the Line Number and Point Number for a particular value. For example: to monitor 1 second  $V_{AN}$  values, use Line 34, Point 0; 1 second  $V_{BN}$ , use Line 34, Point 1; 1 second  $I_A$ , use Line 36, Point 0; Thermal Average  $V_{AN}$ , use Line 51, Point 0. To leave a Limit unassigned, use Line 65535, any point.
- Comparison values are entered using percentages relative to the programmed full scales of the system. For  $V_{AN}$ , the phase-to-neutral Voltage Full Scale would be referenced. If it is programmed to 120.0 V secondary with a phase voltage PT of 120:1, then a comparison of 13.2 kV primary would be a limit of 108 V secondary or 90.00% of the Full Scale. A 90.00% comparison for  $I_A$  with a phase Current Full Scale of 5.0 A secondary and a phase current CT of 2000:5 would be a comparison of 4.5 A secondary or 1800 A primary. Negative percentages would be used where appropriate (Watts, VAR, etc.). Special cases like PF and KF would depend on fixed internal Full Scales. Human interfaces could represent this in terms of quadrature and angle, instead of the internal percentage representation.
- Each comparison has a direction associated with it - Above or Below. A 90.00% comparison could be for above 90.00% or below 90.00%.
- Finally, each limit object is able to produce a third output which is a combination of the two comparisons. This combination could be an AND, OR, NAND, NOR, XOR or Hysteresis. So, a user can produce a band of between 40.00% and 80.00% by combining above 40.00% AND below 80.00%; over 110.00%/under 90.00% alarms by combining above 110.00% OR below 90.00%, on after over 110.00%, off after below 90.00% by combining above 110.00% and below 90.00% with Hysteresis.

**The structure for a combination is :**

|        |                                   |
|--------|-----------------------------------|
| 2 byte | Line Number                       |
| 1 byte | Point Number                      |
| 1 byte | Direction and Combination (SAB)   |
| 2 byte | Comparison 1 Percentage (Value 1) |
| 2 byte | Comparison 2 Percentage (Value 2) |

Total of 8 bytes per Limit Object, total of 256 bytes for 32 Limit Objects.

**The structure for the Direction and Combination byte is:**

|          |  |
|----------|--|
| Bits 7-5 | Unused, set to 0   |
| Bit 4    | Negate combination (AND -> NAND, etc.)   |
| Bits 3-2 | 00 = AND combination<br>01 = OR combination<br>10 = XOR combination<br>11 = Hysteresis combination |
| Bit 1    | 0 = Comparison 2 is below<br>1 = Comparison 2 is above   |
| Bit 0    | 0 = Comparison 1 is below<br>1 = Comparison 1 is above   |

- Hysteresis combination uses comparison 1 to set the combination, and comparison 2 to clear the combination. If both inputs are asserted, comparison 1 has priority. The usual arrangement would be to program comparison 1 to above a large value and comparison 2 to below a small value. When the monitored value goes above comparison 1, the combination will be set to a 1, until the monitored value goes below comparison 2, when the combination will be cleared to a 0.

**Pollable information would consist of:**

32 bits                      Comparison 1 states for 32 limits  
 32 bits                      Comparison 2 states for 32 limits  
 32 bits                      Combination states for 32 limits

Total of 96 bits (12 bytes)

**7.3 Historical Log Settings Block (45205-45464)**

Historical Log 1 Data Pointers (45205 - 45332), Historical Log 2 Data Pointers (45333 - 45460).

- These registers indicate which information to include in a record in the Historical Log. Each Data Pointer has the following 4 (four) byte structure:

| Data Pointer 4-Byte Structure |                    |              |
|-------------------------------|--------------------|--------------|
| Size                          | Format             | Description  |
| 2 byte                        | Unsigned Integer   | Line Number  |
| 1 byte                        | Unsigned Character | Point Number |
| 1 byte                        | Unsigned Character | Reserved     |

- A Line Number is an index into the Communication Table. Example: Line Number 11 is for the 12th line in the Communication Table, 0.1 second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.
- A Point Number is an index into a Line in the Communication Table. Example: Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the 2nd in the 12th line, 0.1 second  $V_{BN}$ . Data Pointers with Point Numbers greater than the number of points for the line are ignored.

Snapshot Interval for Historical Log 1 (45361), for Historical Log 2 (45462).

One register, 2 byte unsigned integers ranged from 0 to 3600.  
 The unit is 1 Second.

Historical Log 1 Record Size (45463), Historical Log 2 Record Size (45464).

This register is an enumeration for the size of a record in the Historical Log. The valid values are:

0x00000 = 32 byte records      0x00002 = 128 byte records      0x00004 = 16 byte records  
 0x00001 = 64 byte records      0x00003 = 256 byte records

#### 7.4: Waveform/CBEMA Settings Block (45465-45500).

##### Set Points

1 register, 2 bytes signed integers. The value is ranged from +327.67 to -327.68. The unit is 0.01%. These are the percentage of the Full Scale values.

##### Waveform & PQ enable

1 register, 2 bytes bitmaps. Each Set Point can be enabled or disabled by these bit settings.

Waveform Limit Above Enable, register 45489.

Waveform Limit Below Enable, register 45490.

PQ Limit Above Enable, register 45491.

PQ Limit Below Enable, register 45492.

| Bit   | 15              | 14              | 13              | 12               | 11             | 10             | 9              | 8                | 7              | 6               | 5               | 4               | 3 | 2 | 1 | 0 |
|-------|-----------------|-----------------|-----------------|------------------|----------------|----------------|----------------|------------------|----------------|-----------------|-----------------|-----------------|---|---|---|---|
| Value | V <sub>AN</sub> | V <sub>BN</sub> | V <sub>CN</sub> | V <sub>AUX</sub> | I <sub>A</sub> | I <sub>B</sub> | I <sub>C</sub> | I <sub>AUX</sub> | I <sub>N</sub> | V <sub>AB</sub> | V <sub>BC</sub> | V <sub>CA</sub> | - | - | - | - |

A bit value of 1 means Enabled.

A bit value of 0 means Disabled.

##### Sample Rate

1 byte, unsigned integers. This is the number of samples per one waveform.

##### Total Captures

| Value          | 0  | 1  | 2  | 3   | 4   | 5   | 6 | 7-96 |
|----------------|----|----|----|-----|-----|-----|---|------|
| Sample Rate    | 16 | 32 | 64 | 128 | 256 | 512 | - | -    |
| Total Captures | 0  | 1  | 2  | 3   | 4   | 5   | 6 | 7-96 |

1 byte unsigned integers. This is the number of waveforms that the unit will capture.

Mode and CBEMA Enable - currently not used.

##### High Speed Input Waveform and PQ Enables

1 byte bit map. Waveform and PQ data will be collected when the transition occurs at the high speed input when they are enabled.

|       | Waveform Trigger Enable |   |   |   |   |   |   |   | Power Quality Trigger Enable |   |   |   |   |   |   |   |
|-------|-------------------------|---|---|---|---|---|---|---|------------------------------|---|---|---|---|---|---|---|
| Bit   | 7                       | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7                            | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Input | 1                       | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1                            | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

A bit value of 1 means Enabled.

A bit value of 0 means Disabled.

### 256 Samples/Cycle Channel Selection and 512 Samples/Cycle Channel Selection (45500)

When the Sample Rate is 256 or 512, not all voltage and currents can be sampled. There will be choices which can be sampled under 256 or 512 sample rate.

| Value                       | 0               | 1               | 2               | 3    | 4              | 5              | 6              | 7-96            |
|-----------------------------|-----------------|-----------------|-----------------|------|----------------|----------------|----------------|-----------------|
| 256 Sample Rate (High Byte) | Volts           | Currents        |                 |      |                |                |                |                 |
| 512 Sample Rate (Low Byte)  | V <sub>AN</sub> | V <sub>BN</sub> | V <sub>CN</sub> | None | I <sub>A</sub> | I <sub>B</sub> | I <sub>C</sub> | I <sub>NM</sub> |

### 7.5: High Speed Inputs Settings Block (45501-45723).

- Input Name - 8 registers, 16 bytes, 16 characters for the name.
- Input Open Label - 8 registers, 16 bytes, 16 characters for label, Not Shorted, State 1.
- Input Closed Label - 8 registers, 16 bytes, 16 characters for label, Shorted, State 0.
- Input Value - 2 registers, currently not used.
- Input Mode - Bit 0 will define the normal condition of the input.

| High Speed Input Settings |                  |                       |
|---------------------------|------------------|-----------------------|
| Bit 0                     | Normal Condition | Binary State          |
| 0                         | Open             | State 1 (Not Shorted) |
| 1                         | Closed           | State 0 (Shorted)     |

### 7.6: External Digital Input Module Settings Block (45725-45728).

- Up to 4 External Digital Input Modules can be addressed in this block.
- Address - 1 Register, 2 bytes, unsigned integers.
- A value of 0x0FFFF for an address indicates that this device is unused.

### 7.7: External Digital Output Module Settings Block (45729-45808).

- Up to 4 External Digital Output Modules can be addressed in this block.
- Address - 2 bytes, unsigned integers.
- A value of 0x0FFFF for an address indicates that this device is unused.
- Line Number - 2 bytes, unsigned integers.
- Point Number - 1 byte, unsigned integers.
- Line Number and Point Number will point which limit is going to be used for the relay of the External Digital Output Module.

### 7.8: External Analog Input Module Settings Block (45809-45812).

- Up to 4 External Analog Input Modules can be addressed in this block.
- Address - 2 bytes, unsigned integers.
- A value of 0x0FFFF for an address indicates that this device is unused.

### 7.9: External Analog Output Module Settings Block (45813-45892).

- Up to 4 External Analog Output Modules can be addressed in this block.
- Address - 2 bytes, unsigned integers.
- A value of 0x0FFFF for an address indicates that this device is unused.
- Line Number - 2 bytes, unsigned integers.
- Point Number - 1 byte, unsigned integers.
- Line Number and Point Number will point which limit is going to be used for each output of the External Analog Output Module.

### 7.10: External KYZ Output Module Settings Block (45893-45907).

- Up to 4 External KYZ Output Modules can be addressed in this block.
- Address - 2 bytes, unsigned integers.
- A value of 0x0FFFF for an address indicates that this device is unused.
- The energy assignments are as follows:

| KYZ Output Relay Byte Energy Assignments |  |
|--|--|
| Value                                    | Energy Assignment                                  |
| 0  | Disabled   |
| 1  | Q (1+4) WH   |
| 2  | Q1 VAH   |
| 3  | Q1 VARH  |
| 4  | Q4 VAH   |
| 5  | Q4 VARH  |
| 6  | Q (2+3) WH   |
| 7  | Q2 VAH   |
| 8  | Q2 VARH  |
| 9  | Q3 VAH   |
| 10                                       | Q3 VARH  |
| 11-18                                    | Internal Inputs Accumulations 1-8                  |
| 19-22                                    | Internal Input Aggregator 1-4                      |
| 23-30                                    | External Digital Input Module 1 in Accumulator 1-8 |
| 31-38                                    | External Digital Input Module 2 in Accumulator 1-8 |
| 39-46                                    | External Digital Input Module 3 in Accumulator 1-8 |
| 47-54                                    | External Digital Input Module 4 in Accumulator 1-8 |



### 7.11: CT & PT Ratio Settings Block (45909-45924).

- Address - 2 registers, 4 bytes, unsigned integers.
- Primary numbers and secondary numbers are in these blocks for the proper ratios.

### 7.12: Hookup and Time Settings Block (45925-45944).

- Hookup - 1 register, 2 bytes.
  - High byte - Configuration Bits. Voltage selection.
    - When bit 0 is cleared, 150V.
    - When bit 0 is set, 300V.
  - Low byte - Wye/Delta selection.

| Wye/Delta Byte Energy Assignments |              |
|-----------------------------------|--------------|
| Value                             | Assignment   |
| 0                                 | Wye          |
| 1                                 | Delta 3 CTs  |
| 2                                 | Delta 2 CTs  |
| 3                                 | 2.5 Element  |
| 4                                 | 4 Wire Delta |

- Frequency - currently not used.
- Time Zone - 1 register, 2 bytes. Signed integer. The zone descriptor value varies from -13 to +13. The zone descriptor value 0 represents Greenwich Mean Time.

| Time Zone Descriptor |                 |
|----------------------|-----------------|
| Value                | Zone Descriptor |
| 0                    | ZD 0            |
| 50                   | ZD + 0.5        |
| 100                  | ZD + 1          |
| 150                  | ZD + 1.5        |
| -100                 | ZD - 1          |
| -150                 | ZD - 1.5        |

- Daylight Savings Time Enable - 1 byte, unsigned integer.

| Daylight Savings Time Enable |                       |
|------------------------------|-----------------------|
| Value                        | Zone Descriptor       |
| 0                            | Disabled              |
| 1                            | Use Clock Chip        |
| 2                            | Use Programming Block |

- Transformer Loss Compensation (TLC) Enable - 1 byte, unsigned integer.

| Transformer Loss Compensation (TLC) Enable |             |          |
|--|-------------|----------|
| Value                                      | Bit 0 & 1   | Bit 2    |
| 0  | Disabled    | Add      |
| 1  | Iron Only   | Subtract |
| 2  | Copper Only |          |
| 3  | Both        |          |

- Internal KYZ Form - 1 byte bit map.  
Refer to the Internal KYZ Settings Block (46330) for more detail.

A bit value of 0 = Form C = Pulse of the relay.

A bit value of 1 = Form A = Transition of the relay.

| Internal KYZ Form Relay Assignments |   |   |   |   |     |   |   |   |
|-------------------------------------|---|---|---|---|-----|---|---|---|
| Bit Number                          | 7 | 6 | 5 | 4 | 3   | 2 | 1 | 0 |
| Relay Assignments                   | 1 | 2 | 3 | 4 | LED |   |   |   |

- Daylight Savings Time Start/End.  
Address - 4 registers, 8 bytes. Each byte has unsigned integer values (example below).

| Daylight Savings Time Start/End Byte Assignments |          |          |       |     |       |        |        |          |
|--|----------|----------|-------|-----|-------|--------|--------|----------|
| Register   | 45929    |          | 45930 |     | 45931 |        | 45932  |          |
| Byte   | High     | Low      | High  | Low | High  | Low    | High   | Low      |
| Assignments                                      | Reserved | Reserved | Month | Day | Hour  | Minute | Second | Reserved |

- % Loss of Watt or VAR  
Address - 2 registers, 4 bytes, 2 bytes for integers and 2 bytes for fractions.

### 7.13: Average Settings Block (45949-45952).

- Thermal and Block Averaging Time Interval: 1 register, 2 bytes unsigned integer. The unit is in 1 second.
- Rolling Average Sub-Interval: 1 register, 2 bytes unsigned integer.
- Predictive Rolling Window Average: 1 register, 2 bytes unsigned integer.
- Number of Sliding Windows - 1 byte, unsigned integer.
- Time of Use Log Enable - currently not used.

### 7.14: Exception Profile Block (45953-45968).

- This block is not yet defined.

### 7.15: Device Label Settings Block (45969-45992).

- Meter Designation - 8 registers, 16 bytes Hex ASCII.
- Auxiliary Voltage Label - 8 registers, 16 bytes Hex ASCII.
- Measured Neutral Current Label - 8 registers, 16 bytes Hex ASCII.

### 7.16: Network Settings Block (45993-46016).

- IP Address - 2 registers, 4 bytes. Each byte has unsigned integer value.
- Subnet Mask - 2 registers, 4 bytes. Each byte has unsigned integer value.
- Default Gateway - 2 registers, 4 bytes. Each byte has unsigned integer value.
- Port 2 Baud Rate - 1 byte, unsigned integer.

| Port 2 Baud Rate Values |           |
|-------------------------|-----------|
| Value                   | Baud Rate |
| 0                       | 4800      |
| 1                       | 9600      |
| 2                       | 19200     |
| 3                       | 38400     |
| 4                       | 57600     |
| 5                       | 115200    |

- Gateway Delay - 1 byte, unsigned integers.

| Gateway Delay in Milliseconds |                             |
|-------------------------------|-----------------------------|
| Value                         | Delays in milliseconds (ms) |
| 0                             | 0                           |
| 1                             | 15                          |
| 2-255                         | 30-3825                     |

**Mode 1 - Network Mode 1.** 1 register, only High Byte is used.

Bit 7: IP Address Resolution

A bit value of 1 means use DHCP server.

A bit value of 0 means use IP address of NEXUS/EEPROM.

Bits 0-6: Reserved

- Computer Name - 8 registers, 16 bytes Hex ASCII.
- Server IP Address - 2 registers, 4 bytes. Each byte has unsigned integer values.

**Mode 2 - Network Mode 2.** 1 byte.

Bit 7: IP Address Resolution

A bit value of 1 means use DHCP server.

A bit value of 0 means use IP address of NEXUS/EEPROM.

Bits 0-6: Reserved

- DNS Server 1 IP Address - 2 registers, 4 bytes. Each byte has unsigned integer values.
- DNS Server 2 IP Address - 2 registers, 4 bytes. Each byte has unsigned integer values.
- Server / Service Enable Bits - 32 Bits.

|                                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <b>Server / Service Enable</b> |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31                             | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 |
| <b>Server / Service Enable</b> |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15                             | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  |

- Bit 31: Undefined
- Bit 30: Modbus TCP Client
- Bit 29: GE EGD Data Port Server
- Bit 28: Web Server
- Bit 27: SMPT Client (Email)
- Bit 26: FTP Server
- Bit 25: FTP Client
- Bit 24: HTTP / Modbus RTU Server
- Bit 0 to 23: Reserved

A bit value of 1 means Enable the feature.  
 A bit value of 0 means Disable the feature.

- Email Port Number: 1 register, 2 bytes. This is a 2-byte unsigned integer.  
 Range: 65535 to 0.
- FTP Port Number: 1 register, 2 bytes. This is a 2-byte unsigned integer.  
 Range: 65535 to 0.

### 7.17: Block Window Average External Synchronization Block (46017).

- BWA Synch Enable - 1 byte.  
Instead of using the time interval, the meter can calculate the Thermal and Block average when the pulse is detected on one of the High Speed Inputs.

| Block Window Average Synchronization Assignments |             |
|--|-------------|
| Value  | Assignments |
| 0  | Disabled    |
| 1-255  | Enabled     |

- BWA Synch Mask - 1 byte. Only one input can be selected at a time. That means only one of the 8 bits can be set at a time.

| Block Window Average Synchronization Mask Input Assignments |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| Bit   | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Input Number  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Proper Value for each Assigned Input:

| Proper Values for BWA Synch Mask Assigned Inputs |   |   |   |   |    |    |    |     |
|--|---|---|---|---|----|----|----|-----|
| Assigned Input                                   | 1 | 2 | 3 | 4 | 5  | 6  | 7  | 8   |
| Proper Value                                     | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 |

### 7.18: Display Configuration Block (46018).

- 1 register, 2 bytes.  
 Bit 15: Only applies to the voltage reading.  
     A bit value of 1 = Primary voltage displayed.  
     A bit value of 0 = Secondary voltage displayed.  
 Bit 0-14: Reserved.

### 7.19: Energy Direction Block (46019).

- Received Energy Direction - 1 register, High byte only.

| Energy Direction Block Values |  |
|-------------------------------|--|
| Value                         | Description                                      |
| 0                             | (Q1+4) Watt = Received & (Q2+3) Watt = Delivered |
| 1                             | (Q1+4) Watt = Delivered & (Q2+3) Watt = Received |

- Power Factor Labeling - 1 register, Low Byte only.

| Power Factor Label Values |  |
|---------------------------|--|
| Value                     | Description  |
| 0                         | Method 1: Q1+ Lag, Q2 - Lag, Q3 - Lead, Q4 + Lead  |
| 1                         | Method 2: Q1+ Lag, Q2 - Lead, Q3 + Lag, Q4 - Lead  |
| 2-255                     | Method 1: Q1 + Lag, Q2 - Lag, Q3 - Lead, Q4 + Lead |

#### 7.20: Test Mode Configuration Block (46020).

- Test Mode Exit Delay Time - 1 registers, 2 bytes - 2-byte unsigned integer.
- Range: 5 minutes to 60 minutes.

This is the time in which CommunicatorPQA™ software will exit Test Mode, if there is no activity.

#### 7.21: Full Scale Block (46021-46036).

- 2 registers, 4 bytes - 2 bytes integers and 2 bytes fraction values.

#### 7.22: External Module Software Interface Block (46053-46196).

- External Module Types - 1 byte value, unsigned integer.
- External Module Slots - 1 byte value, unsigned integer.
- External Module Label - 8 registers, 16 bytes. Hex ASCII.

| External Module Types & Slots |                                |       |
|-------------------------------|--------------------------------|-------|
| Value                         | Types                          | Slots |
| 0                             | Not Assigned                   | 1     |
| 1                             | KYZ                            | 2     |
| 2                             | Digital Input                  | 3     |
| 3                             | Analog Output 4-20mA 4 Channel | 4     |
| 4                             | Analog Output 4-20mA 8 Channel |       |
| 5                             | Analog Output 0-1mA 4 Channel  |       |
| 6                             | Analog Output 0-1mA 8 Channel  |       |
| 7                             | Digital Output                 |       |
| 8                             | Analog Input 0-1mA 8 Channel   |       |
| 9                             | Analog Input 0-20mA 8 Channel  |       |
| 10                            | Analog Input 0-5V 8 Channel    |       |
| 11                            | Analog Input 0-10V 8 Channel   |       |

### 7.23: External Module Port Assignment Block (46197-46206).

- Port Assignment bytes are enumerated as in the following table:

| External Module Port Assignments |  |
|----------------------------------|--|
| Value                            | Assignments                            |
| 0x000                            | Port 4                                 |
| 0x001                            | Port 3                                 |
| 0x002                            | Port 2                                 |
| 0x003                            | Port 1 (232/485)                       |
| 0x004                            | Diagnostic Port (currently not in use) |

### 7.24: Manual Control Relay Block (46207-46208).

- Manual Control Relay Settings: 1 register, 2 bytes.

Up to four Relay Output Modules can be attached to a Nexus® meter. A Total of 16 Relays can be controlled. The table below indicates which bit controls which relay.

| Relay Control |          |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
|---------------|----------|----|----|----|----------|----|---|---|----------|---|---|---|----------|---|---|---|
| Modules       | Module 1 |    |    |    | Module 2 |    |   |   | Module 3 |   |   |   | Module 4 |   |   |   |
| Bits          | 15       | 14 | 13 | 12 | 11       | 10 | 9 | 8 | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |
| Relays        | 1        | 2  | 3  | 4  | 1        | 2  | 3 | 4 | 1        | 2 | 3 | 4 | 1        | 2 | 3 | 4 |

A bit value of 1 means Manual Relay Control Only.

A bit value of 0 means ElectroLogic and Manual Relay Control.

- Flicker Log - Reserved for future use.

**7.25: Internal Input Pulse Accumulation Scale Factor Block (46209-46325).**

- Scale Factors - 2 registers, 4 bytes unsigned integers.
- Aggregator Assignments - 1 byte unsigned integers.
- Pulse Accumulation Labels - 8 registers, 16 bytes. Hex ASCII.
- Nexus® Meter Watt hour Selection - 1 byte unsigned integer.
- Aggregation Assignment - 1 byte unsigned integer.

| Internal Input Pulse Accumulator Assignments |                 |                            |
|--|-----------------|----------------------------|
| Value  | Energy          | Assigned Aggregator        |
| 0  | Q1+ 4 Watt Hour | None                       |
| 1  | Q2+ 3 Watt Hour | Add to Aggregator 1        |
| 2  |                 | Add to Aggregator 2        |
| 3  |                 | Add to Aggregator 3        |
| 4  |                 | Add to Aggregator 4        |
| 5  |                 | Subtract from Aggregator 1 |
| 6  |                 | Subtract from Aggregator 2 |
| 7  |                 | Subtract from Aggregator 3 |
| 8  |                 | Subtract from Aggregator 4 |

**7.26: I<sup>2</sup>t and V<sup>2</sup>t Threshold Block (46326-46329).**

- I squared T - 2 registers, 4 bytes. 2-byte integers, 2-byte fractions. Secondary Current Value.
- V squared T - 2 registers, 4 bytes. 2-byte integers, 2-byte fractions. Secondary Volt Value.

**7.27: Internal KYZ Settings Block (46330-46372)**

- Internal KYZ Pulse Width - 1 byte, unsigned integer.

| Internal KYZ Pulse Width         |         |   |    |    |    |        |
|----------------------------------|---------|---|----|----|----|--------|
| Value                            | 0       | 1 | 2  | 3  | 4  | 5-127  |
| Pulse Width in Milliseconds (ms) | Disable | 5 | 10 | 15 | 20 | 25-635 |

- Internal KYZ Channel Assignment - 1 byte, unsigned integer.
- Internal KYZ Watt Hour per pulse - 2 registers, 4 bytes, 2 byte integer, 2 byte fraction.



| Internal KYZ Channel Assignment |                      |
|---------------------------------|----------------------|
| Value                           | Channel Assignment   |
| 0                               | Quad (1+4) Watt Hour |
| 1                               | Quad 1 VA Hour       |
| 2                               | Quad 1 VAR Hour      |
| 3                               | Quad 4 VA Hour       |
| 4                               | Quad 4 VAR Hour      |
| 5                               | Quad (2+3) Watt Hour |
| 6                               | Quad 2 VA Hour       |
| 7                               | Quad 2 VAR Hour      |
| 8                               | Quad 3 VA Hour       |
| 9                               | Quad 3 VAR Hour      |

- Internal KYZ Enable - 1 byte.

| Internal KYZ Enable Assignment |            |
|--------------------------------|------------|
| Bit                            | Assignment |
| Bit 7                          | Relay 1    |
| Bit 6                          | Relay 2    |
| Bit 5                          | Relay 3    |
| Bit 4                          | Relay 4    |
| Bit 3                          | Test LED   |

A bit value of 1 = KYZ is enabled.

A bit value of 0 = KYZ is disabled.

- End of Interval Pulse - The Nexus® 1272 meter can generate a pulse upon completion of a block window interval. This pulse is generated on one of the relays and the pulse width is selectable.

### 7.28: Internal Input Pulse Accumulation Unit Label Block (46373-46420).

- 4 registers, 8 bytes. These labels are used to describe the units a pulse represents. Units are usually one word and are 8 characters or less.

| End of Interval Pulse |               |                  |                      |
|-----------------------|---------------|------------------|----------------------|
| Byte                  |               |                  |                      |
| Value                 | Enable        | Relay            | Width (milliseconds) |
| 0                     | Disable Pulse | Internal Relay 1 | 5ms                  |
| 1                     | Enable Pulse  | Internal Relay 2 | 10 ms                |
| 2                     |               | Internal Relay 3 | 15 ms                |
| 3                     |               | Internal Relay 4 | 20 ms                |
| 4-126                 |               |                  | 25ms - 635ms         |

Examples of Units: Gallons, BTUs, Liters, Wh, kWh, VAh, etc.

## 7.29: ElectroLogic Block (46421-46804)

A Nexus® meter will support 16 Relay structures.

- Each Relay Structure will combine up to 8 Limit Comparisons or Combinations using a three-level binary tree of AND, OR, NAND, NOR, XOR or Hysteresis combinations. All trees will be reevaluated once per second. The final result of the tree, subject to delays, would then be queued for immediate transmission to External Relay Output devices.

Information needed to perform these actions:

- Input Limit Comparison and Combination Identification
  - Input Senses for Each Input
  - Combination Assignments for Each of 7 Gates in the Tree for Each Relay Structure
  - Delay Times
- Input Sense would apply to each input, negating an input state; in effect this would be the above/below equivalent for non-limit inputs like low speed inputs.
  - Comparison and combination identification would be performed by referencing the internal data table of the Nexus® meter, by specifying the Line number and Point number for a particular bit. For example, to refer to the first comparison of Limit 1, use Line 231, Point 0; first comparison of Limit 2, use Line 231, Point 1; first comparison of Limit 20, use Line 231, Point 19; second comparison of Limit 1, use Line 232, Point 0. To leave a line unassigned with a value of 0, use Line 65535, Point 255.

Binary Tree combinations: AND, OR, NAND, NOR, XOR and Hysteresis.

Delays are in seconds, and with a separate delay for activation (0-to-1 transitions) and deactivation (1-to-0 transitions).

- **The format of a Relay Structure:**

|        |                                |
|--------|--------------------------------|
| 2 byte | Line Number, First Tree Input  |
| 1 byte | Point Number, First Tree Input |
| 1 byte | Unused                         |

This 4 byte structure is repeated 7 more times for a total of eight inputs, 32 bytes.

|         |  |
|---------|--|
| 1 byte  | Input sense & combination A, combining inputs 1 & 2        |
| 1 byte  | Input sense & combination B, combining inputs 3 & 4        |
| 1 byte  | Input sense & combination C, combining inputs 5 & 6        |
| 1 byte  | Input sense & combination D, combining inputs 7 & 8        |
| 1 byte  | Input sense & combination E, combining A & B               |
| 1 byte  | Input sense & combination F, combining C & D               |
| 1 byte  | Input sense & combination G, combining E & F               |
| 1 byte  | Unused   |
| 1 byte  | Delay in seconds from 0-to-1 transition before reporting 1 |
| 1 byte  | Delay in seconds from 1-to-0 transition before reporting 0 |
| 6 bytes | Unused   |

Total of 48 bytes per Relay Structure, total of 768 bytes for 16 Relay Objects.

■ **The structure for the Direction and Combination byte:**

- Bits 7-5 Unused, set to 0
- Bit 4 Negate combination (AND -> NAND, etc.)
- Bits 3-2 00 = AND combination  
01 = OR combination  
10 = XOR combination  
11 = Hysteresis combination
- Bit 1 0 = second input is not inverted  
1 = second input is inverted
- Bit 0 0 = first input is not inverted  
1 = first input is inverted

Hysteresis combination uses the first input to set the combination, and the second input to clear the combination. If both inputs are asserted, the first input has priority.

Bits 0 and 1, negating inputs, only apply to gates A, B, C and D.

**7.30: Limit Profile Label Block (46805-47060)**

- Currently, this block is not used.
- 8 registers, 16 bytes. 16 characters

**7.31: External Analog Output Module Channel Update Block (47061-47062)**

- This block is added to improve the update speed of what is sent to the External Analog Output Modules from the Nexus® meter. Not all channels of the External Analog Output Module might be in use. The value indicates the number of External Analog Output Module channels that are refreshed per Modbus message. In the older versions of External Analog Output Modules, only one channel update was possible at a time.

| External Analog Output Module Update Speed |                      |
|--|----------------------|
| Value                                      | Update               |
| 0  | 1 channel at a time  |
| 1  | 2 channels at a time |
| 2  | 4 channels at a time |
| 3  | 8 channels at a time |
| 4-255                                      | 8 channels at a time |

### 7.32: Miscellaneous DNP Settings Block (47063-47104)

Scale for Analog Output of Average Pulse Accumulation - 1 byte unsigned integer.

Pulse accumulation values are 8-byte. But the Analog Output Module can accept 4-byte quantity. Therefore, only 4 bytes out of 8 bytes will be sent to Analog Output Module. This register decides which 4 bytes will be sent out.

| Values | Bytes to be Sent Out |
|--------|----------------------|
| 0      | Bytes 7,6,5,4        |
| 1      | Bytes 6,5,4,3        |
| 2      | Bytes 5,4,3,2        |
| 3      | Bytes 4,3,2,1        |
| 4      | Bytes 3,2,1,0        |

- Compressed DNP - 1 byte. Unused in the Nexus® 1252/1262/1272 meters.
- Energy in the Interval - 1 byte unsigned Integer. This is the Interval Time for Energy in the Interval. Unit is in minutes. Range is from 60 to 0.
- DNP Time Synchronization Enable - 1 byte. Register Address 47064 (Lower Byte).  
A value of 1 means that DNP Time Synchronization is enabled  
A value of 0 means that DNP Time Synchronization is disabled
- DNP Time Synchronization Time Interval - 1 register, 2 bytes. Register Address 47065.

| Value      | Time (1 Minute Interval) |
|------------|--------------------------|
| 0          | No Time Synchronization  |
| 1          | 1 minute                 |
| 2          | 2 minutes                |
| ...        | ...                      |
| 60         | 1 hour                   |
| 61         | 1 hour, 1 minute         |
| ...        |                          |
| 1439       | 23 hours, 59 minutes     |
| 1440       | 1 day                    |
| 1440-65535 | 1 day (default)          |

- Bitmap

Bit 13: Choice of Class 0 poll between Object 20 and Object 21

| Register       | Value | Description |
|----------------|-------|-------------|
| 40766 (Bit 13) | 1     | Object 21   |
|                | 0     | Object 20   |

Bit 12: Enable DNP Freeze Schedule

| Register       | Value | Description |
|----------------|-------|-------------|
| 40766 (Bit 12) | 1     | Enabled     |
|                | 0     | Disabled    |

- DNP Freeze Date & Time - 4 registers, 8 bytes.

| Registers    | Byte | Name         | Range        |
|--------------|------|--------------|--------------|
| 47067 - HIGH | 7    | Century      | 0-99         |
| 47067 - LOW  | 6    | Year         | 0-99         |
| 47068 - HIGH | 5    | Month        | 1-12         |
| 47068 - LOW  | 4    | Day          | 1-31         |
| 47069 - HIGH | 3    | Hour         | 0-23         |
| 47069 - LOW  | 2    | Minute       | 0-59         |
| 47070 - HIGH | 1    | Second       | 0-59         |
| 47070 - LOW  | 0    | Centi-Second | 0 (Always 0) |

- DNP Freeze Interval - 1 register, 2 bytes.

| Registers    | Byte | Name | Range  |
|--------------|------|------|--------|
| 47071 - HIGH | 1    | Hour | Minute |
| 47071 - LOW  | 0    | 0-48 | 0-59   |

### 7.33: Custom DNP Definition Block for Analog Input (Object 30) (47105-47360)

- Line number: 2-byte unsigned integer  
Line number and Point number will indicate the Analog Input value to be used for one of the point in Object 30.
- Point number: 1-byte unsigned integer
- Reserved: 1 byte. Reserved for future use.
- DeadBand: 2-byte signed number (Percentage)  
Range: +327.67% / - 327.68%  
Unit: 0.01%  
If the Current Analog Value is different from the Previous value by more than Deadband percentage, the meter will generate Analog Change Event value if it is assigned to any Class.
- Class assignments (Currently only bits 5,4 and 3 are used): 8-bit bitmap

When bit 5 is set, the Analog Change Event value will not be generated.

When bit 5 is clear, bit 4 and bit 3 will assign the Analog Change Event value to a Class.

| Class Assignments for Analog Change Event |       |       |                |
|---|-------|-------|----------------|
| Bit 5                                     | Bit 4 | Bit 3 | Class Assigned |
| 0   | 0     | 0     | No Class       |
| 0   | 0     | 1     | Class 1        |
| 0   | 1     | 0     | Class 2        |
| 0   | 1     | 1     | Class 3        |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |

- Reserved: 1 byte. Reserved for future use.

### 7.34: Custom DNP Definition Block for Binary Counter (Object 20) (47361-47424)

- Line number: 2-byte unsigned integer  
Line number and Point number will indicate the Binary Counter value to be used for one of the point in Object 20.
- Point number: 1-byte unsigned integer
- Scaling: 1-byte unsigned integer  
Range: 0-15

The meter has an 8-byte Binary Counter Value while DNP can only give a 4-byte value. By using this scaling, the user can get the proper range of data. The scaling value represents the power of 10.

- Delta Values: 4-byte unsigned integer  
If the Current Binary Counter value is different from the Previous value more than Delta values, the Counter Change Event value will be generated if it is assigned to a Class.
- Class assignments (Currently bits 5,4,3,2,1 and 0 are used): 8-bit bitmap

When bit 5 is set, the Counter Change Event value will not be generated.

When bit 5 is clear, bit 4 and bit 3 will assign the Counter Change Event value to a Class.

| <b>Class Assignments for Counter Change Event</b> |              |              |                         |
|---|--------------|--------------|-------------------------|
| <b>Bit 5</b>                                      | <b>Bit 4</b> | <b>Bit 3</b> | <b>Class Assignment</b> |
| 0   | 0            | 0            | No Class                |
| 0   | 0            | 1            | Class 1                 |
| 0   | 1            | 0            | Class 2                 |
| 0   | 1            | 1            | Class 3                 |
| 1   | X            | X            | No Class                |
| 1   | X            | X            | No Class                |
| 1   | X            | X            | No Class                |
| 1   | X            | X            | No Class                |

When bit 2 is set, the Frozen Counter Event value will not be generated.

When bit 2 is clear, bit 1 and bit 0 will assign the Frozen Counter Event value to a Class.

| <b>Class Assignments for Frozen Counter Events</b> |              |              |                       |
|--|--------------|--------------|-----------------------|
| <b>Bit 2</b>                                       | <b>Bit 1</b> | <b>Bit 0</b> | <b>Class Assigned</b> |
| 0  | 0            | 0            | No Class              |
| 0  | 0            | 1            | Class 1               |
| 0  | 1            | 0            | Class 2               |
| 0  | 1            | 1            | Class 3               |
| 1  | X            | X            | No Class              |
| 1  | X            | X            | No Class              |
| 1  | X            | X            | No Class              |
| 1  | X            | X            | No Class              |

- Reserved: 7 bytes. Reserved for future use.



### 7.35: Custom DNP Definition Block for Binary Input (Object 1) (47425-47456)

- Line number: 2-byte unsigned integer  
Line number and Point number indicate the Binary Input value used for 8 points in Object 1.
- Point number: 1-byte unsigned integer
- Class Assignments: 8-bit bitmap (1 byte). Bit 7, 6 and 5 will assign the Binary Input Change value to a Class. Bit 4 to bit 0 are not used.

| Class Assignments for Binary Input Change |       |       |                |
|---|-------|-------|----------------|
| Bit 7                                     | Bit 6 | Bit 5 | Class Assigned |
| 0   | 0     | 0     | No Class       |
| 0   | 0     | 1     | Class 1        |
| 0   | 1     | 0     | Class 2        |
| 0   | 1     | 1     | Class 3        |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |
| 1   | X     | X     | No Class       |

- Reserved: 4 bytes. Reserved for future use.

### 7.36: Custom DNP Definition Block for Binary Output (Object 10) (47457-47458)

- Enable / Disable Relays (1-16) (2 bytes):      0: Relay disabled      1: Relay enabled

|        |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|---|---|---|----|----|----|----|----|----|----|
| Bits   | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6  | 5  | 4  | 3  | 2  | 1  | 0  |
| Relays | 1  | 2  | 3  | 4  | 5  | 6  | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

- Enable / Disable Resets (17-24) (1 byte):      0: Reset disabled      1: Reset enabled

| Bit | Resets  |
|-----|---|
| 15  | Log Reset   |
| 14  | Maximum Reset   |
| 13  | Minimum Reset   |
| 12  | Energy Reset  |
| 11  | Reset Time of Use Current Season and Current Month        |
| 10  | Manual Waveform Capture                                   |
| 9   | Reset KYZ Output Accumulations                            |
| 8   | Reset Unit to Boot Mode - Default Communications Settings |
| 7-0 | Reserved  |

### 7.37: Custom DNP Definition Block for Global Values (47459-47463)

When the master requests data by the object, it can specify the variation in the request so the master can get the data formatted for its use. When the master asks for Variation 0, the slave meter can respond with any variation(s). This Programmable Setting holds the variations available for a Variation 0 request.

| Address     | Object               | Object Number | Variations Available for a Variation 0 Request |
|-------------|----------------------|---------------|--|
| 47459, High | Binary Input         | 1             | 1,2  |
| 47459, Low  | Binary Input Change  | 2             | 1,2  |
| 47460, High | Binary Counter       | 20            | 1,2,5,6  |
| 47460, Low  | Frozen Counter       | 21            | 1,2,5,6,9,10                                   |
| 47461, High | Counter Change Event | 22            | 1,2,5,6  |
| 47461, Low  | Frozen Counter Event | 23            | 1,2,5,6  |
| 47462, High | Analog Input         | 30            | 1,2,3,4  |
| 47463, High | Analog Change Event  | 32            | 1,2,3,4  |

### 7.38: Analog Input Scaling Factors Block (48641-48768)

- 2 registers, 4 bytes. These are signed 2 byte integer values and 2 byte fractions.
- The integer values are ranged from -32768 to +32767.
- The fraction has the unit of 1/65536.
- They are 8 channels for High and 8 channels for Low up to 4 modules.

### 7.39: Analog Input Labels Block (48769-49024)

- 8 registers, 16 bytes. Each channel can be named with 16 characters.
- They are 8 channels up to 4 modules.

### 7.40: External Digital Input Module Labels Block (49025-49792)

- 8 registers, 16 bytes.
- Each channel, open condition and closed condition can be named with 16 characters.
- They are 8 of each and up to 4 modules.

### 7.41: External Digital Output Module Labels Block (49793-50176)

- 8 registers, 16 bytes.
- Each relay, normally open, and normally closed can be named with 16 characters.
- They are 4 of each and up to 4 modules.

#### 7.42: Internal Modem Card Settings Block (50177-50268)

- Ring number - 1 byte. The Nexus® meter will answer after this number of rings (1 to 9).
- Baud Rate - 1 byte. This will program the baud rate of the gateway.

| Nexus® Meter's Internal Modem Card Baud Rate Settings |                   |                   |
|---|-------------------|-------------------|
| Index   | Baud Rate (INP 1) | Baud Rate (INP 2) |
| 0   | 57600             | 115200            |
| 1   | 57600             | 57600             |
| 2   | 38400             | 38400             |
| 3   | 19200             | 19200             |
| 4   | 9400              | 9600              |
| 5   | 4800              | 4800              |
| 6   | 57600             | 2400              |
| 7   | 57600             | 1200              |
| 8   | 57600             | 9600              |
| 9   | 57600             | 9600              |
| 10-255  | 57600             | 9600              |

- Port Configuration - 1 byte. Pass Through Port Configuration.

| Bit 2 - Bit 0 | Parity |
|---------------|--------|
| 000           | None   |
| 001           | Even   |
| 010           | Odd    |
| 011           | Mark   |
| 100           | Space  |
| 101           | Space  |
| 110           | Space  |
| 111           | Space  |

Bit 3:

A value of 0 means 8-data bits.

A value of 1 means 7-data bits.

- **Call Delay Timer Limit** - 1 register, 2 bytes. User-set variable that defines the number of seconds the modem will wait before processing a callback event (0-240 seconds). Applies to calls caused by Limit or Input Status conditions.
- **Activity Timeout Limit** - 1 byte. User-set value that is the number of minutes of inactivity (no communication activity) that is allowed on an open modem connection before the modem will terminate the connection (1-30 minutes)

- **Call Fail Reset Limit** - 1 byte. User-set value for the number of hours the modem will lock out incoming calls if the Incoming Connection Failure Limit is reached (1-50 hours).
- **Violation Lockout Time** - 1 byte. User-set time limit for the number of hours (1-32) modem will be inaccessible. The Violation Lockout provides a level of security against bad passwords.
- **Violation Limit** - 1 byte. User-set value for number of times the modem will allow unsuccessful connection attempts (unable to supply correct password in three attempts) before locking up to incoming calls (1-10). Modem will disconnect from the incoming call and will not accept incoming calls for a period of time equal to the Violation Lockout Time.
- **Log Full Limit Threshold (Covers All Logs)** - 1 register, 2 bytes. Percent that a log is full before a call is triggered.
- **Modem ID (32 bytes)** - 16 registers, 32 bytes. Up to 32 Western Alphabet Characters (16 Asian Characters) can be written.
- **Modem Password (10 bytes)** - 5 registers, 10 bytes. Up to 10 alphanumeric characters (user-set) in addition to passwords that affect access to certain levels of the Nexus® meter. If the password is not entered correctly, the modem asks the user to enter the password again up to three times and disconnects after the third incorrect attempt.
- **Numeric Pager ID (7 bytes)** - Reserved for future use.
- **Bitmap Set** - 1 byte, 8 bits.

| Internal Modem Card Bitmap Settings |                     |                        |
|-------------------------------------|---------------------|------------------------|
| Bit 7                               | Call Back Type      | 0: Standard Mode       |
|                                     |                     | 1: Playback Mode       |
| Bit 6                               | Modem Password Flag | 0: Password Not Active |
|                                     |                     | 1: Password Active     |
| Bit 5                               | Primary Line Type   | 0: Computer            |
|                                     |                     | 1: Pager               |
| Bit 4                               | Primary Pager Type  | 0: Numeric             |
|                                     |                     | 1: Alpha-numeric       |
| Bit 3                               | Shared Phone Line   | 0: False               |
|                                     |                     | 1: True                |
| Bit 2 - Bit 0                       | Not Used            |                        |

- **Rings to Answer** - 1 byte. User-set value for the number of Rings (1-9) before the modem will go off-hook and attempt to answer an incoming call.
- **Primary Retry Limit** - 1 register, 2 bytes. The user-set limit for retry attempts (0-1000).

- **Primary Retry Delay** - 1 register, 2 bytes. The number of minutes (0-1000) between retries.
- **Primary Phone Number (48 bytes)** - 24 registers, 48 bytes. The first phone number (up to 48 characters) called for automated callout.
- **Time Limit** - Reserved for future use.
- **Event Mask** - 1 register, 2 bytes. These are the conditions that Nexus® meter dial out when the event occurs.

| Modem Feature Dial-Out Mask (Event Mask) |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |
|--|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|
| 15                                       | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

A bit value of 1 means the feature is disabled for reporting.  
 A bit value of 0 means the feature is enabled for reporting.

| Bit  | Event Description                       |
|------|---|
| 0    | Limits Status Change                    |
| 1    | High Speed Input Change                 |
| 2    | Waveform Record Captured                |
| 3    | CBEMA Power Quality Event               |
| 4    | Control Output Change                   |
| 5    | Filling of Meter Memory                 |
| 6    | Cycling of Control Power                |
| 7    | Modem Password Failure                  |
| 8    | Failure of Communication with the Meter |
| 9-15 | Reserved                                |

- **Secondary Retry Limit** - 1 register, 2 bytes. The user-set limit for retry attempts (0-1000).
- **Secondary Retry Delay** - 1 register, 2 bytes. The number of minutes (0-1000) between retries.
- **Secondary Phone Number (48 bytes)** - 24 registers, 48 bytes. The second phone number (up to 48 characters) called for automated callout.
- **Device Addresses at Gateway (Device 1, Device 2)** - The address has one byte unsigned integer. The device address can be any number except 1. The number 1 is always reserved for the Primary Device.
- **Device Addresses at Gateway (Device 3, Device 4)** - The address has one byte unsigned integer. The device address can be any number except 1. The number 1 is always reserved for the Primary Device.

- **Device Addresses at Gateway (Device 5, Device 6)** - The address has one byte unsigned integer. The device address can be any number except 1. The number 1 is always reserved for the Primary Device.
- **Device Addresses at Gateway (Device 7, Device 8)** - The address has one byte unsigned integer. The device address can be any number except 1. The number 1 is always reserved for the Primary Device.

### **7.43: Customizable Modbus Map Settings Block (50273-50784)**

- Using this block, you can customize up to 256 readings. All the readings that are customized in this block can be seen in the Customized Modbus Map Window Block (12289).
  - Line Number - 2 bytes.
  - Point Number - 1 byte.
  - Reserved - 1 byte. Currently not used.

You can select any Register or Group of Registers that has a Line Number and a Point Number from the Nexus® meter Modbus Register Map. Those selections are used to create a customized grid of up to 256 readings in the CommunicatorPQA™ Device Profile.

Example: In order to read 1 Cycle Phase A-N Voltage as Item Number 1 on your Customized Modbus Map, you would enter for Item 1: Line Number 10 and Point Number 0.

Refer to the *CommunicatorPQA™ Software User Manual* for details on the creation of your Customized Modbus Map.

**7.44: Auto TFTP Download Settings Block (Network Settings 10/100 Card) (50785-50860)**

- **Enable / Disable** - 1 Register.

| Network Settings 10/100 Card |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |
|------------------------------|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|
| Auto TFTP Download Settings  |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |
| Enable / Disable             |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |
| 15                           | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

Bit 15:

- 1 = Enable Auto TFTP Download
- 0 = Disable Auto TFTP Download

- **TFTP Port** - 1 register, 2 bytes. Two byte unsigned integer.
- **Client IP** - 2 registers, 4 bytes. Each byte is unsigned integer.
- **Server IP** - 2 registers, 4 bytes. Each byte is unsigned integer.
- **Default Gateway** - 2 registers, 4 bytes. Each byte is unsigned integer.
- **Subnet Mask** - 2 registers, 4 bytes. Each byte is unsigned integer.
- **Email Mode** - Bitmap.  
 Bit 15: Require Authentication.  
 A bit value of 1 means No authentication is required.  
 A bit value of 0 means authentication is required.  
 Bit 14 to 0: Not used. Reserved.
- **FTP Download** - Reserved for future use.
- **Download Filename (128 Bytes)** - 64 registers, 128 bytes. Each byte is Hex ASCII.

**7.45: Email Client Settings (Network Settings 10/100 Card) (50861-51020)**

- **Email Server IP Address/ Name (64 bytes)** - 32 registers. 64 bytes. Each byte is Hex ASCII.
- **CommunicatorPQA Email Processing Service IP Address/ Name (64 bytes)** - 32 registers, 64 bytes. Each byte is Hex ASCII.
- **Return/ Reply Address (64 bytes)** - 32 registers, 64 bytes. Each byte is Hex ASCII.
- **Email Subject Text (64 bytes)** - 32 registers, 64 bytes. Each byte is Hex ASCII.
- **Email Username (32 bytes)** - 16 registers, 32 bytes. Each byte is Hex ASCII.
- **Email Password (32 bytes)** - 16 registers, 32 bytes. Each byte is Hex ASCII.

#### 7.46: FTP Client (Network Settings 10/100 Card) (51021-51148)

- **FTP Username (32 bytes)** - 16 registers, 32 bytes. Each byte is Hex ASCII.
- **FTP Password (32 bytes)** - 16 registers, 32 bytes. Each byte is Hex ASCII.
- **Startup Remote Default Dictionary (128 bytes)** - 64 registers, 128 bytes. Each byte is Hex ASCII.
- **FTP Server IP Address/ Name (64 bytes)** - 32 registers, 64 bytes. Each byte is Hex ASCII.

#### 7.47: GE Protocol (EGD) (Network Settings 10/100 Card) (51149-51154)

- **IP Address** - 2 registers, 4 bytes. Each byte is Hex ASCII.
- **Update Interval** - 1 register, 2 bytes. Two byte unsigned integer. The unit is 0.1 second.
- **Connection Type/ Bit Settings**

| Connection Type |             |
|-----------------|-------------|
| Index           | Description |
| 0               | Broadcast   |
| 1               | Multicast   |
| 2               | Unicast     |

| INP 100 Card EGD Bitmap Settings |   |   |   |   |   |   |   |
|----------------------------------|---|---|---|---|---|---|---|
| 7                                | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

Bit 0: Producer Identifier

A value of 1 means Use Assigned Static IP Address.

A value of 0 means Use Custom Number.

- **Producer Identifier** - 2 registers, 4 bytes. Four byte unsigned long. Only available when the Customer Number is used.

#### 7.48: DNP LAN/WAN (51157-51195)

- **Mode** - 1 byte unsigned integer.

| Index          | Description |  |
|----------------|-------------|--|
| Index 0, 3-255 | Disabled    | No DNP over IP functionality               |
| 1              | Standard    | Most settings overridden by default values |
| 2              | Manual      | All settings are used                      |



- **Bitmap Set** - 8-bit bitmap.

| DNP LAN/WAN Bitmap |   |   |   |   |   |   |   |
|--------------------|---|---|---|---|---|---|---|
| 7                  | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

- Bit 7: TCP Enable  
A value of 0 means DNP over TCP listening point disabled.  
A value of 1 means DNP over TCP listening point enabled.
- Bit 6: UDP Enable  
A value of 0 means DNP over UDP end point disabled.  
A value of 1 means DNP over UDP end point enabled.
- Bit 5: Validate Client Point  
A value of 0 means No validation and any port is accepted.  
A value of 1 means Validate connections against the first 1-4 entries.
- Bit 4: UDP Response Behavior  
A value of 0 means Respond to Client Port.  
A value of 1 means Respond to programmed UDP respond port.
- Bit 3 to Bit 0: Reserved

- **UDP Addressing** - 1 byte unsigned integer.

| Index        | Description             |
|--------------|-------------------------|
| 1            | Unicast Addressing Only |
| 2            | Broadcast Only          |
| 3 (0, 4-255) | Unicast and Broadcast   |

- **Validate Connection Count** - 1 byte unsigned integer.

| Index      | Description  |
|------------|--|
| 0, (5-255) | No validation, any connection is accepted          |
| 1-4        | Validate connections against the first 1-4 entries |

- **TCP Listen Port** - Two byte unsigned integer. TCP listening port.
- **UDP Listen Port** - Two byte unsigned integer. UDP listening port.
- **Valid IP Address 1,2,3,4** - Four 4 byte IP address. Each byte is 1 unsigned integer. These are IP addresses for validating TCP connections and UDP datagrams.
- **Valid IP Subnet Mask 1,2,3,4** - Four 4 byte IP address. Each byte is unsigned integer. These are IP subnet masks for validating TCP connections and UDP datagrams.
- **TCP Starting Valid Client Ports** - Four 2 byte unsigned integers. These are Starting Client ports for validating TCP connections.

- **TCP Ending Valid Client Ports** - Four 2 byte unsigned integers. These are Ending Client port for validating TCP connections.
- **UDP Starting Valid Client Ports** - Four 2 byte unsigned integers. These are Starting Client ports for validating UDP datagrams.
- **UDP Ending Valid Client Ports** - Four 2 byte unsigned integers. These are Ending Client ports for validating UDP datagrams
- **Multicast Group Address** - Reserved for future use.
- **UDP Respond Port** - 2 byte unsigned integer. This is UDP port to respond to if UDP response behavior is

#### 7.49: Customizable Modbus Map Format Block (51201-51712)

■ Using this block, you can customize up to 256 readings. All the readings that are customized in this block can be seen in the Customized Modbus Map Window Block (12289).

- **Line Number** - 2 bytes.
- **Point Number** - 1 byte.
- **Reserved** - 1 byte. Currently not used.

You can select any Register or Group of Registers that has a Line Number and a Point Number from the Nexus® meter Modbus Register Map. Those selections are used to create a customized grid of up to 256 readings in the CommunicatorPQA™ Device Profile.

Example: In order to read 1 Cycle Phase A-N Voltage as Item Number 1 on your Customized Modbus Map, you would enter for Item 1: Line Number 10 and Point Number 0.

Refer to the *CommunicatorPQA™ Software User Manual* for details on the creation of your Customized Modbus Map.

#### 7.50: Energy Scale Settings (51713-51738)

■ Each register contains 2 bytes. Each byte contains settings for a base quantity. The format of a byte is as follows:

|                |        |   |   |      |   |                |   |   |
|----------------|--------|---|---|------|---|----------------|---|---|
| <b>Bit</b>     | 7      | 6 | 5 | 4    | 3 | 2              | 1 | 0 |
| <b>Meaning</b> | Digits |   |   | Unit |   | Decimal Places |   |   |

Digits is a 3 bit field, which is offset by 2 to represent from 2 to 9 displayable digits.

Unit is a 2-bit field, where the values from 0 to 2 represent units of Wh (100), k (103) and M (106). The value 3 is undefined and is treated the same as 2, signifying M (106).

Decimal Places is a 3-bit field, which represent from 0 to 7 decimal places.

Examples: For the following, the Q1234 VAh has a current value of 123,456,789.0123 VAh.

| Register CA00H |            | Digits   | Unit                  | D.P. | Pattern       | Reading   |          | Display        |
|----------------|------------|----------|-----------------------|------|---------------|-----------|----------|----------------|
| Hex            | Binary     |          |                       |      |               | Hex       | Decimal  |                |
| 20xxH          | 001 00 000 | 3 Digits | VAh, 10 <sup>0</sup>  | 0    | xxx VAh       | 00000315H | 789      | 789 VAh        |
| 8BxxH          | 100 01 011 | 6 Digits | kVAh, 10 <sup>3</sup> | 3    | xxx.xxx kVAh  | 0006F855H | 456789   | 456.789 kVAh   |
| 88xxH          | 100 01 000 | 6 Digits | kVAh, 10 <sup>3</sup> | 0    | xxxxxx kVAh   | 0001E240H | 123456   | 123,456 kVAh   |
| 93xxH          | 100 10 011 | 6 Digits | MVAh, 10 <sup>6</sup> | 3    | xxx.xxx MVAh  | 0001E240H | 123456   | 123.456 MVAh   |
| 72xxH          | 011 10 010 | 5 Digits | MVAh, 10 <sup>6</sup> | 2    | xxx.xx MVAh   | 00003039H | 12345    | 123.45 MVAh    |
| C2xxH          | 110 00 010 | 8 Digits | VAh, 10 <sup>0</sup>  | 2    | xxxxxx.xx VAh | 02B90135H | 45678901 | 456,789.01 VAh |

### 7.51: Update Settings Block (52975-53248)

- User Memo Field (256 bytes)- 128 registers, 256 bytes. User can write any notes up to 255 characters in this memo field.
  - **Name of User Who Last Updated the Profile (256 bytes)** - These registers are used internally with the software. No interactions are required by the user.
  - **Device Profile Version (Year, Month/Day, Build)** - These registers have the updated date for Device Profile. These registers are used internally with the software. No interactions are required by the user.
  - **Program Software ID** - These registers have software ID. These registers are used internally with the software. No interactions are required by the user.
  - **Electro Industries Device Type (Base Unit, Option 1/Option 2, Option 3/Option 4)** - These registers have information on what type of EI meters that the software is communicating to. These registers are used internally with the software. No interactions are required by the user.
  - **Update Programming Software Version Number (Major, Minor, Revision)** - These registers have software version number. These registers are used internally with the software. No interactions are required by the user.



# Chapter 8

## Register Block Titles

- This chapter expands upon information listed in the Nexus® meter Modbus Register Map (Chapter 2). Register Block Titles refer to a Register or Group of Registers in the Register Map that serve a particular purpose or function. Refer to the Table of Contents to find additional details and descriptions of the Nexus® meter Modbus Register Map.

### 8.1: Device Identification Block (00001-00080)

- Description: Registers included in this block: Device Name, Firmware Variation Strings 0-7, Nexus Communicator Boot Version Number, Nexus Communicator Run-Time Version Number, Nexus DSP Boot Version Number, Nexus DSP Run-Time Version Number. (See 3.1, 3.2.)

### 8.2: Real Time Block (00081-00089)

- Description: Registers included in this block: On Time, Current Time, Current Day of the Week. (See 3.3, 3.4.)

#### On Time (00081-00084)

These Registers keep the Time of the meter when it is turned on. The format of the Registers follows the table below. Byte 0 indicates the high byte of the Register 00081 and the byte 7 indicates the low byte of Register 00084. These Registers are for Read Only.

| Byte | Range | Description |
|------|-------|-------------|
| 0    | 0-255 | Century     |
| 1    | 0-99  | Year        |
| 2    | 1-12  | Month       |
| 3    | 1-31  | Day         |
| 4    | 0-23  | Hour        |
| 5    | 0-59  | Minute      |
| 6    | 0-59  | Second      |
| 7    | 0-99  | Centisecond |

#### Current Time (00085-00088)

These Registers keep the Current Time of the meter. These values are kept by an internal battery even when the meter is off. The format of the Registers follows the table above.

#### Current Day of the Week (00089)

This Register keeps the Current Day of the Week. The format follows the table below.

| Value | Day of Week |
|-------|-------------|
| 0001H | Sunday      |
| 0002H | Monday      |
| 0003H | Tuesday     |
| 0004H | Wednesday   |
| 0005H | Thursday    |
| 0006H | Friday      |
| 0007H | Saturday    |

- Example: Resetting the Time on a meter.

For May 20, Century is 20 (14H). Year is 02. Month is 05. Day is 20 (14H). Hour is 15 (0FH). Minute is 45 (2DH). Second is 00. Centisecond is 00. Day is 0002H.

The following data is sent to the Nexus® meter address 1. Registers 00085 through 00089 are written sequentially in one request. Register 00089, Current Day of the Week, must be included in the request. (Refer to Chapter 1 for Function Code 1.)

0110005400050A140205140F2D00000002B44A

01 - Meter Address

10 - Function Code

0054 - Starting Address

0005 - Number of Registers

0A - Number of Bytes

140205140F2D00000002 - Actual data for Time and Date

B44A - Two-byte CRC Checksum

### 8.3: 1 Cycle Block (00090-00118)

- Description: 1 Cycle Registers included in this block: Block Time Stamp, Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Calculated Neutral Current, Phase A-B, B-C, C-A Voltage, High Speed Input Delta and Current State. (See 3.3, 3.5, 3.6.)

### 8.4: Tenth Second Block (00119-00175)

- Description: Tenth Second Registers included in this block: Block Time Stamp, Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Phase A-B, B-C, C-A Voltage, Phase A, B, C VA, Three Phase VA, Phase A, B, C VAR, Three Phase VAR, Phase A, B, C Watts, Three Phase Watts, Frequency, Phase A, B, C Power Factor, Three Phase Power Factor, Phase A-N Voltage to Aux Voltage Phase Angle. (See 3.3, 3.7, 3.8, 3.9.)

### 8.5: One Second Block (00176-00235)

- Description: One Second Registers included in this block: Block Time Stamp, Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Calculated Neutral Current,

Phase A-B, B-C, C-A Voltage, Phase A, B, C VA, VA, Phase A, B, C VAR, Three Phase VAR, Phase A, B, C Watts, Three Phase Watts, Frequency, Phase A, B, C Power Factor, Three Phase Power Factor, Voltage Imbalance, Current Imbalance. (See 3.3, 3.7, 3.8, 3.10.)

#### **8.6: Thermal Average Block (00236-00295)**

- Description: Thermal Average Registers included in this block: Block Time Stamp, Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Calculated Neutral Current, Phase A-B, B-C, C-A Voltage, Phase A, B, C VA, VA, Phase A, B, C VAR, VAR, Phase A, B, C Watts, Watts, Freq, Phase A, B, C PF, PF, Voltage, Current Imbalance. (See 3.3, 3.7, 3.8, 3.10.)

#### **8.7: Maximum Block (00296-00396)**

- Description: Maximum (Thermal Average) Registers included in this block: Block Time Stamp, Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Calculated Neutral Current, Phase A-B, B-C, C-A Voltage, Phase A, B, C VA, VA, Phase A, B, C Positive VAR, Positive VAR, Phase A, B, C Negative VAR, Negative VAR, Phase A, B, C Positive Watts, Positive Watts, Phase A, B, C Negative Watts, Negative Watts, Freq, Phase A, B, C PF Quadrants 1, 2, 3, 4, PF Quadrants 1, 2, 3, 4, Voltage Imbalance, Current Imbalance, THD Phase A-N /A-B, B-N /B-C, C-N/C-A Voltage, THD Phase A, B, C Current, K-Factor Phase A, B, C Current, Coincident Thermal Average VAR for Max Pos Watt, Max Neg Watt. (See 3.3, 3.7, 3.8, 3.10.)

#### **8.8: Minimum Block (00397-00497)**

- Description: Minimum (Thermal Average) Registers included in this block: All of the Registers for Maximum Block but for Minimum Block. (See 3.3, 3.7, 3.8, 3.10.)

#### **8.9: Maximum Time Stamp Block (00498-00737)**

- Description: Maximum (Thermal Average) Time Stamp Registers included in this block: Phase A-N, B-N, C-N, Aux Voltage, Phase A, B, C Current, Measured Neutral Current, Calculated Neutral Current, Phase A-B, B-C, C-A Voltage, Phase A, B, C VA, VA, Phase A, B, C Positive VAR, Positive VAR, Phase A, B, C Negative VAR, Negative VAR, Phase A, B, C Positive Watts, Positive Watts, Phase A, B, C Negative Watts, Negative Watts, Freq, Phase A, B, C PF Quadrants 1, 2, 3, 4, PF Quadrants 1, 2, 3, 4, Voltage Imbalance, Current Imbalance, THD Phase A-N/A-B, B-N/B-C, C-N/C-A Voltage, THD Phase A, B, C Current, K-Factor Phase A, B, C Current. (See 3.3.)

#### **8.10: Minimum Time Stamp Block (00738-00977)**

- Description: Minimum (Thermal Average) Time Stamp Registers included in this block: All of the Registers for Maximum Time Stamp Block but for Minimum Block. (See 3.3.)

#### **8.11: Energy Block (Secondary) (00978-01021)**

- Description: Energy Registers included in this block: Time Stamp, VAhour, Positive, Negative VARhour, Positive, Negative Watthour. (See 3.3, 3.11, 3.12.)

### **8.12: Harmonic Magnitude Block (01022-01789)**

- Description: Harmonic Magnitude Registers included in this block: Phase A-N/A-B, B-N/B-C, C-N/C-A Voltage for 0<sup>th</sup> through 127<sup>th</sup> Harmonic Magnitude, Phase A, B, C Current for 0<sup>th</sup> through 127<sup>th</sup> Harmonic Magnitude. (See 3.10.)

### **8.13: Harmonic Phase Block (01790-02557)**

- Description: Harmonic Phase Registers included in this block: Phase A-N/A-B, B-N/B-C, C-N/C-A Voltage for 0<sup>th</sup> through 127<sup>th</sup> Harmonic Phase, Phase A, B, C Current for 0<sup>th</sup> through 127<sup>th</sup> Harmonic Phase. (See 3.9.)

### **8.14: THD/K-Factor Block (02558-02566)**

- Description: THD/K-Factor Registers included in this block: Phase A-N/A-B, B-N/B-C, C-N/C-A Voltage THD, Phase A, B, C Current THD, Phase A, B, C Current K-Factor. (See 3.10.)

### **8.15: Harmonic Time Stamp Block (02567-02590)**

- Description: Harmonic Time Stamp Registers included in this block: Phase A-N/A-B, B-N/B-C, C-N/C-A Voltage, Phase A, B, C Current. (See 3.3.)

### **8.16: Phase Angle Block (02591-02604)**

- Description: Phase Angle Registers included in this block: Time Stamp, Phase A-N, B-N, C-N Voltage, Phase A, B, C Current, Phase A-B, B-C, C-A Voltage, Volt Phase Seq. (See 3.3, 3.9, 3.13.)

### **8.17: Block Window Average Block (02605-02683)**

- Description: Block Window Average Registers included in this block: Time Stamp, Status, VA, VAR, Watt, Maximum VA, Positive VAR, Negative VAR, Positive Watt, Negative Watt, Minimum VA, Positive VAR, Negative VAR, Positive Watt, Negative Watt, Coincident VAR for Max Positive Watt, Neg Watt, Coincident VAR for Min Positive Watt, Neg Watt, VA Time Stamp, Time Stamp for Pos VAR, Neg VAR, Pos Watt, Neg Watt, Minimum VA Time Stamp, Time Stamp for Minimum Pos VAR, Neg VAR, Pos Watt, Neg Watt. (See 3.3, 3.7, 3.14.)

### **8.18: Rolling Window/Predictive Rolling Window Block (02684-02768)**

- Description: Rolling Window/Predictive Rolling Average Registers included in this block: Time Stamp, Status, Predictive VA, VAR, Watt, VA, VAR, Watt, Maximum VA, Positive VAR, Negative VAR, Positive Watt, Negative Watt, Min VA, Positive VAR, Negative VAR, Positive Watt, Negative Watt, Coincident VAR for Max Positive Watt, Neg Watt, Coincident VAR for Min Positive Watt, Neg Watt, VA Time Stamp, Time Stamp for Pos VAR, Neg VAR, Pos Watt, Neg Watt, Min VA Time Stamp, Time Stamp for Min Pos VAR, Neg VAR, Pos Watt, Neg Watt. (See 3.3, 3.7, 3.14.)

### **8.19: Limit Block (02769-02773)**

- Description: Limit Registers included in this block: Limit States, Value 1 Comparisons, 1-16, 17-32, Limits States, Value 2 Comparisons, 1-16, 17-32, Low Speed Inputs. (See 3.15, 3.16.)



### **8.20: Digital Input Block (02774-02841)**

- Description: Digital Input Registers included in this block: Input States, Module 1, Accum 1-8 (Module 1), Input States, Module 2, Accum 1-8 (Module 2), Input States, Module 3, Accum 1-8 (Module 3), Input States, Module 4, Accum 1-8 (Module 4). (See 3.17, 3.18.)

### **8.21: Primary Accumulation Block (02842-02973)**

- Description: Primary Accumulation Registers included in this block: Time Stamp, Rec Watthour (Q1+4), VAhour while Rec Watthour and Neg VARhour (Q1), Negative VARhour while Rec Watthour (Q1), VAhour while Rec Watthour and Pos VARhour (Q4), Pos VARhour while Rec Watthour (Q4), Delivered Watthour (Q2+3), VAhour while Del Watthour (Q2), VAhour while Del Watthour and Pos VARhour (Q3), Positive VARhour while Del Watthour (Q3), Received Watthour (Q1+4), VAhour while Rec Watthour and Neg VARhour (Q1), Neg VARhour while Rec Watthour (Q1), VAhour while Rec Watthour and Pos VARhour (Q4), Pos VARhour while Rec Watthour (Q4), Delivered Watthour (Q2+3), VAhour while Del Watthour and Neg VARhour (Q2), Neg VARhour while Del Watthour (Q2), VAhour while Del Watthour and Pos VARhour (Q3), Pos VARhour while Del Watthour (Q3), I<sup>t</sup> Phase A, B, C, V<sup>t</sup> Phase A, B, C. (See 3.3, 3.19, 3.20.)

### **8.22: Time of Use Period Time Stamp Block (02974-03040)**

- Description: Time of Use Period Time Stamp Registers included in this block: Status, Prior Season Start Time, End Time, Prior Month Start Time, End Time, Current Season Start Time, End Time, Current Month Start Time, End Time, CT and PT Ratio Numerator for Prior Season, Prior Month, Current Season, Current Month, CT and PT Ratio Denominator for Prior Season, Prior Month, Current Season, Current Month. (See 3.3, 3.14.)

### **8.23: Time of Use Frozen Block (03041-03584)**

- Description: Time of Use Frozen Registers included in all blocks: Received Watthour (Q1+4), VAhour (Q1), VARhour (Q1), VAhour (Q4), VARhour (Q4), Delivered Watthour (Q2+3), VAhour (Q2), VARhour (Q2), VAhour (Q3), VARhour (Q3), Peak Demand Rec Watt (Q1+4), Del Watt (Q2+3), Rec VAR (Q1+2), Del VAR (Q3+4), Coin. Demand VAR to Peak Demand Rec Watt, Del Watt, Peak Demand Rec Watt (Q1+4) Time Stamp, Del Watt (Q2+3) Time Stamp, Peak Demand Rec VAR (Q1+2) Time Stamp, Del VAR (Q3+4) Time Stamp. (See 3.3, 3.7, 3.20.)

Register 1 Block (03041)

Register 2 Block (03109)

Register 3 Block (03177)

Register 4 Block (03245)

Register 5 Block (03313)

Register 6 Block (03381)

Register 7 Block (03449)

Register 8 Block (03517)

### **8.24: Time of Use Frozen Total Block (03585-03652)**

- Description: Time of Use Frozen Total Registers included in this block: Totals for all Registers above.

### **8.25: Time of Use Prior Month Register Block (03653-04196)**

- Description: Time of Use Prior Month Registers included in all blocks: Received Watthour (Q1+4), VAhour (Q1), VARhour (Q1), VAhour (Q4), VARhour (Q4), Delivered Watthour (Q2+3), VAhour (Q2), VARhour (Q2), VAhour (Q3), VARhour (Q3), Peak Demand Rec Watt (Q1+4), Del Watt (Q2+3), Rec VAR (Q1+2), Del VAR (Q3+4), Coin. Demand VAR to Peak Demand Rec Watt, Del Watt, Peak Demand Rec Watt (Q1+4) Time Stamp, Del Watt (Q2+3) Time Stamp, Peak Demand Rec VAR (Q1+2) Time Stamp, Del VAR (Q3+4) Time Stamp. (See 3.3, 3.7, 3.20.)

Register 1 Block (03653)

Register 2 Block (03721)

Register 3 Block (03789)

Register 4 Block (03857)

Register 5 Block (03925)

Register 6 Block (03993)

Register 7 Block (04061)

Register 8 Block (04129)

### **8.26: Time of Use Prior Month Total Block (04197-04264)**

- Description: Time of Use Prior Month Total Registers included in this block: Totals for all Registers above.

### **8.27: Time of Use Active Register Block (04265-04808-)**

- Description: Time of Use Active Registers included in all blocks: Received Watthour (Q1+4), VAhour (Q1), VARhour (Q1), VAhour (Q4), VARhour (Q4), Delivered Watthour (Q2+3), VAhour (Q2), VARhour (Q2), VAhour (Q3), VARhour (Q3), Peak Demand Rec Watt (Q1+4), Del Watt (Q2+3), Rec VAR (Q1+2), Del VAR (Q3+4), Coin. Demand VAR to Peak Demand Rec Watt, Del Watt, Peak Demand Rec Watt (Q1+4) Time Stamp, Del Watt (Q2+3) Time Stamp, Peak Demand Rec VAR (Q1+2) Time Stamp, Del VAR (Q3+4) Time Stamp. (See 3.3, 3.7, 3.20.)

Register 1 Block (04265)

Register 2 Block (04333)

Register 3 Block (04401)

Register 4 Block (04469)

Register 5 Block (04537)

Register 6 Block (04605)

Register 7 Block (04673)

Register 8 Block (04741)

### **8.28: Time of Use Active Total Block (04809-04876)**

- Description: Time of Use Active Total Registers included in this block: Totals for all Registers above.

### **8.29: Time of Use Current Month Register Block (04877-05420)**

- Description: Time of Use Current Month Registers included in all blocks: Received Watthour (Q1+4), VAhour (Q1), VARhour (Q1), VAhour (Q4), VARhour (Q4), Delivered Watthour (Q2+3),

VAhour (Q2), VARhour (Q2), VAhour (Q3), VARhour (Q3), Peak Demand Rec Watt (Q1+4), Del Watt (Q2+3), Rec VAR (Q1+2), Del VAR (Q3+4), Coin. Demand VAR to Peak Demand Rec Watt, Del Watt, Peak Demand Rec Watt (Q1+4) Time Stamp, Del Watt (Q2+3) Time Stamp, Peak Demand Rec VAR (Q1+2) Time Stamp, Del VAR (Q3+4) Time Stamp. (See 3.3, 3.7, 3.20.)

Register 1 Block (04877)

Register 2 Block (04945)

Register 3 Block (05013)

Register 4 Block (05081)

Register 5 Block (05149)

Register 6 Block (05217)

Register 7 Block (05285)

Register 8 Block (05353)

### **8.30: Time of Use Current Month Total Block (05421-05488)**

- Description: Time of Use Current Month Total Registers included in this block: Totals for all Registers above.

### **8.31: Time of Use Frozen Label Block (05489-05552)**

- Description: Time of Use Frozen Label Registers included in this block: Reg. Labels 1-8.

### **8.32: Time of Use Prior Month Label Block (05553-05616)**

- Description: TOU Prior Month Label Registers in this block: Register Labels 1-8. (See 3.2.)

### **8.33: Time of Use Active Label Block (05617-05680)**

- Description: TOU Active Label Registers in this block: Register Labels 1-8. (See 3.2.)

### **8.34: Time of Use Current Month Label Block (05681-05744)**

- Description: TOU Current Month Label Registers in this block: Register Labels 1-8. (See 3.2.)

### **8.35: Internal Input Pulse Accumulation Block (05745-05796)**

- Description: Internal Input Pulse Accumulation Registers included in this block: Time Stamp, Scaled Pulse Accumulations Internal Inputs 1-8, Scaled Pulse Accumulations 1-4. (See 3.3, 3.40.)

### **8.36: Pulse Accumulation Block Window Average / Maximum Block (05797-05945)**

- Description: Pulse Accumulation Block Window Average / Maximum Registers included in this block: Time Stamp, Status, Average Internal Inputs 1-8, Average Aggregation 1-4, Maximum Average Internal Inputs 1-8, Maximum Average Aggregation 1-4, Maximum Internal Input Time Stamp 1-8, Maximum Average Aggregation Time Stamp 1-4. (See 3.3, 3.14, 3.40.)

### **8.37: Temperature (05946)**

- Description: Nexus® meter Internal Temperature Register is in this block. (See 3.33.)

### 8.38: Analog Input Block (05947-05978)

- Description: Analog Input Registers in this block: Analog Inputs 1-8, Modules 1-4. (See 3.10.)

### 8.39: Limit Combination Block (05979-05980)

- Description: Limit Combination Registers included in this block: Limit States, Combinations 1-16, 17-32. (See 3.34.)

### 8.40: Relay Logic Block (05981-06014)

- Description: Relay Logic Registers included in this block: Time Stamp, States, Inputs 1-8, Relays 1-16, States, Gates A-G, Relays 1-16, Delay Timer, Relay 1/2 - 15/16, Relays 1-16 for Desired Relay States, Shadowed Relay States, Confirmed Relay States, Valid Flags for Confirmed Relay States, Locked Relays, Locked Relay States. (See 3.3, 3.34 - 3.42.)

### 8.41: Reset Time Block (06015-06038)

- Description: Reset Time Registers included in this block: Time Stamp, Max Time Stamp, Min Time Stamp, Energy Time Stamp, Current Season / Month TOU Time Stamp. (See 3.3.)

### 8.42: Miscellaneous Flags Block (06039)

- Description: The Miscellaneous Flags Register has 2 bytes. Each byte has eight bits. The bits in these bytes are associated with various miscellaneous functions as follows:

| Bit      | Point | Meaning              |
|----------|-------|----------------------|
| 15 (MSB) | 0     | NVRAM Battery Status |
| 14-1     | 1-14  | Undefined            |
| 0 (LSB)  | 15    | Undefined            |

#### NVRAM Battery Status

|                       |                       |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
|-----------------------|-----------------------|---|---|---|---|---|---|---|-----|---|----|----|----|----|----|----|
| <b>Address</b>        | 06039                 |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Value</b>          | 8000H                 |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |
| <b>Bytes</b>          | 80H                   |   |   |   |   |   |   |   | 00H |   |    |    |    |    |    |    |
| <b>Bits</b>           | 1                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0   | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| <b>Point</b>          | 0                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8   | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| <b>Interpretation</b> | NVRAM Battery is Low. |   |   |   |   |   |   |   |     |   |    |    |    |    |    |    |

A value of '0' indicates that the battery is OK; a value of '1' indicates that the battery is not OK. Battery Status is reevaluated on power up and approximately every 24 hours after power up.

Example: Register 06039, Miscellaneous Flags, might contain the data in the table above.

#### **8.43: Test Mode Block (06040-06096)**

- Description: These Registers are not for the normal mode of the unit. When in Test Mode, these Registers have the proper values for the intended tests. (See 3.3, 3.7, 3.12, 3.14.)

#### **8.44: KYZ Output Accumulation Block (06097-06110)**

- Description: KYZ Output Accumulation Registers included in this block: KYZ Output Accumulation Block Time Stamp, KYZ Output Accumulation Relays 1 - 4, KYZ Output Accumulation, LED. (See 3.3, 3.18.)

#### **8.45: Input Module Data Status Block (06111-06113)**

- Description: Input Module Data Status Registers included in this block: Digital Input Modules Data States, Analog Input Modules Data States. (See 3.44, 3.45.)

#### **8.46: Flicker Status Block (06114-06126)**

- Description: Flicker Status Registers included in this block: Flicker Status Block Time Stamp, Flicker Start Time, Flicker End Time, Flicker Status. (See 3.3, 3.14.)

#### **8.47: Instantaneous Flicker Block (06127-06136)**

- Description: Instantaneous Flicker Registers included in this block: Instantaneous Flicker Block Time, Instantaneous Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ . (See 3.3, 3.7.)

#### **8.48: Short Term Flicker Block (06137-06186)**

- Description: Short Term Flicker Registers included in this block: Short Term Flicker Block Time, Short Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Maximum Short Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Minimum Short Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Short Term Interval End Time Stamp, Max Short Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$  Time Stamps, Min Short Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$  Time Stamps. (See 3.3, 3.7.)

#### **8.49: Long Term Flicker Block (06187-06236)**

- Description: Long Term Flicker Registers included in this block: Long Term Flicker Block Time, Long Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Maximum Long Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Minimum Long Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$ , Long Term Interval End Time Stamp, Maximum Long Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$  Time Stamps, Minimum Long Term Flicker  $V_{AN}$ ,  $V_{BN}$ ,  $V_{CN}$  Time Stamps. (See 3.3, 3.7.)

#### **8.50: Additional Energy Block (06237-06392)**

- Description: Additional Energy Registers included in this block: Additional Energy Block Time, Quadrants 1, 4, 2, 3 Watthour Secondary, Quadrant 1 Vahour, VARhour Secondary, Quadrant 4 Vahour, VARhour Secondary, Quadrant 2 Vahour, VARhour Secondary, Quadrant 3 Vahour, VARhour Secondary, Quadrants 1, 4, 2, 3 Watthour Primary, Total Vahour Primary (Quadrants 1+2+3)

3+4), Positive VARhour (Quadrants 1+2) Primary, Negative VARhour (Quadrants 3+4) Primary, Negative VARhour Primary, Quadrant 1, 4, 2, 3 Watthour Secondary, Quadrant 1 Vahour, VARhour Secondary, Quadrant 4 Vahour, VARhour Secondary, Quadrant 2 Vahour, VARhour Secondary, Quadrant 3 Vahour, VARhour Secondary, Quadrants 1, 4, 2, 3 Watthour Primary, Total Vahour (Quadrants 1+2+3+4) Primary, Positive VARhour (Quadrants 1+2) Primary, Negative VARhour (Quadrants 3+4) Primary. (See 3.3, 3.19, 3.20.)

### **8.51: Energy and Pulses in the Interval Block (06393-06488)**

- Description: Energy and Pulses in the Interval Registers included in this block: Energy and Pulses in the Interval Block Time Stamp, Total Vahour (Quadrants 1+2+3+4) in the Interval Secondary, Positive VARhour (Quadrants 1+2) in the Interval Secondary, Negative VARhour (Quadrants 3+4) in the Interval Secondary, Positive Watthour (Quadrants 1+4) in the Interval Secondary, Negative Watthour (Quadrants 2+3) in the Interval Secondary, Positive Watthour (Quadrants 1+4) in the Interval Secondary, Negative Watthour (Quadrants 2+3) in the Interval Secondary, Positive Watthour (Quadrants 1+4) in the Interval Primary, Quadrant 1 Vahour, VARhour in the Interval Primary, Quadrant 4 Vahour, VARhour in the Interval Primary, Negative Watthour (Quadrants 2+3) in the Interval Primary, Quadrant 2 Vahour, VARhour in the Interval Primary, Quadrant 3 Vahour, VARhour in the Interval Primary, I2t Phase A, B, C in the Interval Primary, V2t Phases A, B, C in the Interval Primary, Pulses Accumulation Internal Inputs 1-8 in the Interval Scaled, Pulse Accumulations 1-4 in the Interval Scaled, Quadrants 1, 4, 2, 3 Watthour in the Interval Secondary, Quadrant 1 Vahour, VARhour in the Interval Secondary, Quadrant 4 Vahour, VARhour in the Interval Secondary, Quadrant 2 Vahour, VARhour in the Interval Secondary, Quadrant 3 Vahour, VARhour in the Interval Secondary, Quadrants 1, 4, 2, 3 Watthour in the Interval Primary, Total Vahour (Quadrants 1+2+3+4) in the Interval Primary, Positive VARhour (Quadrants 1+2) in the Interval Primary, Negative VARhour (Quadrants 3+4) in the Interval Primary, KYZ Pulse Output in the Interval Relays 1-4. KYZ Pulse Output in the Interval IR LED. (See 3.3, 3.18, 3.57.)

### **8.52: Flicker Countdown Block (06489-06490)**

- Description: Flicker Countdown Registers included in this block: Short Term Flicker Countdown, Long Term Flicker Countdown. (See 3.56.)

### **8.53: Cumulative Demand Block (06491-06502)**

- Description: Cumulative Demand Registers included in this block: Cumulative Demand Block Time Stamp, Positive Watt (Quadrants 1+4) Cumulative Demand, Negative Watt (Quadrants 2+3) Cumulative Demand, Positive Watt (Quadrants 1+4) Continuous Cumulative Demand, Negative Watt (Quadrants 2+3) Continuous Cumulative Demand. (See 3.3, 3.18.)

### **8.54: Time of Use Active Cumulative Demand Block (06503-06538)**

- Description: Time of Use Active Cumulative Demand Registers included in this block: TOU Active Register 0-7 Cumulative Demand Q1 + Q4 Watt and Q2 + Q3 Watt, TOU Active Totals Cumulative Demand Q1 + Q4 and Q2 + Q3 Watt. (See 3.18.)

### **8.55: Time of Use Current Month Cumulative Demand Block (06539-06574)**

- Description: Time of Use Current Month Cumulative Demand Registers included in this block:

TOU Current Month Register 0-7 Cumulative Demand Q1 + Q4 Watt and Q2 + Q3 Watt, TOU Current Month Totals Cumulative Demand Q1 + Q4 and Q2 + Q3 Watt. (See 3.18.)

### **8.56: TOU Active Continuous Cumulative Demand Block (06575-06610)**

- Description: Time of Use Active Continuous Cumulative Demand Registers included in this block: TOU Active Register 0-7 Continuous Cumulative Demand Q1 + Q4 Watt and Q2 + Q3 Watt, TOU Active Totals Continuous Cumulative Demand Q1 + Q4 and Q2 + Q3 Watt. (See 3.18.)

### **8.57: TOU Current Month Continuous Cumulative Demand Block (06611-06646)**

- Description: Time of Use Current Month Continuous Cumulative Demand Registers included in this block: TOU Current Month Register 0-7 Continuous Cumulative Demand Q1 + Q4 Watt and Q2 + Q3 Watt, TOU Current Month Totals Continuous Cumulative Demand Q1 + Q4 and Q2 + Q3 Watt. (See 3.18.)

### **8.58: Log Index Block (06647-06664)**

- Description: This register contains a 2-byte MSB unsigned integer, which represents the First of Last Index for a given Log. First Indexes represent the Index of the First (Oldest) record in a log. Last Indexes represent the Index of the Last (Newest) record in a log. The value of 0x0FFFF for the Last Index indicates that the log is empty.

### **8.59: Uncompensated and Q Block (06665-06670)**

- Description: Uncompensated register readings are the readings to which Transformer Loss Compensation is not applied. Q Hour readings are 60 degree-shifted hour readings from Watt hour readings. VAR hour readings are 90 degree-shifted hour readings from Watt hour readings.

### **8.60: Scaled Energy Block (06908-07829)**

- Description: Energy readings in Nexus® meters have Watt-hour, VAR-hour and VA-hour as base units. In the real world, kilo-, mega- and giga- units are used more frequently. Therefore, Nexus® 1252/1262/1272 meters have scaled energy readings. This scale can be modified using CommunicatorPQA™ software.

|        |   |
|--------|---|
| Length | 2 Registers (4 bytes)                                     |
| Range  | 99 / 0 through 999,999,999 / 0 (variable, 2-9 digits)     |
| Unit   | 10 <sup>-7</sup> through 10 <sup>6</sup> units (variable) |

This register contains a 4-byte MSB signed integer. The range and resolution of a given reading is controlled by programmable Scaled Energy Settings, which govern both the Range of the reading (from 2 to 9 digits) and the Units of the reading (from 7 decimal places of Wh (10<sup>-7</sup>) to no decimal places of MWh (10<sup>6</sup>). NOTE: See section 3.64 and 3.65 for details.

### **8.61: Total Average Power Factor Block (07830-07859)**

- Description: This block keeps the Total Average Power Factor Values. Power Factor Values can be

calculated using Watt, VAR and VA. Total Average Power Factor values will be calculated by Wh, VARh and VAh.

#### **8.62: Reset Active Time of Use Time Stamp (07860-07863)**

- Description: This register holds the Time Stamp when Active TOU Time is reset. The format follows the Time Stamp F3, section 3.3.

#### **8.63: Negative Maximum Pulse Aggregation Average Block (07864-07895)**

- Description: Negative Maximum Average Aggregation 1-4 and Negative Maximum Average Aggregation Time Stamp 1-4 registers are included in this block. Maximum Average Aggregation 1-4 registers in Pulse Accumulation Block Window Average/Maximum Block (05797-05945) will hold only positive values.

#### **8.64: Scratchpad Block (08193 - 08320)**

- Description: Scratchpad Registers 08193 - 08320 included in this block. The 128 Registers in the Scratchpad Block are for temporary storage of information. At the user's discretion, data may be written to Registers and then read back.

Example: Using one port, write energy readings from other devices. Those energy readings can be read through another port.

#### **8.65: Master Device Data Block (08449-08704)**

- Description: These registers are used as a Scratch Pad between the Software and the Network Card or Modem Card. These registers are not for polling by the users.

#### **8.66: Customized Modbus Block (12289-14336)**

- Description: All the readings in the Customizable Modbus Map Settings Block (50273) can be read in this block. The format of the readings follows each individually assigned reading.

#### **8.67: Enhanced Factory Settings Block (16385-24576)**

- Description: These registers are reserved for future additional factory settings information. Currently, nothing is defined in these registers.

#### **8.68: Enhanced Programmable Settings Block (24577-32768)**

- Description: These registers are reserved for future additional Programmable Settings information. Currently, nothing is defined in these registers.

#### **8.69: Time of Use Calendar Header Block (34817-34918)**

- Description: TOU Calendar Registers included in this block: Modification Time Stamp & Cal Year for Years 1-20, Header Status, Year Selection Status. (See 3.3, 3.21, 3.31, 3.32.)



### 8.70: Time of Use Calendar Block (34919-35800)

- Description: Time of Use Calendar Registers included in all blocks: Modification Time Stamp, Calendar Year, Profile for 2-Day Segments for the Whole Calendar Year (Jan1/Jan2 Profile), Profile Status, Profile Register for

### 8.71: Time of Use Upload Calendar Block (36607-36736)

- Description: Time of Use Upload Calendar Window Registers included in this block: Locked to Port, Sequence Status, ID, Data, Checksum. (See 3.27 - 3.30, 3.43.)

### 8.72: Historical Log 1 Snapshot Header (36865-36882)

- Description: Historical Log 1 Snapshot Registers included in this block:

#### Memory Size

4-byte unsigned integers representing the amount of memory, in bytes, allocated to the log.

#### Record Size

2-byte integers representing the size, in bytes, of a record in the log.

#### First Index

2-byte unsigned integers representing the index of the first (oldest) record in the log.

#### Last Index

2-byte unsigned integers representing the index of the last (newest) record in the log. The value 0x0FFFF indicates that the log is empty.

#### First Time Stamp

These Registers (8 bytes) hold the time stamp from the first (oldest) record in the log.

| Time Stamp Bytes |       |             |
|------------------|-------|-------------|
| Byte             | Range | Description |
| 0                | 0-255 | Century     |
| 1                | 0-99  | Year        |
| 2                | 1-12  | Month       |
| 3                | 1-31  | Day         |
| 4                | 0-23  | Hour        |
| 5                | 0-59  | Minute      |
| 6                | 0-59  | Second      |
| 7                | 0-99  | Centisecond |

#### Last Time Stamp

These Registers hold the Time Stamp from the last (newest) record in the log. The byte order and description are the same as for the First Time Stamp.

### **Valid Bitmap**

These Registers hold the bit flags indicating whether the Nexus® meter recognizes the lines in the Historical Log Settings Block (the block at Register 45205). The first bit represents the validity of the Data Pointer in the Historical Log Settings. A value of 1 means the Data Pointer is acceptable and can be stored. A value of 0 means that the Data Pointer is invalid or unrecognized and not able to be stored.

### **Max Records**

2-byte unsigned integer representing the total number of records the log is capable of holding. In order to maintain a one-for-one relationship in parallel logs, the maximum number of records that a log can store is defined by the log that holds the fewest records. Logs capable of holding more records are restricted.

## **8.73: Historical Log 2 Snapshot Header (36929-36946)**

- Description: Historical Log 2 Snapshot Registers included in this block: The same as Log 1 above.

## **8.74: Limit Trigger Log Header (36993-37010)**

- Description: Limit Trigger Log Registers included in this block:

### **Valid Bitmap**

These Registers hold the bit flags indicating whether the Nexus® meter recognizes the lines in the Limit Settings Block (the block at Register 45077). The first bit represents the validity of the Data Pointer in the Limit Settings. A value of 1 means the Data Pointer is acceptable and can be stored. A value of 0 means that the Data Pointer is invalid or unrecognized and not able to be stored. Only 32 bits are used. See Registers 36865 to 36882 for other registers.

## **8.75: Limit Snapshot Log Header (37057-37074)**

- Description: Limit Snapshot Log Registers included in this block: See Registers 36865-36882 and 36993-37010.

## **8.76: Digital Input Log Header (37121-37138)**

- Description: Digital Input Log Registers included in this block: See Registers 36865-36882.

## **8.77: Digital Input Snapshot Log Header (37185-37202)**

- Description: Digital Input Snapshot Log Registers included in this block: See Regs. 36865-36882.

## **8.78: Digital Output Log Header (37249-37266)**

- Description: Digital Output Log Registers included in this block: See Registers 36865-36882.

## **8.79: Digital Output Snapshot Log Header (37313-37330)**

- Description: Digital Output Snapshot Log Registers included in this block: See Registers 36865-36882.

### 8.80: Flicker Log Header (37377-37394)

- Description: Currently not used.

### 8.81: Waveform Trigger Log Header (37441-37458)

- Description: Waveform Trigger Log Registers included in this block: See Registers 36865-36882.

### 8.82: System Event Log Header (37505-37522)

**Memory Size:** 4-byte unsigned integers representing the amount of memory, in bytes, allocated to the log.

**Record Size:** 2-byte unsigned integers representing the size, in bytes, of a record in the log.

**First Index:** 2-byte unsigned integers representing the Index of the First (Oldest) record in the log.

**Last Index:** 2-byte unsigned integers representing the Index of the Last (Newest) record in the log. The value 0x0FFFF indicates that the log is empty.

**First Time Stamp:** These registers (8 bytes) hold the Time Stamp from the First (Oldest) record in the log.

| Time Stamp Bytes |       |             |
|------------------|-------|-------------|
| Byte             | Range | Description |
| 0                | 0-255 | Century     |
| 1                | 0-99  | Year        |
| 2                | 1-12  | Month       |
| 3                | 1-31  | Day         |
| 4                | 0-23  | Hour        |
| 5                | 0-59  | Minute      |
| 6                | 0-59  | Second      |
| 7                | 0-99  | Centisecond |

**Last Time Stamp:** These registers hold the Time Stamp from the Last (Newest) Record in the log. The byte order and description are the same as for the First Time Stamp.

**Valid Bitmap:** Undefined.

**Max Records:** A 2-byte unsigned integer represents the total number of records the log is capable of holding. In order to maintain a one-for-one relationship in parallel logs, the maximum number of records that a log can hold is defined by the log that holds the fewest records. Logs capable of holding more records are restricted.

### **8.83: Waveform Samples Log Header (37569-37586)**

- Description: Waveform Samples Log Registers included in this block: See Registers 36865-36882.

### **8.84: PQ (CBEMA) Log Header (37633-37650)**

- Description: PQ (CBEMA) Log Registers included in this block: See Registers 36865-36882.

### **8.85: Reset Log Header (37697-37714)**

- Description: Reset Log Registers included in this block: See Registers 36865-36882.  
Description: Reset Log Registers included in this block: See Registers 36865-36882.

### **8.86: External Device Information Block Header (37761-37778)**

- Description: External Device Information Registers included in this block:

**Memory Size:** A 4-byte unsigned integer representing the amount of memory, in bytes, allocated to External Device Information Blocks. This memory is allocated from RAM, not NVRAM.

**Record Size:** An unsigned integer representing the size, in bytes, of an External Device Info Block.

**First Index:** An unsigned integer representing the Index of the First External Device Info Block.

**Last Index:** An unsigned integer representing the Index of the Last External Device Info Block.

**First Time Stamp:** Since External Device Info Blocks are not recorded sequentially, these Registers have no meaning.

**Last Time Stamp:** Since External Device Info Blocks are not recorded sequentially, these Registers have no meaning.

**Valid Bitmap:** These Registers hold the bit flags to indicate the validity of individual External Device Info Blocks. The first bit (high order bit in Register 37774) represents the validity of the First External Device Info Block. The last bit (lowest order bit in Register 37777) represents the validity of the Last External Device Info Block. A value of 1 means that the External Device was found and the Nexus® meter successfully received all of the Info Block for the External Device. A value of 0 means that the External Device was not found, or errors have occurred while trying to retrieve the Info Block or that no device is programmed for this slot.

**Max Records:** This Register holds an unsigned integer representing the total number of records the log can hold.

### **8.87: External Device Programming Block Header (37825-37842)**

- Description: External Device Programming Registers included in this block:

**Memory Size:** These Registers are a 4-byte unsigned integer representing the amount of memory,

in bytes, allocated to External Device Programming Blocks. This memory is allocated from RAM, not NVRAM.

**Record Size:** This Register is an unsigned integer representing the size, in bytes, of an External Device Programming Block.

**First Index:** An unsigned integer representing the Index of the First External Device Programming Block.

**Last Index:** An unsigned integer representing the Index of the Last External Device Programming Block.

**First Time Stamp:** Since External Device Programming Blocks are not recorded sequentially, these Registers have no meaning.

**Last Time Stamp:** Since External Device Programming Blocks are not recorded sequentially, these Registers have no meaning.

**Valid Bitmap:** These Registers hold the bit flags to indicate the validity of individual External Device Programming Blocks. The first bit (high order bit in Register 37838) represents the validity of the First External Device Programming Block. The last bit (lowest order bit in Register 37841) represents the validity of the Last External Device Programming Block. A value of 1 means that the External Device was found and the Nexus® meter successfully received all of the Programming Block for the External Device. A value of 0 means that the External Device was not found, or errors have occurred while trying to retrieve the Programming Block or that no device is programmed for this slot.

**Max Records:** This Register holds an unsigned integer representing the total number of records the log is capable of holding.

### **8.88: Device History Block Header (37889-37906)**

- Description: Device History Block currently not used. This Register holds an unsigned integer representing the total number of records the log is capable of holding.

### **8.89: Direct Memory Access Header (37953-37970)**

- Description: Direct Memory Access currently not used.

### **8.90: Window Index Block (38145-38162)**

- Description: Window Index Registers included in this block:

**Historical Log 1 (38145):** When read, this Register returns the Window Index for Historical Log 1 to access Historical Log 1 on this port. When written, this Register sets the Index used by the Historical Log 1 Window to access Historical Log 1 on this port. Each port accesses a separate, independent index through this Register, allowing all four ports to access different areas of Historical Log 1 at the same time.

When a value other than 0x0FFFF is written to this Register, the index is updated. If the Window Mode for this log indicates a Paused Mode (0x00000 or 0x00001 in Register 38209), Historical Log 1 is paused, preventing the addition of new records while the log is being accessed. A 30-second timer is initiated on these writes. Should the timer run out (a new index is not written within 30 seconds), Historical Log 1 will be allowed to continue logging.

When a value of 0x0FFFF is written to this Register, it signifies that the port is finished accessing Historical Log 1, the 30-second timer is canceled and Historical Log 1 will be allowed to continue logging.

Should multiple ports access the same log simultaneously, the log will be paused while either 30-second timer is running. The log will be allowed to continue logging only when both ports time-out or write 0x0FFFF to their Index Register.

**Historical Log 2 (38146):** When read, this Register returns the Window Index for Historical Log 2 to access Historical Log 2 on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Limit Trigger Log (38147):** When read, this Register returns the Index used by the Limit Trigger Log Window to access Limit Trigger Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Limit Snapshot Log (38148):** When read, this Register returns the Index used by the Limit Snapshot Log Window to access Limit Snapshot Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Digital Input Log (38149):** When read, this Register returns the Index used by the Digital Input Log Window to access Digital Input Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Digital Input Snapshot Log (38150):** When read, this Register returns the Index used by the Digital Input Snapshot Log Window to access Digital Input Snapshot Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Digital Output Log (38151):** When read, this Register returns the Index used by the Digital Output Log Window to access Digital Output Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Digital Output Snapshot Log (38152):** When read, this Register returns the Index used by the Digital Output Snapshot Log Window to access Digital Output Snapshot Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Flicker Log (38153):** When read, this Register returns the Index used by the Flicker Log Window to access Flicker Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Waveform Trigger Log (38154):** When read, this Register returns the Index used by the Waveform Trigger Log Window to access Waveform Trigger Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

Register 38155 is not currently used.

**Waveform Samples Log (38156):** When read, this Register returns the Index used by the Waveform Samples Log Window to access Waveform Samples Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**PQ Log (38157):** When read, this Register returns the Index used by the PQ Log Window to access PQ Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**Reset Log (38158):** When read, this Register returns the Index used by the Reset Log Window to access Reset Log on this port. Functionality follows the Historical Log 1 Window Index (38145).

**External Device Info Block (38159):** When read, this Register returns the Index used by the External Device Info Block Window to access External Device Info Blocks on this port. When written, this Register sets the Index used by the External Device Info Block Window to access External Device Info Blocks on this port. Each port accesses a separate, independent index through this Register, allowing all four ports to access different External Device Info Blocks at the same time.

**External Device Programming Block (38160):** When read, this Register returns the Index used by the External Device Programming Block Window to access External Device Programming Blocks on this port. When written, this Register sets the Index used by the External Device Programming Block Window to access External Device Programming Blocks on this port. Each port accesses a separate, independent index through this Register, allowing all four ports to access different External Device Programming Blocks at the same time.

**Device History Block (38160)** - Currently not used.

**Direct Memory Access (38161)** - Currently not used.

### **8.91: Window Mode Block (38209-38226)**

- Description: Window Mode Registers included in this block:

**Historical Log 1 (38209):** When read, this Register returns the Mode used by the Historical Log 1 Window to access Historical Log 1 on this port. When written, this Register sets the Mode used by the Historical Log 1 Window to access Historical Log 1 on this port. Each port accesses a separate, independent Mode through this Register, allowing all four ports to access Historical Log 1 in different modes.

Currently, the Mode Register defines the following Modes: Paused Download Mode (0x00000), Paused Time Stamp Mode (0x00001), Running Download Mode (0x00002) and Running Time Stamp Mode (0x00003).

In Download Modes (0x00000 and 0x00002), the Historical Log 1 Window accesses consecutive 128-byte blocks of the Historical Log 1. When the Index = 0x00000, the first 128 bytes of the log are readable in the window; when the Index = 0x00001, the second 128 bytes of the log are readable in the window, and so on.

The designation “first 128 bytes of the log” is a physical description based on the absolute addresses of the memory allocated to the log. The first (oldest) record in the log may not be located at the beginning of the log.

**In Time Stamp Modes (0x00001 and 0x00003)**, the Historical Log 1 Window accesses the Time Stamps of the records in the Historical Log 1 in blocks of 16 Time Stamps at a time. When the Index = 0x00000, the Time Stamps of the first 16 records (records 0-15) in the log are readable in the window; when the Index = 0x00001, the Time Stamps of the second 16 records (records 16-31) in the log are readable in the window, and so on.

The designation “first 16 records of the log” is a physical description based on the absolute addresses of the memory allocated to the log. The first (oldest) record in the log may not be located at the beginning of the log.

**In Paused Modes (0x00000 and 0x00001)**, the log being accessed is paused and new records are not added to the log while it is paused.

**In Running Modes (0x00002 and 0x00003)**, the log being accessed is not paused and new records may be added to the log. When downloading in these modes, it is possible the records may be overwritten before or during the downloading of records.

**Historical Log 2 (38210):** When read, this Register returns the Mode in use by the Historical Log 2 Window to access Historical Log 2 on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Limit Trigger Log (38211):** When read, this Register returns the Mode in use by the Limit Trigger Log Window to access Limit Trigger Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Limit Snapshot Log (38212):** When read, this Register returns the Mode in use by the Limit Snapshot Log Window to access Limit Snapshot Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Digital Input Log (38213):** When read, this Register returns the Mode in use by the Digital Input Log Window to access Digital Input Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Digital Input Snapshot Log (38214):** When read, this Register returns the Mode in use by the Digital Input Snapshot Log Window to access Digital Input Snapshot Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Digital Output Log (38215):** When read, this Register returns the Mode in use by the Digital Output Log Window to access Digital Output Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Digital Output Snapshot Log (38216):** When read, this Register returns the Mode used by the Digital Output Snapshot Log Window to access Digital Output Snapshot Log on this port.



Functionality follows Historical Log 1 Window Mode (38209).

**Flicker Log (38217):** When read, this Register returns the Mode in use by the Flicker Log Window to access Flicker Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Waveform Trigger Log (38218):** When read, this Register returns the Mode in use by the Waveform Trigger Log Window to access Waveform Trigger Log on this port. Functionality follows Historical Log 1 Window Mode (38209).

Register 38219 is currently not used.

**Waveform Samples Log (38220):** When read, this Register returns the Mode in use by the Waveform Samples Log Window to access Waveform Samples Log on this port. Functionality follows Historical Log 1 Window Mode (38209).

**PQ Log (38221):** When read, this Register returns the Mode in use by the PQ Log Window to access PQ Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**Reset Log (38222):** When read, this Register returns the Mode in use by the Reset Log Window to access Reset Log on this port. Functionality follows the Historical Log 1 Window Mode (38209).

**External Device Info Block (38223)** - Currently now used.

**External Device Programming Block (38224)** - Currently not used.

**Device History Block (38225)** - Currently not in use.

**Direct Memory Access (38226)** - Currently not in use.

## **8.92: Window Block (38273-39424)**

- Description: Window Registers included in this block:

**Historical Log 1 (38273-38336):** These Registers are a 128-byte window into the Historical Log 1. Depending on the Historical Log 1 Window Index, a different 128-byte area of Historical Log 1 can be accessed.

**Historical Log 2 (38337-38400):** These Registers are a 128-byte window into the Historical Log 2. Depending on the Historical Log 2 Window Index, a different 128-byte area of Historical Log 2 can be accessed.

**Limit Trigger Log (38401-38464):** These Registers are a 128-byte window into the Limit Trigger Log. Depending on the Limit Trigger Log Window Index, a different 128-byte area of Limit Trigger Log can be accessed.

**Limit Snapshot Log (38465-38528):** These Registers are a 128-byte window into the Limit Snapshot Log. Depending on the Limit Snapshot Log Window Index, a different 128-byte area of Limit Snapshot Log can be accessed.

**Digital Input Log (38529-38592):** These Registers are a 128-byte window into the Digital Input Log. Depending on the Digital Input Log Window Index, a different 128-byte area of Digital Input Log can be accessed.

**Digital Input Snapshot Log (38593-38656):** These Registers are a 128-byte window into the Digital Input Snapshot Log. Depending on the Digital Input Snapshot Log Window Index, a different 128-byte area of Digital Input Snapshot Log can be accessed.

**Digital Output Log (38657-38720):** These Registers are a 128-byte window into the Digital Output Log. Depending on the Digital Output Log Window Index, a different 128-byte area of Digital Output Log can be accessed.

**Digital Output Snapshot Log (38721-38784):** These Registers are a 128-byte window into the Digital Output Snapshot Log. Depending on the Digital Output Snapshot Log Window Index, a different 128-byte area of Digital Output Snapshot Log can be accessed.

**Flicker Log (38785-38848):** These Registers are a 128-byte window into the Flicker Log. Depending on the Flicker Log Window Index, a different 128-byte area of Flicker Log can be accessed.

**Waveform Trigger Log (38849-38912):** These Registers are a 128-byte window into the Waveform Trigger Log. Depending on the Waveform Trigger Log Window Index, a different 128-byte area of Waveform Trigger Log can be accessed.

Registers 38913-38976 are currently not in use.

**Waveform Samples Log (38977-39040):** These Registers are a 128-byte window into the Waveform Samples Log. Depending on the Waveform Samples Log Window Index, a different 128-byte area of Waveform Samples Log can be accessed.

**PQ Log (39041-39104):** These Registers are a 128-byte window into the PQ Log. Depending on the PQ Log Window Index, a different 128-byte area of PQ Log can be accessed.

**Reset Log (39105-39168):** These Registers are a 128-byte window into the Reset Log. Depending on the Reset Log Window Index, a different 128-byte area of Reset Log can be accessed.

**External Device Info Block Window (39169-39232):** These Registers are a 128-byte window into the External Device Info Blocks. Depending on the External Device Info Block Window Index, a different 128-byte area of the External Device Info Blocks can be accessed. (See Chapter 5.)

**External Device Info Block Window (39233-39296):** These Registers are a 128-byte window into the External Device Programming Blocks. Depending on the External Device Programming Block Window Index, a different 128-byte area of the External Device Programming Blocks can be accessed. (See Chapter 5.)

**Device History Block (39297-39360)** - Currently not in use.

**Direct Memory Access (39361-39424)** - Currently not in use.

### 8.93: Auto Increment Window Block (39423-39488)

#### ■ Auto Increment Configuration - 1 Register, 2 bytes.

When read, this register returns the configuration in use by the Auto Increment Log Window, below, to access logs on this port. When written, this register sets the configuration used by the Auto Increment Log Window, below, to access logs on this port. Each port accesses a separate, independent configuration through this register allowing all four ports to access logs with different configurations.

The least significant byte indicates which log is being accessed. The appropriate values are:

|             |                                 |
|-------------|---------------------------------|
| 0x000       | Historical Log 1                |
| 0x001       | Historical Log 2                |
| 0x002       | Sequence of Events State Log    |
| 0x003       | Sequence of Events Snapshot Log |
| 0x004       | Digital Input State Log         |
| 0x005       | Digital Input Snapshot Log      |
| 0x006       | Digital Output State Log        |
| 0x007       | Digital Output Snapshot Log     |
| 0x008       | Flicker Log                     |
| 0x009       | Waveform Trigger Log            |
| 0x00A       | System Event Log                |
| 0x00B       | Waveform Sample Log             |
| 0x00C       | PQ Log                          |
| 0x00D       | Reset Log                       |
| 0x00E-0x0FF | Undefined                       |

The most significant byte defines the following modes: Paused Download Mode (0x000) and Running Download Mode (0x001).

**In Paused Download mode (0x000)**, the log being accessed is paused - new records are not added to the log while it is paused.

**In Running Download mode (0x001)**, the log being accessed is not paused - new records may be added to the log. When downloading in this mode, it is possible that records may be overwritten before, or even during, access to that record.

#### ■ Auto Increment Window Index - 1 register, 2 bytes.

When read, this register returns the index used by the Auto Increment Log Window, below, to access logs on this port. When written, this register sets the index used by the Auto Increment Log Window, below, to access logs on this port. Each port accesses a separate, independent index through this register, allowing all four ports to access different areas of logs at the same time.

When read, the index is incremented before being returned in the Modbus response. If the Auto Increment Mode is Paused Download mode (0x001xx in register 39423, 0x099FE), the appropriate log is paused, preventing the addition of new records while the log is being accessed. A 30-second

timer is initiated on these reads. Should the timer run out (the index is not incremented/read in 30 seconds), the appropriate log will be allowed to continue logging.

When a value of 0x0FFFF is written to this register, this signifies that the port is finished accessing the appropriate log, and the 30-second timer is canceled and the appropriate log will be allowed to continue logging.

Should multiple ports access the same log simultaneously, the log will be paused while either 30-second timer is running; the log will be allowed to continue logging only when both ports time-out or write 0x0FFFF to their index register.

■ **Auto Increment Log Window** - 64 registers, 128 bytes.

These registers are a 128-byte window into a log, as specified in the Auto Increment Configuration (register 39423, 0x099FE). Depending on the Auto Increment Window Index, a different 128-byte area of a log can be accessed.

See section 5.1.4: **Downloading Logs with Auto Index and Modbus Extensions** for the usage of these registers.

### 8.94: Alarm Block (40961-41105)

■ Description: Window Registers included in this block:

**Last Alarm (40961-40976):** These Registers keep the latest Limit Trigger Log, which records information about the limits. The log records which limits are currently exceeded and which limits have just changed. The 16 Registers contain 32 bytes. The record format is the same as the Limit Trigger Log Format.

The first eight bytes are the Time Stamp. The format of the Time Stamp is:

| Byte | Format | Range    | Description |
|------|--------|----------|-------------|
| 0    | Binary | 0-99     | Century     |
| 1    | Binary | 0-99     | Year        |
| 2    | Binary | 1-12     | Month       |
| 3    | Binary | 1-31     | Day         |
| 4    | Binary | 0-23     | Hour        |
| 5    | Binary | 0-59     | Minute      |
| 6    | Binary | 0-59     | Second      |
| 7    | Binary | 0-99+MSB | Centisecond |

An additional piece of information is contained in the centisecond byte. The most significant bit indicates whether Limit Trigger monitoring was continuous between the last record and this record. If the bit is 1, then this is the first record recorded after a power-down, reset or download and all unfinished durations prior to this record are lost. If the bit is 0, then recording was continuous between the last record and this one.

The next four bytes are a bitmap for the Current State of the Value 1 Comparisons of the Limits. The first bit (the most significant bit of the first byte) is the Current State of the 1st Limit's Value 1 Comparison. The last bit (the least significant bit of the fourth byte) is the Current State of the 32nd Limit's Value 1 Comparison. A bit value of 1 means that the Comparison is exceeded (less than or equal to Value 1 for a below limit; greater than Value 1 for an above limit), a bit value of 0 means the Comparison is not exceeded (greater than Value 1 for a below limit; less than or equal to Value 1 for an above limit).

The next four bytes are the same bitmap as above, but for the Current State of the Value 2 Comparisons of the Limits.

The next four bytes are a bitmap for the Delta of the Value 1 Comparisons of the Limits. The order of the bits is the same as above. A bit value of 1 means that the State of the Value 1 Comparison changed since the last alarm occurred; a bit value of 0 means that the State of the Value 1 Comparison did not change since the last alarm.

The next four bytes are the same bitmap as above, but for the Delta of the Value 2 Comparisons of the Limits.

The next four bytes are a bitmap for the Current State of the Combinations of the Limits. The first bit (the most significant bit of the first byte) is the Current State of the 1st Limit's Combination of the Value 1 Comparison and the Value 2 Comparison. The last bit (the least significant bit of the fourth byte) is the Current State of the 32nd Limit's Combination of the Value 1 Comparison and the Value 2 Comparison. A bit value of 1 means that the Combination is true; a bit value of 0 means that the Combination is false.

The last four bytes are the same bitmap as above, but for the Delta of the Combination of the Limits.

#### **Last Alarm Snapshot (40977-41104)**

The Registers store the latest Limit Snapshot Log.

The record formats are also explained in Chapter 6.

**Record Format:** A Record contains 32, 64, 128 or 256 bytes, depending on how many channels have limits assigned to them. The first eight bytes in each Record are the Time Stamp. The format of the Time Stamp is shown below.

The remaining bytes are the values monitored by Limits (45077-45204). If the first Data Pointer is requesting VBN, a 4-byte value, then the next 4 bytes in the Record is VBN. This continues, Data Pointer for Data Pointer, until all Data Pointers have been satisfied, or the number of bytes is equal to the Historical Log 1 Record Size.

| Byte | Format | Range    | Description |
|------|--------|----------|-------------|
| 0    | Binary | 0-99     | Century     |
| 1    | Binary | 0-99     | Year        |
| 2    | Binary | 1-12     | Month       |
| 3    | Binary | 1-31     | Day         |
| 4    | Binary | 0-23     | Hour        |
| 5    | Binary | 0-59     | Minute      |
| 6    | Binary | 0-59     | Second      |
| 7    | Binary | 0-99+MSB | Centisecond |

**Limit Data Pointers (45077-45204):** These Registers indicate which values are being monitored by Limits. Each Data Pointer has the following 8-byte structure:

| Size   | Format           | Description        |
|--------|------------------|--------------------|
| 2-byte | Unsigned Integer | Line Number        |
| 1-byte | Unsigned Char    | Point Number       |
| 1-byte | Unsigned Char    | Limit Mode         |
| 2-byte | Unsigned Integer | Comparison 1 Value |
| 2-byte | Unsigned Integer | Comparison 2 Value |

A Line Number is an index into the Communication Table. Example: Line Number 11 is for the 12th Line in the Communication Table, 0.1 Second Phase-to-Neutral Voltages. Data Pointers with Line Numbers greater than the number of lines in the table are ignored.

A Point Number is an index into a Line in the Communication Table. Example: Point Number 1 is for the second entry in a Line. Line Number 11, Point Number 1 is the 2nd in the 12th line, 0.1 Second VBN. Data Pointers with Point Numbers greater than the number of points for the line are ignored.

**Latched Exception Flag (41105):** This Register tells you how many Limit Triggers have occurred since the last time the Registers were checked. This Register is Read Only.

Example: Two Limit Exceptions occurred. Read the Register from Port 1; you will notice 2 Limit Exceptions returned. Later, two more Limit Exceptions occurred. Read the Register again. From Port 1, you will notice 2 Limit Exceptions returned. From Port 2, you will notice 4 Limit Exceptions returned. Limit Exceptions are incremented so that you have a history of Limit Exceptions in the Ports.

## 8.95: Port Control Block (41729-44544)

- Description: Port Control Registers included in this block (see Chapter 5):

**Port Control Command (41729):** When written, this Register receives commands meant to control the ports. Valid commands are:

- 0x00100 = Lock Port 4 (I/O) for my use
- 0x00101 = Lock Port 3 for my use
- 0x00102 = Lock Port 2 for my use
- 0x00103 = Lock Port 1 (232/485) for my use
- 0x00104 = Lock the Diagnostic Port for my use (currently not use)
- 0x00200 = Unlock Port 4
- 0x00201 = Unlock Port 3
- 0x00202 = Unlock Port 2
- 0x00203 = Unlock Port 1
- 0x00204 = Unlock the Diagnostic Port (currently not used)

You cannot lock your own port. You cannot lock a port that is already locked. A port can only be unlocked by the port that locked it originally.

**Lock States (41730-41732):** These Registers contain 6 bytes. The first five bytes contain codes indicating whether a port is locked by another port or not.

| Port Control Lock States |                 |                  |
|--------------------------|-----------------|------------------|
| Register                 | High Byte       | Low Byte         |
| 41731                    | Port 4 (I/O)    | Port 3           |
| 41732                    | Port 2          | Port 1 (232/485) |
| 41733                    | Diagnostic Port | Unused           |

Initially, these bytes read as 0x0FF. When a port requests that another port be locked to its use (0x00100 - 0x00104 to Register 41731), these bytes will read with one of the following codes, indicating which port is the locked owner of which port:

- 0x000 = Locked by Port 4 (I/O)
- 0x001 = Locked by Port 3
- 0x002 = Locked by Port 2
- 0x003 = Locked by Port 1 (232/485)
- 0x004 = Locked by the Diagnostic Port (currently not used)
- 0x0FF = Unlocked

**Pointers (41733-41752):** These Registers, when read, return the values of the pointers controlling the Communication Buffers in the Nexus® device. They are unsigned integers and represent the indexes of the series of bytes that are the Receive and Transmit Circular Buffers. Since the buffers are 512 bytes long, valid values should range from 0x00000 to 0x001FF.

The order of the Registers is:

| Port Control Pointers |           |            |            |             |
|-----------------------|-----------|------------|------------|-------------|
| Port                  | ReceiveIn | ReceiveOut | TransmitIn | TransmitOut |
| Port 4 (I/O)          | 41733     | 41734      | 41735      | 41736       |
| Port 3                | 41737     | 41738      | 41739      | 41740       |
| Port 2                | 41741     | 41742      | 41743      | 41744       |
| Port 1 (232/485)      | 41745     | 41746      | 41747      | 41748       |
| Diagnostic Port       | 41749     | 41750      | 41751      | 41752       |

ReceiveIn indexes the location where the next received character will be placed in the Receive Buffer by the interrupt routine. ReceiveOut indexes the location where the next character should be removed from the Receive Buffer by the parsing routine. TransmitIn indexes the location where the next character to be transmitted should be placed by the communication generation routine. TransmitOut indexes the location of the next character to be transmitted by the interrupt routine.

The Receive Buffer is empty if  $RecIn = (RecOut+1) \text{ Mod } 512$ . The Receive Buffer is full if  $RecIn = RecOut$ . The Transmit Buffer is empty if  $TrmIn = TrmOut$ . The Transmit Buffer is full if  $TrmOut = TrmIn+1) \text{ Mod } 512$ .

When a port is locked, its pointers may be modified by the locking port.

When a TransmitIn Register is written, that causes the interrupt routines to transmit characters in the Transmit Buffer from TransmitIn to TransmitOut.

**Receive and Transmit Buffers (41985-44544):** These Registers, when read, return the contents of the appropriate Receive and Transmit Buffers. Each buffer is 256 Registers (512 bytes) long. The order of the buffers is:

| Receive and Transmit Buffers |             |             |
|------------------------------|-------------|-------------|
| Port                         | Receive     | Transmit    |
| Port 4 (I/O)                 | 41985-42240 | 43265-43520 |
| Port 3                       | 42241-42496 | 43521-43776 |
| Port 2                       | 42497-42752 | 43777-44032 |
| Port 1 (232/485)             | 42753-43008 | 44033-44288 |
| Diagnostic Port              | 43009-43264 | 44289-44544 |



### 8.96: Energy Preset Block (44545-44549)

■ Description: Energy readings can be preset by CommunicatorPQA™ software.

**Preset Energy Value:** 4 Registers, 8 bytes. These registers hold the energy readings that will be used by the software for certain Energy Applications.

**Preset Energy Selection / Status:** 1 Register, 2 bytes. This register indicates which energy is to be preset by the software.

### 8.97: 12-bit RTU Block (53249-53348)

■ Description: Some older versions of RTU can only read 12-bit data. The Nexus® meter prepares some readings in 12-bit format in this block so that the reading can be processed.

**Sanity Register** - 1 register. This register indicates that status of the meter. A normally functioning meter reports that value 0x00000, or 0. Any non-zero value indicates that the unit is operating improperly.

**Current, Voltage, W, VAR** - 1 register, 2 bytes.

|       |   |
|-------|---|
| Range | + 5 A / 0 A, + 150 V / 0 V, + 1500 W, VAR / - 1500 W, VAR |
| Unit  | 5/2048 A, 150/2048 V, 1500/2048 W, VAR                    |

Each register contains a 16-bit integer. Positive values have the most significant bit clear, and have the same magnitude as an unsigned integer. Negative values have the most significant bit set. The magnitude of a negative value is found by complimenting (inverting) all of the bits and adding 1. The 16-bit integers have been constrained to the bounds of a signed 12-bit integer, +2047 through -2048.

**Energy** - 2 registers, 4 bytes.

|       |   |
|-------|---|
| Range | +99,999,999 / 0 or 0 / -99,999,999 kWh, kVARh |
| Unit  | 1 kWh, kVARh                                  |

Each pair of registers represents an Energy counter in primary. Each register contains a value from 0 to 9,999 (0x00000 - 0x0270F), representing 4 digits of an Energy counter. The first register is in units of 10's of MegaWatt-hour or MegaVAR-hour. The second register is in units of kiloWatt-hour or kiloVAR-hour. Combined, the pair of registers report up to 100 GWh primary of energy.

**Frequency** - 1 register, 2 bytes.

|       |               |
|-------|---------------|
| Range | 75 Hz / 45 Hz |
| Unit  | 30 / 4096 Hz  |

This register contains a 16-bit unsigned integer. The 16-bit integer has been constrained to the bounds of an unsigned 12-bit integer, 4095 to 0. The Frequency represented by this register is offset by 45 Hz

**Energy Reset** - This register, when written with any value, causes all Energy Values to be cleared.

## 8.98: Action Block - Resetting Nexus® Meter Registers (57345-57393)

Most of the Registers in the Action Block are used to perform an action, reset a Nexus® meter Register. Unless otherwise stated, the action is performed when a value, any value, is written to that Register.

Example: In order to Reset Maximum Value in Meter Address 1, any value, such as '1' (0x00001) should be written to Register 57346 (0x0E001). The appropriate Modbus RTU command for this example would be: 01 06 E001 0001 2E0A (See Chapter 1 for Modbus protocol overview.)

- Description: Action Registers included in this block:

**Log Reset (57345):** This Register, when written with any value, causes all logs to be cleared. This action should be performed only under the following two circumstances:

1. When the Programmable Settings are modified, such that data already in the logs is invalidated.  
For Example, any modifications involving the record size or organization of the contents of a snapshot would require the logs to be cleared of any previous data.
2. When the Run-Time Code is upgraded, resulting in one of the following:  
Redefinition of the layout or meaning of the Programmable Settings.  
Altered behavior or capabilities of the logs.

**NOTE:** Log Reset should be performed automatically by the software in either case and should not be an action directly available to the user. (See Chapter 5.)

**Maximum Reset (57346):** This Register, when written with any value, causes all Maximum Values to be cleared.

**Minimum Reset (57347):** This Register, when written with any value, causes all Minimum Values to be cleared.

**Energy Reset (57348):** This Register, when written with any value, causes all Energy Values to be cleared.

**Registers for the Meter Calibration (57349-57377):** These Registers are for factory use only. Meter's Calibrations are done through these Registers.

**Registers 57380-57382:** These Registers are no longer used. Internal KYZ Enable, Internal KYZ Minimum Pulse Width, Internal KYZ Pulses/Whr sec are obsolete.

**Waveform Calibration (57383-57384):** Waveform Calibration should be performed when waveform sampling is running at rates of 16, 32, 64 or 128 samples per cycle. Waveform Calibration should not be performed when waveform sampling is running at 256 or 512 samples per cycle. If the unit needs waveform recalibration and is running at 256 or 512 samples per cycle, reprogram the meter to one of the other sampling rates, recalibrate, then return the unit to its original sampling rate.

**Voltage Calibration (57383):** When written, the Register initiates a calibration of the Voltage Channels of the Waveform Capture section of the Nexus® meter's Main Unit. An accurate and stable 60Hz sinusoidal voltage input should be applied to all voltage channels of the unit prior to the writing of this Register. Phase relationships between the voltage channels are immaterial. The magnitude of

the signal should be as follows:

| Voltage Calibration Inputs |                                |           |
|----------------------------|--------------------------------|-----------|
| Nexus® Model               | Input                          | RMS       |
| 1252                       | Standard (120 V) Voltage Input | 120 V RMS |
| 1252 G                     | G ( 300 V) Voltage Input       | 240 V RMS |
| 1262/1272                  | Standard (120 V) Voltage Input | 120 V RMS |

When read, this Register returns the state of the Voltage Calibration. A value of 0x00000 means that Voltage Calibration is not taking place. Any other value indicates that Voltage Calibration is taking place. The 120 V Input should be maintained until this Register reads 0x00000, which should take up to 20 seconds, depending on the Programmable Settings.

**Current Calibration (57384):** When written, this Register initiates a calibration of the Current Channels of the Waveform Capture section of the Nexus® meter’s Main Unit. An accurate and stable 60Hz sinusoidal voltage input should be applied to all current channels of the unit prior to the writing of this register. Phase relationships between the current channels are immaterial. The magnitude of the signal should be as follows:

| Current Calibration Inputs |                              |         |
|----------------------------|------------------------------|---------|
| Nexus® Model               | Input                        | RMS     |
| 1252                       | Standard (5 A) Current Input | 5 A RMS |
| 1252                       | 1 A Current Input            | 1 A RMS |
| 1262/1272                  | Standard (5 A) Current Input | 5 A RMS |
| 1262/1272                  | 1 A Current Input            | 1 A RMS |

When read, this Register returns the State of the Current Calibration. A value of 0x00000 means that Current Calibration is not taking place. Any other value indicates that Voltage Calibration is taking place. The 120 V Input should be maintained until this Register reads 0x00000, which should take up to 20 seconds, depending on the Programmable Settings.

**Calibration Waveform - DC Offset (57385):** This Register is currently not used.

**Reset Time of Use Current Season and Current Month (57386):** When written, Time of Use Current Season and Current Month will reset.

**Manual Waveform Capture (57387):** When written, the unit captures a waveform.

**Reset Internal Input Accumulations and Aggregations (57388):** When written, Internal Input Accumulations and Aggregations will reset.

**Override Data not yet Valid Block (57389):** This Register is for diagnostics of communication between two microprocessors in the meter.

**Refresh External I/O Header Information (57390):** This Register, when written, causes all External Devices to be polled for their Information Blocks.

**Refresh External I/O Programming Information (57391):** This Register, when written, causes all External Devices to be polled for their Programming Blocks.

**Relay Locking Relay Selection (57392):** This Register and Register 57392 will manually change the External Digital Output Modules' Relays. Using Register 57392, the user can select relays to be locked by Register 57393. A bit value of 1 means that the relay will be affected by the value on the Action Selection Register (57393). A bit value of 0 means that the relay will not be affected by the value on the Action Selection Register (57393).

| Relay Locking Relay Selection Register (57392) |           |    |    |    |          |    |   |   |          |   |   |   |          |   |   |   |
|--|-----------|----|----|----|----------|----|---|---|----------|---|---|---|----------|---|---|---|
| Byte   | High Byte |    |    |    |          |    |   |   | Low Byte |   |   |   |          |   |   |   |
| Module   | Module 1  |    |    |    | Module 2 |    |   |   | Module 3 |   |   |   | Module 4 |   |   |   |
| Relay  | 1         | 2  | 3  | 4  | 1        | 2  | 3 | 4 | 1        | 2 | 3 | 4 | 1        | 2 | 3 | 4 |
| Bit  | 15        | 14 | 13 | 12 | 11       | 10 | 9 | 8 | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |

**Relay Locking Action Selection (57393):** This Register will lock or unlock the relays of the External Digital Output Modules in Relay Selection Register 57392. Relays in the Selection Register (57392) with a bit value of 1 can be locked or unlocked by this Register. The Register is a 2-byte unsigned integer.

| Relay Locking Action Selection Values |                                       |
|---------------------------------------|---------------------------------------|
| Value                                 | Description                           |
| 0                                     | Lock common to N.C. (Normally Closed) |
| 1                                     | Lock common to N.O. (Normally Open)   |
| 2                                     | Unlock                                |
| 3-65535                               | Not used                              |

**8.99: Factory Calibration Block (60929-61026)**

■ Description: Refer to section 5.5 for details.

**8.100: CTPT Compensation Calibration Block (61027-61124)**

■ Description: Refer to section 5.5 for details.

**8.101: Calibration Modification Block (61185-61280)**

■ Description: Refer to section 5.5 for details.

### 8.102: Operational Communication Settings Block (65025-65040)

These Registers keep the valid Communication Settings for all four ports. The Communication Settings Block (45057) in the Programmable Settings Block might have the wrong values if they were interrupted while the meter was being updated.

| Operational Communication Settings |              |           |        |           |           |                     |
|------------------------------------|--------------|-----------|--------|-----------|-----------|---------------------|
| Value                              | Protocol     | Baud Rate | Parity | Stop Bits | Data Bits | Response Delay (ms) |
| 0                                  | Modbus ASCII | 4800      | None   |           | 5         | 0.00                |
| 1                                  | Modbus RTU   | 9600      | Even   |           | 6         | 0.25                |
| 2                                  | DNP 3.0      | 19200     | Odd    |           | 7         | 0.50                |
| 3                                  |              | 38400     | Mark   |           | 8         | 0.75                |
| 4                                  |              | 57600     | Space  |           |           | 1.00                |
| 5                                  |              | 115200    |        |           |           | 1.25                |
| 6                                  |              |           |        |           |           | 1.50                |
| 7                                  |              |           |        | 1 stop    |           | 1.75                |
| 8                                  |              |           |        | 1.5 stop  |           | 2.00                |
| 9-14                               |              |           |        |           |           | 2.25-3.50           |
| 15                                 |              |           |        | 2 stop    |           | 3.75                |
| 16-255                             |              |           |        |           |           | 4.00-63.75          |

- Description: Operational Communication Settings Registers included in this block:

**Device Address** - 2 bytes, unsigned integer, ranging from 0 to 0xFFFF.

**Protocol** - 1 byte, unsigned integer.

**Baud Rate** - 1 byte, unsigned integer.

**Parity** - 1 byte, unsigned integer.

**Stop Bits** - 1 byte, unsigned integer.

**Data Bits** - 1 byte, unsigned integer.

**Response Delay** - 1 byte, unsigned integer.

### 8.103: Diagnostic Block (65041-65042)

- Description: These registers consist of 32 bits of Data Valid Bits. These registers are created for debugging purposes for EI engineers. When a problem is noticed, EI engineers can use these registers to find the cause of the problem. Customers should NOT use these registers for polling.

### 8.104: Device Identification Block 2 (65088-65280)

- Description: Device Identification Registers included in this block:

**196 Xilinx Version / 320 Xilinx Version (65088)**

Each number is represented by a 1-byte integer.

### **Firmware Variation Strings (65089-65280)**

Eight Registers each and Null Terminated ASCII Strings (Terminating Null (ASCII 00H) at the end of the string). (See 3.1.)

### **8.105: DSP Diagnostic Block (65281-65312)**

- Description: DSP Diagnostic Registers are for internal use only. These Registers are not for customer use. These Registers are READ ONLY and cannot be written.

### **8.106: Password Block (65316-65344)**

- Description: Password Registers included in this block:

**User Password (65316-65320):** When Passwords are Enabled, a user must write the appropriate Password to these Registers. After the Password is written, the Password State is updated to reflect whether the entered Password matches either of the programmed Passwords. Correct entry of a Password is valid for 2 minutes. Correct entry of a Password is valid only for the port that received the Password.

**Password State (65321):** This Register contains an enumeration that reports the state of Password Protection on the device. The enumeration is as follows:

|       |   |
|-------|---|
| 0x000 | Internal Error                                    |
| 0x001 | Obsolete Designation, should not occur            |
| 0x002 | Password Protection Enabled (None/Wrong Password) |
| 0x003 | Level 1 Password                                  |
| 0x004 | Level 2 Password                                  |
| 0x005 | Password Protection Disabled                      |
| 0x006 | Hardware Defeat                                   |

Password State must be combined with Sealing Switch State to determine if a feature is available or not.

### **Sealing Switch State (65322)**

This Register contains an enumeration that reports the State of Sealing Switch Protection on the device. The enumeration is as follows:

|       |                                      |
|-------|--------------------------------------|
| 0x000 | Internal Error                       |
| 0x001 | Sealing Switch Enabled - Not Pressed |
| 0x002 | Sealing Switch Enabled - Pressed     |
| 0x003 | Sealing Switch Disabled              |
| 0x004 | Sealing Switch Not Installed         |
| 0x005 | Hardware Defeat                      |

Sealing Switch State must be combined with Password State to determine if a feature is available or not.

**Password Lock (65326):** This Register is used to report the Locked Port and change the Locked Port for Password Modification.

Writing a value of 0x00000 to this Register requests locking Password Updates to this port and locking out Password Updates to other ports. Writing a value other than 0x00000 rescinds the Lock on this port. Reading this Register returns the following enumeration:

0x00000 = Port A, I/O  
0x00001 = Port B  
0x00002 = Port C  
0x00003 = Port D, 232 or 485  
0x00004 = Diagnostic Port  
Anything else indicates that no port has locked Password Updates yet.

**Password Sequence / Status (65327):** The High Order Byte of this Register contains a Sequence Number which increments with every password command received.

The Low Order Byte of this Register contains an enumeration that reports the status of the last password command received. The enumeration is as follows:

0x000          Fail  
0x001          Pass  
0x002          Unfinished

**Password Command (65328):** This Register contains an enumeration that tells the device what action to take. The enumeration is as follows:

0x00000          Set Level 1 Password  
0x00001          Set Level 2 Password  
0x00002          Enable Password Protection  
0x00003          Disable Password Protection  
0x00004          Enable Sealing Switch Protection  
0x00005          Disable Sealing Switch Protection  
0x00006- 0x0FFFF      Revoke the 2-minute timer of an active password.

All successful commands set access back to Level 0, revoking the 2-minute timer of any active password.

#### **New Password A (65332-65336)**

#### **New Password B (65340-65344)**

The user writes to these Registers in order to set the Level 1 or Level 2 Password. For security purposes, these Registers are READ ONLY. The same password should be written to both sets of Registers; a new password will be accepted only if the values written to both sets of Registers agree. After writing to both sets of Registers, the Password Command Register should be written with the command indicating which Password is being updated.

Acceptable Passwords should consist of the ASCII characters ‘ ‘ (0x020), ‘0’-‘9’ (0x030-0x039) and ‘A’-‘Z’ (0x041-0x05A). Attempts to set a password with illegal characters will fail.

### 8.107: Dynamic Configuration Block (65345-65349)

| NVRAM Configuration Values |               |
|----------------------------|---------------|
| Value                      | Memory Option |
| 0                          | No Memory     |
| 1                          | 512K          |
| 2                          | 2 M           |
| 3                          | 4 M           |

- Description: Dynamic Configuration Registers included in this block:

**NVRAM Configuration (65345):** 2bytes, unsigned integer. This Register (see above) indicates the memory option of the Nexus® unit.

**IRIG-B State (65346):** This Register indicates whether the IRIG-B signal is received at the unit or not. A value of 0x00001 indicates the signal is being received; any other value indicates that the signal is not being received.

**Network Card (65347):** This Register indicates whether the Network Card is installed or not. A value of 0x00001 indicates that the Network Card is installed; any other value indicates that the Network Card is not installed.

**Modem Card (65348):** This Register indicates whether the Modem Card is installed or not. A value of 0x00001 indicates that the Modem Card is installed; any other value indicates that the Modem Card is not installed.

**Sealing Switch Installation (65349):** This Register indicates whether the Sealing Switch is installed or not. A value of 0x00001 indicates that the Sealing Switch is installed; any other value indicates that the switch is not installed.

### 8.108: Hardware Options Block (65361-65368)

#### Hardware Option Settings

The following information pertains to settings burned into the boot sector of Banked Executable units, whether Nexus® 1252 meter or Nexus® 1262/1272 meter.

Non-banked Executable Nexus® 1252 units duplicate most of these features using jumpers physically located on the board. Even if these features were added to the boot of a Non-banked Executable unit, the runtime does not have sufficient code space left to utilize these settings.

- Description: Hardware Options Registers included in this block:

**Form (65361 High):** The Form indicates what back module is installed in a Glass Socket (1262/1272) Nexus® meter. The Form indicates the type of Hookup in use. In a standard Nexus® 1252 meter, there is one physical Form which can be connected into the system in several ways and the meter is informed of the particular Hookup through a Programmable Setting. In the Glass Socket



Nexus® meter (1262/1272), each Form will be used with a single Hookup and the continued use of a Programmable Setting would allow a user to select a Hookup that the meter is not capable of monitoring. The following codes are used to indicate the Form in use:

| Nexus® Meter Forms |                          |                               |                 |                  |
|--------------------|--------------------------|-------------------------------|-----------------|------------------|
| Code               | Form                     | Wye/Delta                     | CT's            | PTs              |
| 0x000              | 5S                       | Delta                         | 2 (recreate lb) | 2                |
| 0x001              | 8S                       | Delta                         | 3               | 2                |
| 0x002              | 9S                       | Wye                           | 3               | 3                |
| 0x003              | 35S                      | Delta                         | 2 (recreate lb) | 2                |
| 0x004              | 36S                      | Wye, 2 <sup>1/2</sup> Element | 3               | 2 (recreate Vbn) |
| 0x005              | 39S                      | Wye                           | 4 (In meas)     | 3                |
| 0x006              | 76S                      | Wye, 2 <sup>1/2</sup> Element | 4 (In meas)     | 2 (recreate Vbn) |
| 0x007-0x0FF        | Undefined, treated as 5S |                               |                 |                  |

| Banked Executable Option Settings |                |      |           |
|-----------------------------------|----------------|------|-----------|
| Modbus Register                   | Setting        | 1252 | 1262/1272 |
| 65361 High                        | Form           | No   | Yes       |
| 65361 Low                         | 4 KYZ          | No   | Yes       |
| 65362 High                        | Com Port 4     | No   | Yes       |
| 65362 Low                         | Com Port 3     | No   | Yes       |
| 65363 High                        | Com Port 2     | Yes  | Yes       |
| 65363 Low                         | Com Port 1     | No   | Yes       |
| 65364 High                        | 1 Amp          | Yes  | Yes       |
| 65364 Low                         | 300 Volt       | Yes  | Yes       |
| 65365 High                        | Sealing Switch | Yes  | Yes       |
| 65365 Low                         | Memory         | Yes  | Yes       |
| 65366 High                        | Undefined      |      |           |
| 65366 Low                         | Undefined      |      |           |
| 65367 High                        | Undefined      |      |           |
| 65367 Low                         | Undefined      |      |           |
| 65368 High                        | Undefined      |      |           |
| 65368 Low                         | Undefined      |      |           |

**4 KYZ (65361 Low):** An option of the Glass Socket (1262/1272) Nexus® meter is 4 Internal Dry-contact Relays for Pulse Output, either as KYZ or as End of Interval Pulse. The following codes are used to indicate this option:

|             |                                   |
|-------------|-----------------------------------|
| 0x000       | Not Present                       |
| 0x001       | Present                           |
| 0x002-0x0FF | Undefined, treated as Not Present |

**Com Port (65362-65363):** In both the 1252 and the 1262/1272, there are options which attach devices to the Communication Ports, internal to the case. Externally Connected devices use communication settings that need to be user programmable. Internally connected options require Fixed Communication Settings to insure that they always function. These bytes are used to indicate that a given communication device is attached to a particular port. The following codes are used to indicate these options:

|             |                               |
|-------------|-------------------------------|
| 0x000       | 232/485                       |
| 0x001       | Display                       |
| 0x002       | INPI (Modem)                  |
| 0x003       | INP10 (Network)               |
| 0x004-0x0FF | Undefined, treated as 232/485 |

**232/485** indicates that the communication settings for this port should be user programmable.

**Display** indicates that the port should be Address 1, Modbus RTU, 9600 Baud, 8n1, with no delay.

**INP1 for the Nexus® 1252 meter** indicates that the port should be Address 1, Modbus ASCII, 57.6k Baud, 8n1, with no delay.

**INP1 for the Nexus® 1262/1272 meter** indicates that the port should be Address 1, Modbus ASCII, 38.4k Baud, 8n1, with no delay.

**INP10** indicates that the port should be Address 1, Modbus RTU, 115.2 k Baud, 8n1, with no delay.

For a Nexus® 1252 meter, all ports should be set to 0x000, indicating a 232 or 485 port, except for Port 2, which can be set for either 232/485, INP1 or INP10. Displays are not integrated into the unit and no port should be set to indicate a display.

For a Nexus® 1262/1272 meter, Port 2 should be set to Display. This not only sets the Communication Settings for the proper operation of the display, but it enables several special features for the display that should not be available on other com ports. Depending on the internal connection, INP1 and/or INP10 could be set for other ports.

### 1 Amp (65364 High)

Some Nexus® units are produced with five windings around the Toroidal CT within the device, multiplying the current pickup from a nominal 5 Amp to 1 Amp. Without identifying this modification, it is necessary to introduce a compensating factor into the CT Ratio to produce correct Primary Values for Current and Power. With this setting, it is possible to have the adjustment automatically take place in the firmware. The following codes are used to indicate this option:

|             |                                   |
|-------------|-----------------------------------|
| 0x000       | Standard 5 Amp Range              |
| 0x001       | Special 1 Amp Range               |
| 0x002-0x0FF | Undefined, treated as 5 Amp Range |

### 300 V (65364 Low)

Similarly, some Nexus® units are produced with a different Voltage Divider, changing the voltage

range from nominally 150V to 300V. Without identifying this modification, it is necessary to add a compensating Programmable Setting in to produce correct Secondary Voltage and Power. As a Programmable Setting, however, end users could incorrectly enable or disable this feature. With this setting, it is possible to have the adjustment automatically take place in the firmware. The following codes are used to indicate this option:

|             |  |
|-------------|--|
| 0x000       | Standard 150V Phase-to-Neutral Voltage             |
| 0x001       | Special 300V Phase-to-Neutral Voltage              |
| 0x002-0x0FF | Undefined, treated as 150 Phase-to-Neutral Voltage |

**Sealing Switch (65365 High):** Not all Nexus® units have the Sealing Switch security feature installed. If installed, the end user can enable the security use of this switch and prevent changes to the device’s Programmable Settings without physical, tamper-evident access to the unit. This feature cannot be enabled if the switch is not installed; access is permanently denied. The following codes are used to indicate this option:

|             |   |
|-------------|---|
| 0x000       | No Sealing Switch                       |
| 0x001       | Sealing Switch Installed                |
| 0x002-0x0FF | Undefined, treated as No Sealing Switch |

**Memory (65365 Low):** For the Nexus® 1262/1272 meter, the distinction between a model 1262 and a model 1272 is the amount of NVRAM memory installed in the unit. The Boot firmware does not access the NVRAM; the firmware does not know whether the unit is a Nexus® 1262 meter (0 or 512k) or a 1272 meter (1024k or 2048k). The following codes are used to indicate this option:

|             |                                |                    |
|-------------|--------------------------------|--------------------|
| 0x000       | 0k NVRAM                       | Nexus® 1262S meter |
| 0x001       | 512k NVRAM                     | Nexus® 1262A meter |
| 0x002       | 2048k NVRAM                    | Nexus® 1272S meter |
| 0x003       | 4096k NVRAM                    | Nexus® 1272A meter |
| 0x004-0x0FF | Undefined, treated as 0k NVRAM |                    |

### 8.109: Flash Control Block (65409-65498)

- Description: Flash Control Registers included in this block:

**CommunicatorPQA Operation Indicator (65409):** When read, this byte reports which Operation Mode is in use and why. If the value is 0x00000, then the Communication Microcontroller is running in Normal Operation. Any non-zero value indicates that the Communication Microcontroller is running in FLASH Operation. Each bit in the Register signals the reason for being in FLASH Operation. The bits are:

|           |   |
|-----------|---|
| Bit 0:    | Checksum Failure in Code                                |
| Bit 1:    | Checksum Failure in Programmable Settings               |
| Bit 2:    | Illegal Communication Settings in Programmable Settings |
| Bit 3:    | Forced FLASH Operation by Jumper                        |
| Bit 4:    | Requested FLASH Operation by Communication              |
| Bit 5:    | Requested Default Communication Settings                |
| Bit 6-15: | Reserved, should be 0                                   |

Bits 1, 4 and 5 indicate that all ports are set to the Default Communication Settings of Address 1, Modbus RTU, 9600 Baud, 8 Data Bits, No Parity, 1 Stop Bit and No Delay.

Bit 2 indicates that one or more ports are set to an Illegal setting or combination of settings. In all protocols, Baud Rate, Stop Bits and Parity must be in the allowed range of settings. In Modbus, Addresses must be in the range of 1-247. In Modbus RTU, the Data Bits must be 8; in Modbus ASCII, the Data Bits must be 7 or 8. In DNP, the Address must not be 0x0FFFF and the Data Bits must be 8. If any of the above conditions are false, that port uses the Default Settings of Address 1, Modbus RTU, 9600 Baud, 8 Data Bits, No Parity, 1 Stop Bit and No Delay. For forward compatibility, future protocols make no special demands on Address or Data Bits.

If a Modem (INP1 or Network (INP10 Option is installed, appropriate settings will be used for the port for the use of the card, overriding any default that might occur due to other errors. Invalid settings for the port would still cause Bit 2 to indicate a bad Programmable Setting.

**CommunicatorPQA FLASH Sequence & Status / FLASH Command (65410):** When read, the High byte is a sequence number and the Low byte is the status of the last FLASH action. After a FLASH action is performed, the sequence number is incremented and the status of that action is placed in the Status byte. If the sequence number did not increment, retry the action. Status values are:

0x000 = Action Failed  
0x001 = Action Passed  
0x002 = Action Unfinished

Resets to FLASH Operation initialize a 30-second Timeout. This Timeout is reset by a read by the Locked Port of this Register (65410) or that of the DSP Microcontroller FLASH Sequence and Status Register (65415). If this Timeout runs out, the Communication Microcontroller will reset.

When written, the Register initiates FLASH commands for the Communication Microcontroller FLASH. Valid commands are:

0x00000 = Lock the FLASH Routines to this Com Port.  
0x00001 = Erase the Code Blocks (0,1,2,3 and 5 (and 6 if Variation 0001)).  
0x00002 = Calculate the Code Checksum (0,1,2,3 and 5 (and 6 if Variation 0001)).  
0x00003 = Erase the Programmable Settings Block (7).  
0x00004 = Calculate the Programmable Settings Checksum (7).  
0x00100 = Reset to Normal Operation.  
0x00101 = Reset to FLASH Operation, Programmed Communication Settings.  
0x00102 = Reset to FLASH Operation, Default Communication Settings.

Locking the FLASH sets the Locked Port Register (65410) to the value for the port that sent the Lock Command. Only the Locked Port can then reset the timer by reading the Status Registers (65411 and 65415) or by writing to other Registers in the FLASH Blocks. Only the Locked Port may send any of the other commands.

Checksum Calculations will update the appropriate Checksum Register for subsequent reads.

### **FLASH Locked Port (65411)**

This port contains two bytes. The first byte contains a code indicating which port is in use:

0x00000 = Port A,I/O  
0x00100 = Port B  
0x00200 = Port C  
0x00300 = Port D, 232 or 485  
0x00400 = Diagnostic Port

The second byte contains a code indicating which port is locked for FLASH Routines. Initially, this byte reads as 0x0FF. When a port sends the Lock Port command (0x00000 to Register 65410), this Register will then read with one of the following codes, indicating which port is locked in the FLASH Routines:

0x00000 = Port A, I/O  
0x00001 = Port B  
0x00002 = Port C  
0x00003 = Port D, 232 or 485  
0x00004 = Diagnostic Port  
0x00005 = Not Yet Locked

Only the Locked Port can reset the Timeouts by reading the Status Registers (65411 and 65414 or by writing to the other Registers in the FLASH Blocks.

**CommunicatorPQA FLASH Code Checksum - Range 65535/0 (65412):** When read, this Register returns the Code LRC16 calculated after the last Code Checksum Action.

When written by the Locked Port, the value written is programmed into the FLASH, Addresses 0x17FFE - 0x17FFF as the Code Checksum.

**CommunicatorPQA FLASH Programmable Settings Checksum - Range 65535/0 (65413)** When read, this Register returns the Programmable Settings CRC16 as calculated after the last Programmable Settings Checksum Action.

When written by the Locked Port, the value written is programmed into the FLASH, Addresses 0x1FFFE - 0x1FFFF as the Programmable Settings Checksum.

**Nexus® DSP Operation Indicator (65414):** When read, this Register reports which Operation Mode is in use and why. If the value is 0x00000, then the DSP Microcontroller is running in Normal Operation. Any non-zero value indicates that the DSP Microcontroller is running in FLASH Operation. Each bit in the Register signals the reason for being in FLASH Operation. The bits are:

Bit 0:           Micro in FLASH Operation  
Bit 1:           Checksum Failure in Code  
Bit 2:           Unit is in Table Mode  
Bit 3-15:       Reserved, should be 0

**Nexus® DSP FLASH Sequence & Status / FLASH Command (65415):** This Register is similar to Register 65409, except that it effects the DSP Microcontroller Normal FLASH. Valid commands are:

- 0x00001 = Erase the Code Blocks (Normal FLASH, Blocks 4-7)
- 0x00002 = Calculate the Code Checksum (Normal FLASH, Blocks 4-7)
- 0x00100 = Reset to Normal Operation
- 0x00101 = Reset to FLASH Operation

Reads of this Register by the Locked Port when in FLASH Operation initializes a 30-second Timeout. This Timeout is reset by a read by the Locked Port of this Register (65415) or that of the Communication Microcontroller FLASH Sequence & Status Register (65410). If this Timeout runs out, the Communication Microcontroller will reset.

**Nexus® DSP FLASH Code Checksum - Range 65535/0 (65416):** When read, this Register returns the Code LRC16 as calculated after the last Code Checksum Action.

When written by the Locked Port, the value written is programmed into the Normal FLASH at Addresses 0x1FFFE - 0x1FFFF as the Code Checksum.

**Port to Port Communications (65417-65421):** These Registers are readable and writable from any port. They are meant to convey commands from a Master Device connected on one port to a Master Device connected on a different port. (Example: A PC wishes to upgrade the FLASH on a Display.) Each Register is meant to be monitored by a different port, as follows:

- 65417            Commands to Port A, I/O
- 65418            Commands to Port B
- 65419            Commands to Port C
- 65420            Commands to Port D, 232/485
- 65421            Commands to the Diagnostic Port - currently not used

Commands are sent in the form of codes written to these Registers. The following are Valid Commands to be recognized appropriately by Master Devices (like Displays):

- 0x00000            No Command
- 0x00100            Reset to Normal Mode
- 0x00101            Reset to FLASH Mode
- 0x00102            Reset to FLASH Mode, Default Settings

**CommunicatorPQA FLASH Code Hex Line (65425-65434)**

These 10 Registers are used as an interface for the 20 useful bytes from a line of a HEX file. The 20 bytes holding binary data are:

- Length:            1 byte
- Offset:            2 bytes
- Type:             1 byte
- Content:           16 bytes

Writes to the Registers can only be performed by the Locked Port.

Writing the 10th Register (65434 initiates the writing of the line to the FLASH. (It is recommended that the full ten registers, padded by 0x0FF's be written to write a HEX line. Offset Values of 0x00000 - 0x0FFFF write to the FLASH, Addresses 0x00000 - 0x0FFFF (Blocks 0, 1, 2 and 3.

Reading these Registers returns the values last written to these Registers.

**CommunicatorPQA FLASH Extended Code Hex Line (65441-65450)**

These 10 Registers are similar to Registers 65425-65434, except that Offset Values of 0x00000 - 0x03FFF write to the FLASH Addresses 0x14000 - 0x17FFF (Block 5).

If Variation 0001, Offset Values of 0x00000 - 0x07FFF write to the FLASH, Addresses 0x14000 - 0x1BFFF (Block 5).

**CommunicatorPQA FLASH Product History Hex Line (65457-65466)**

These 10 Registers are similar to Registers 65425-65434, except that Offset Values of 0x00000 - 0x03FFD write to the FLASH, Addresses 0x18000 - 0x01BFFD (Block 6).

**CommunicatorPQA FLASH Programmable Settings Hex Line (65473-65482)**

These 10 Registers are similar to Registers 65425-65434, except that Offset Values of 0x00000 - 0x03FFD write to the FLASH, Addresses 0x1C000 - 0x1FFFD (Block 7).

**Nexus® DSP FLASH Code Hex Line (65489-65498)**

These 10 Registers are similar to 65425-65434, except that Extended Addressing Offset Values of 0x0F0000 - 0x0FFFFFF write to the Normal FLASH, Addresses 0x10000 - 0x1FFFF (Blocks 4-7).

**8.110: Enhanced Serial Number (65533-65534)**

- Description: This is an 8-digit Packed BCD. The format is the same at the Serial Number (Registers 65535-65536).

**8.111: Serial Number (65535-65536)**

- Description: This is an 8-digit Packed BCD.

Example:

Registers 65535-65536, Serial Numbers might contain the following data:

|                    |          |       |
|--------------------|----------|-------|
| <b>Address</b>     | 65535    | 65536 |
| <b>Value</b>       | 0007H    | 3394H |
| <b>Description</b> | 00073304 |       |

The Serial Number is 00073304.





# Appendix A

## Glossary

|                                      |  |
|--------------------------------------|--|
| 0.1 Second Values:                   | These values are the RMS values of the indicated quantity as calculated after approximately 50 milliseconds (3 cycles) of sampling.  |
| 1 Second Values:                     | These values are the RMS values of the indicated quantity as calculated after one second (60 cycles) of sampling.  |
| Alarm:                               | An event or condition in a meter that can cause a trigger or call-back to occur.   |
| Annunciator:                         | A short label that identifies particular quantities or values displayed, for example kWh.  |
| Average (Current):                   | When applied to current values (amps) the average is a calculated value that corresponds to the thermal average over a specified time interval. The interval is specified by the user in the meter profile. The interval is typically 15 minutes. So, Average Amps is the thermal average of amps over the previous 15-minute interval. The thermal average rises to 90% of the actual value in each time interval. For example, if a constant 100amp load is applied, the thermal average will indicate 90 amps after one time interval, 99 amps after two time intervals and 99.9 amps after three time intervals.       |
| Average (Input Pulse Accumulations): | When applied to Input Pulse Accumulations, the “Average” refers to the block (fixed) window average value of the input pulses.   |
| Average (Power):                     | When applied to power values (watts, VARs, VA), the average is a calculated value that corresponds to the thermal average over a specified time interval. The interval is specified by the user in the meter profile. The interval is typically 15 minutes. So, the Average Watts is the thermal average of watts over the previous 15-minute interval. The thermal average rises to 90% of the actual value in each time interval. For example, if a constant 100kW load is applied, the thermal average will indicate 90kW after one time interval, 99kW after two time intervals and 99.9kW after three time intervals. |
| Bit:                                 | A unit of computer information equivalent to the result of a choice between two alternatives (Yes/No, On/Off, for example).<br>Or, the physical representation of a bit by an electrical pulse whose presence or absence indicates data.   |
| Binary:                              | Relating to a system of numbers having 2 as its base (digits 0 and 1).   |
| Block Window Avg: (Power)            | The Block (Fixed) Window Average is the average power calculated over a user-set time interval, typically 15 minutes. This calculated average corresponds to the demand calculations performed by most electric utilities in monitoring user power demand. (See Rolling Window Average.)   |

|                     |   |
|---------------------|---|
| Byte:               | A group of 8 binary digits processed as a unit by a computer (or device) and used especially to represent an alphanumeric character.  |
| CBEMA Curve:        | A voltage quality curve established originally by the Computer Business Equipment Manufacturers Association. The CBEMA Curve defines voltage disturbances that could cause malfunction or damage in microprocessor devices. The curve is characterized by voltage magnitude and the duration which the voltage is outside of tolerance. (See ITIC Curve.)   |
| Channel:            | The storage of a single value in each interval in a load profile.   |
| CRC Field:          | Cyclic Redundancy Check Field (Modbus communication) is an error checksum calculation that enables a Slave device to determine if a request packet from a Master device has been corrupted during transmission. If the calculated value does not match the value in the request packet, the Slave ignores the request.  |
| CT (Current) Ratio: | A Current Transformer Ratio is used to scale the value of the current from a secondary value up to the primary side of an instrument transformer.   |
| Demand:             | The average value of power or a similar quantity over a specified period of time.   |
| Demand Interval:    | A specified time over which demand is calculated.   |
| Display:            | User-configurable visual indication of data in a meter.   |
| DNP 3.0:            | A robust, non-proprietary protocol based on existing open standards. DNP 3.0 is used to operate between various systems in electric and other utility industries and SCADA networks.  |
| EEPROM:             | Nonvolatile memory. Electrically Erasable Programmable Read Only Memory that retains its data during a power outage without need for a battery. Also refers to meter's FLASH memory.  |
| Energy Register:    | Programmable record that monitors any energy quantity. Example: Watthours, VARhours, VAhours.   |
| Ethernet:           | A type of LAN network connection that connects two or more devices on a common communications backbone. An Ethernet LAN consists of at least one hub device (the network backbone) with multiple devices connected to it in a star configuration. The most common versions of Ethernet in use are 10BaseT or 100BaseT as defined in IEEE standards. However, several other versions of Ethernet are also available. |
| Exception Response: | Error Code (Modbus communication) transmitted in a packet from the Slave to the Master if the Slave has encountered an invalid command or other problem.  |
| Form:               | Wiring and Hookup configuration for the Nexus® 1262/1272 meter.   |

|                      |  |
|----------------------|--|
| Harmonics:           | Measuring values of the fundamental current and voltage and percent of the fundamental.  |
| Heartbeat Pulse:     | Energy indicator on the face of the Nexus® 1252 meter; pulses are generated per the programmed $K_e$ value.  |
| Infrared Test Pulse: | Energy indicator located on the upper left side of the face of the Nexus® 1262 /1272 meter; pulses are generated per the programmed $K_e$ value.   |
| Integer:             | Any of the natural numbers, the negatives of those numbers or zero.  |
| Internal Modem:      | An optional modem within the meter's enclosure that connects to the RJ-11 telephone connector.   |
| Invalid Register:    | In the Nexus® meter Modbus Map there are gaps between Registers. For example, the next Register after 08320 is 34817. Any unmapped Register stores no information and is said to be invalid.   |
| ITIC Curve:          | An updated version of the CBEMA Curve that reflects further study into the performance of microprocessor devices. The curve consists of a series of steps but still defines combinations of voltage magnitude and duration that will cause malfunction or damage.                                    |
| $K_e$ :              | kWh per pulse; i.e. the energy.  |
| kWh:                 | kilowatt hours; kW x demand interval in hours.   |
| KYZ Output:          | Output where the rate of changes between 1 and 0 reflects the magnitude of a metered quantity.   |
| LCD:                 | Liquid Crystal Display.  |
| LED:                 | Light Emitting Diode.  |
| Master Device:       | In Modbus communication, a Master Device initiates and controls all information transfer in the form of a Request Packet to a Slave Device. The Slave responds to each request.  |
| Maximum Demand:      | The largest demand calculated during any interval over a billing period.   |
| Modbus ASCII:        | Alternate version of the Modbus protocol that utilizes a different data transfer format. This version is not dependent upon strict timing, as is the RTU version. This is the best choice for telecommunications applications (via modems).  |
| Modbus RTU:          | The most common form of Modbus protocol. Modbus RTU is an open protocol spoken by many field devices to enable devices from multiple vendors to communicate in a common language. Data is transmitted in a timed binary format, providing increased throughput and therefore, increased performance. |

|  |   |
|--|---|
| Network:   | A communications connection between two or more devices to enable those devices to send and receive data to one another. In most applications, the network will be either a serial type or a LAN type.  |
| NVRAM:   | Non-volatile Random Access Memory is able to keep the stored values in memory even during the loss of circuit or control power. High speed NVRAM is used in the Nexus® meter to gather measured information and to insure that no information is lost.  |
| Optical Port:  | A port that facilitates infrared communication with a (1262/1272 meter. Using an ANSI C12.13 Type II magnetic optical communications coupler and an RS-232 cable from the coupler to a PC, the meter can be programmed with CommunicatorPQA™ software.  |
| Packet:  | A short fixed-length section of data that is transmitted as a unit. Example: a serial string of 8-bit bytes.  |
| Percent (%) THD:   | Percent Total Harmonic Distortion.  |
| Protocol:  | A language that will be spoken between two or more devices connected on a network.  |
| PT Ratio:  | Potential Transformer Ratio used to scale the value of the voltage to the primary side of an instrument transformer. Also referred to as VT Ratio.  |
| Pulse:   | The closing and opening of the circuit of a two-wire pulse system or the alternate closing and opening of one side and then the other of a three-wire system (which is equal to two pulses).  |
| Quadrant:<br>(Programmable<br>Values and Factors<br>on the Nexus® Meter) | Watt and VAR flow is typically represented using an X-Y coordinate system. The four corners of the X-Y plane are referred to as quadrants. Most power applications label the right hand corner as the first quadrant and number the remaining quadrants in a counter-clockwise rotation. Following are the positions of the quadrants: 1st - upper right, 2nd - upper left, 3rd - lower left and 4th - lower right. Power flow is generally positive in quadrants 1 and 4. VAR flow is positive in quadrants 1 and 2. The most common load conditions are: Quadrant 1 - power flow positive, VAR flow positive, inductive load, lagging or positive power factor; Quadrant 2 - power flow negative, VAR flow positive, capacitive load, leading or negative power factor. |
| Register:  | An entry or record that stores a small amount of data.  |
| Register Rollover:   | A point at which a Register reaches its maximum value and rolls over to zero.   |
| Reset:   | Logs are cleared or new (or default) values are sent to counters or timers.   |
| Rolling Window<br>Average (Power):                                       | The Rolling (Sliding) Window Average is the average power calculated over a user-set time interval that is derived from a specified number of sub-intervals,  |

each of a specified time. For example, the average is calculated over a 15-minute interval by calculating the sum of the average of three consecutive 5-minute intervals. This demand calculation methodology has been adopted by several utilities to prevent customer manipulation of kW demand by simply spreading peak demand across two intervals.

|                    |   |
|--------------------|---|
| RS-232:            | A type of serial network connection that connects two devices to enable communication between devices. An RS-232 connection connects only two points. Distance between devices is typically limited to fairly short runs. Current standards recommend a maximum of 50 feet but some users have had success with runs up to 100 feet. Communications speed is typically in the range of 1200 bits per second to 57,600 bits per second. RS-232 communication can be accomplished using the Optical Port on the face of the 1262/1272 Nexus® meter. |
| RS-485:            | A type of serial network connection that connects two or more devices to enable communication between the devices. An RS-485 connection will allow multi-drop communication from one to many points. Distance between devices is typically limited to around 2,000 to 3,000 wire feet. Communications speed is typically in the range of 120 bits per second to 115,000 bits per second.  |
| Sag:               | A voltage quality event during which the RMS voltage is lower than normal for a period of time, typically from 1/2 cycle to 1 minute.   |
| Secondary Rated:   | Any Register or pulse output that does not use any CT or VT Ratio.  |
| Serial Port:       | The type of port used to directly interface with a PC.  |
| Slave Device:      | In Modbus communication, a Slave Device only receives a Request Packet from a Master Device and responds to the request. A Slave Device cannot initiate communication.  |
| Swell:             | A voltage quality event during which the RMS voltage is higher than normal for a period of time, typically from 1/2 cycle to 1 minute.  |
| THD:               | Total Harmonic Distortion is the combined effect of all harmonics measured in a voltage or current. The THD number is expressed as a percent of the fundamental. For example, a 3% THD indicates that the magnitude of all harmonic distortion measured equals 3% of the magnitude of the fundamental 60Hz quantity.  |
| Time Stamp:        | A stored representation of the time of an event. Time Stamp can include year, month, day, hour, minute and second and Daylight Savings Time indication.   |
| TOU:               | Time of Use.  |
| Voltage Imbalance: | The ratio of the voltage on a phase to the average voltage on all phases.   |

- Voltage Quality Event: An instance of abnormal voltage on a phase. The events the meter will track include sags, swells, interruptions and imbalances.
- VT Ratio: The Voltage Transformer Ratio is used to scale the value of the voltage to the primary side of an instrument transformer. Also referred to as PT Ratio.
- Voltage, Vab: Vab, Vbc, Vca are all Phase-to-Phase voltage measurements. These voltages are measured between the three phase voltage inputs to the meter.
- Voltage, Van: Van, Vbn, Vcn are all Phase-to-Neutral voltages applied to the monitor. These voltages are measured between the phase voltage inputs and Vn input to the meter. Technologically, these voltages can be “measured” even when the meter is in a Delta configuration and there is no connection to the Vn input. However, in this configuration, these voltages have limited meaning and are typically not reported.