Modbus Protocol and Register Map

FOR THE NEXUS® 1500 Meter
User Manual

Version 1.08

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"The Leader in Power Monitoring and Smart Grid Solutions"

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This warranty does not apply to defects resulting from unauthorized modification, misuse, or use for any reason other than electrical power monitoring. The Nexus® 1500 meter is not a user-serviceable product.

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Our instruments are inspected and tested in accordance with specifications published by Electro Industries/GaugeTech. The accuracy and a calibration of our instruments are traceable to the National Institute of Standards and Technology through equipment that is calibrated at planned intervals by comparison to certified standards.

Disclaimer

The information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this document is subject to change without notice.

About Electro Industries/GaugeTech (EIG)

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 9001:2000 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: Modbus Support Information **A-1**

Glossary **GL-1**

Chapter 1
Modbus Protocol Overview

1.1: Introduction

The Nexus® 1500 meter can communicate with other devices using the RTU transmission mode of the AEG Modicon Modbus protocol. Communication is available through RS485.

- RS485 communication supports multiple Nexus® meters connected on a network. It is a two-wire connection operating up to 115200 baud, available on the optional RS485 ports.
- See the *Nexus® 1500 Meter Installation and Operation Manual* for wiring details.

1.2: Communication Packets

Communication takes place between a Modbus Master and one or more Nexus® device 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® 1500 meter supports the following Modbus Function Codes:

Table 1.1: Function Codes

Hex	Dec	Description
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 Indian" 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.

Table 1.2: Function Code 03 Example

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.

Table 1.3: Function Code 6 Example

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 Software, to read Holding Registers (1.4.1), Address Format should be:

4(XXXXX) with the XXXXX being our Decimal Address.

Table 1.4: Function Code 10 Example			
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
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.

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
```

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 lists the different Error Codes supported by the Nexus® 1500 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 cannot 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.

Table 1.6: Exception Response Example

Master Packet		Slave Packet	
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(s) to have DNP communication with the main unit utilizing a Modbus connection.

The following are non-standard extensions to the Modbus Protocol. The Nexus® 1500 meter supports the following additional Modbus Function Codes:

Modbus Extensions		
Function Code		**Description**
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 data given earlier:

Function Code 23H Example (Response)	
Field Name	**Example (Hex)**
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 Hi (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.

Chapter 2
Nexus® 1500 Meter Modbus Register Map

The Nexus® 1500 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® 1500 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.

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Device Identification Block									
0000H-0007H	00001-00008	0	0		Device Name			F1	R	
0008H-000FH	00009-00016	1	0		Firmware Variation String 1			F1	R	
0010H-0017H	00017-00024	1	1		Firmware Variation String 2			F1	R	
0018H-001FH	00025-00032	1	2		Firmware Variation String 3			F1	R	
0020H-0027H	00033-00040	1	3		Firmware Variation String 4			F1	R	
0028H-002FH	00041-00048	1	4		Firmware Variation String 5			F1	R	
0030H-0037H	00049-00056	1	5		Firmware Variation String 6			F1	R	
0038H-003FH	00057-00064	1	6		Firmware Variation String 7			F1	R	
0040H-0047H	00065-00072	1	7		Firmware Variation String 8			F1	R	
0048H-0049H	00073-00074	2	0		Nexus Comm Boot Version Number (Major). See also register 0xFD00-0xFD01 for Minor	9.9.9.9 / 0.0.0.0	0.0.0.1 version	F2	R	
004AH-004BH	00075-00076	3	0		Nexus Comm Run-Time Version Number (Major). See also register 0xFD07-0xFD08 for Minor	9.9.9.9 / 0.0.0.0	0.0.0.1 version	F2	R	
004CH-004DH	00077-00078	4	0		Nexus DSP Boot Version Number	9.9.9.9 / 0.0.0.0	0.0.0.1 version	F2	R	
004EH-004FH	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									
0050H-0053H	00081-00084	6	0	50	On Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0054H-0057H	00085-00088	7	0	50	Current Time	12/31/9999 23:59:59.99	10 msec	F3	R/W	1, 2
0058H	00089	8	0	50	Current Day of the Week	Sunday - Saturday		F4	R/W	1, 2
	One Cycle Block									
0059H-005CH	00090-0093	9	0		One cycle Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
005DH-005EH	00094-0095	10	0		One cycle Phase A-N Voltage			F7	R	
005FH-0060H	00096-0097	10	1		One cycle Phase B-N Voltage			F7	R	
0061H-0062H	00098-0099	10	2		One cycle Phase C-N Voltage			F7	R	
0063H-0064H	00100-0101	11	0		One cycle Vaux Voltage			F7	R	
0065H-0066H	00102-0103	12	0		One cycle Phase A Current			F7	R	
0067H-0068H	00104-0105	12	1		One cycle Phase B Current			F7	R	
0069H-006AH	00106-0107	12	2		One cycle Phase C Current			F7	R	
006BH-006CH	00108-0109	13	0		One cycle Measured Neutral Current (Iaux)			F7	R	
006DH-006EH	00110-0111	14	0		One cycle Phase A-B Voltage			F7	R	
006FH-0070H	00112-0113	14	1		One cycle Phase B-C Voltage			F7	R	
0071H-0072H	00114-0115	14	2		One cycle Phase A-C Voltage			F7	R	
0073H-0074H	00116-0117	15	0		One cycle Calculated Neutral Current (Ires)			F7	R	
0075H	00118	16	0		One cycle High Speed Input Delta and Current State			F6	R	
	Tenth Second Block									
0076H-0079H	00119-00122	17	0	50	Tenth second Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
007AH-007BH	00123-00124	18	0	30	Tenth second Phase A-N Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
007CH-007DH	00125-00126	18	1	30	Tenth second Phase B-N Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
007EH-007FH	00127-00128	18	2	30	Tenth second Phase C-N Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
0080H-0081H	00129-00130	19	0	30	Tenth second Vaux Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0082H-0083H	00131-00132	20	0	30	Tenth second Phase A Current	+32767 V / 0 V	1/ 65536 A sec	F7	R	6
0084H-0085H	00133-00134	20	1	30	Tenth second Phase B Current	+32767 V / 0 V	1/ 65536 A sec	F7	R	6
0086H-0087H	00135-00136	20	2	30	Tenth second Phase C Current	+32767 V / 0 V	1/ 65536 A sec	F7	R	6
0088H-0089H	00137-00138	21	0	30	Tenth second Measured Neutral Current	+32767 V / 0 V	1/ 65536 A sec	F7	R	
008AH-008BH	00139-00140	22	0	30	Tenth second Phase A-B Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
008CH-008DH	00141-00142	22	1	30	Tenth second Phase B-C Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
008EH-008FH	00143-00144	22	2	30	Tenth second Phase A-C Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
0090H-0091H	00145-00146	23	0	30	Tenth second Phase A VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0092H-0093H	00147-00148	23	1	30	Tenth second Phase B VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0094H-0095H	00149-00150	23	2	30	Tenth second Phase C VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0096H-0097H	00151-00152	24	0	30	Tenth second Three Phase VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0098H-0099H	00153-00154	25	0	30	Tenth second Phase A VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
009AH-009BH	00155-00156	25	1	30	Tenth second Phase B VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
009CH-009DH	00157-00158	25	2	30	Tenth second Phase C VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
009EH-009FH	00159-00160	26	0	30	Tenth second Three Phase VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
00A0H-00A1H	00161-00162	27	0	30	Tenth second Phase A Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00A2H-00A3H	00163-00164	27	1	30	Tenth second Phase B Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00A4H-00A5H	00165-00166	27	2	30	Tenth second Phase C Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00A6H-00A7H	00167-00168	28	0	30	Tenth second Three Phase Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00A8H-00A9H	00169-00170	29	0	30	Tenth second Frequency	+32767 Hz / 0 Hz	1/ 65536 Hz	F7	R	
00AAH	00171	30	0	30	Tenth second Phase A Power Factor	3.999 / 0.000	0.001 PF	F8	R	
00ABH	00172	30	1	30	Tenth second Phase B Power Factor	3.999 / 0.000	0.001 PF	F8	R	
00ACH	00173	30	2	30	Tenth second Phase C Power Factor	3.999 / 0.000	0.001 PF	F8	R	
00ADH	00174	31	0	30	Tenth second Three Phase Power Factor	3.999 / 0.000	0.001 PF	F8	R	
00AEH	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										
00AFH-00B2H	00176-00179	33	0	50	One second Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
00B3H-00B4H	00180-00181	34	0	30	One second Phase A-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
00B5H-00B6H	00182-00183	34	1	30	One second Phase B-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00B7H-00B8H	00184-00185	34	2	30	One second Phase C-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00B9H-00BAH	00186-00187	35	0	30	One second Vaux Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00BBH-00BCH	00188-00189	36	0	30	One second Phase A Current	+32767 A / 0 A	1/ 65536 A sec	F7	R	6
00BDH-00BEH	00190-00191	36	1	30	One second Phase B Current	+32767 A / 0 A	1/ 65536 A sec	F7	R	6
00BFH-00C0H	00192-00193	36	2	30	One second Phase C Current	+32767 A / 0 A	1/ 65536 A sec	F7	R	6
00C1H-00C2H	00194-00195	37	0	30	One second Measured Neutral Current	+32767 A / 0 A	1/ 65536 A sec	F7	R	
00C3H-00C4H	00196-00197	38	0	30	One second Calculated Neutral Current	+32767 A / 0 A	1/ 65536 A sec	F7	R	6
00C5H-00C6H	00198-00199	39	0	30	One second Phase A-B Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00C7H-00C8H	00200-00201	39	1	30	One second Phase B-C Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00C9H-00CAH	00202-00203	39	2	30	One second Phase C-A Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00CBH-00CCH	00204-00205	40	0	30	One second Phase A VA	+ 32767 V / 0 V	1/ 65536 VA sec	F7	R	9
00CDH-00CEH	00206-00207	40	1	30	One second Phase B VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
00CFH-00D0H	00208-00209	40	2	30	One second Phase C VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
00D1H-00D2H	00210-00211	41	0	30	One second VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
00D3H-00D4H	00212-00213	42	0	30	One second Phase A VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
00D5H-00D6H	00214-00215	42	1	30	One second Phase B VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
00D7H-00D8H	00216-00217	42	2	30	One second Phase C VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
00D9H-00DAH	00218-00219	43	0	30	One second Three VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
00DBH-00DCH	00220-00221	44	0	30	One second Phase A Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00DDH-00DEH	00222-00223	44	1	30	One second Phase B Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00DFH-00E0H	00224-00225	44	2	30	One second Phase C Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00E1H-00E2H	00226-00227	45	0	30	One second Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
00E3H-00E4H	00228-00229	46	0	30	One second Frequency	+ 32767 Hz / 0 Hz	1/ 65536 Hz	F7	R	
00E5H	00230	47	0	30	One second Phase A Power Factor	3.999 / 0	0.001 PF	F8	R	
00E6H	00231	47	1	30	One second Phase B Power Factor	3.999 / 0	0.001 PF	F8	R	
00E7H	00232	47	2	30	One second Phase C Power Factor	3.999 / 0	0.001 PF	F8	R	
00E8H	00233	48	0	30	One second Three Phase Power Factor	3.999 / 0	0.001 PF	F8	R	
00E9H	00234	49	0	30	One second Voltage Imbalance	+327.67% / -327.68%	0.01%	F10	R	
00EAH	00235	49	1	30	One second Current Imbalance	+327.67% / -327.68%	0.01%	F10	R	
					Thermal Average Block					
00EBH-00EEH	00236-00239	50	0	50	Thermal Average Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
00EFH-00F0H	00240-00241	51	0	30	Thermal Average Phase A-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
00F1H-00F2H	00242-00243	51	1	30	Thermal Average Phase B-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00F3H-00F4H	00244-00245	51	2	30	Thermal Average Phase C-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
00F7H-00F8H	00248-00249	53	0	30	Thermal Average Phase A Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
00F9H-00FAH	00250-00251	53	1	30	Thermal Average Phase B Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
00FBH-00FCH	00252-00253	53	2	30	Thermal Average Phase C Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
00FDH-00FEH	00254-00255	54	0	30	Thermal Average Measured Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	
00FFH-0100H	00256-00257	55	0	30	Thermal Average Calculated Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
0101H-0102H	00258-00259	56	0	30	Thermal Average Phase A-B Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0103H-0104H	00260-00261	56	1	30	Thermal Average Phase B-C Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0105H-0106H	00262-00263	56	2	30	Thermal Average Phase C-A Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0107H-0108H	00264-00265	57	0	30	Thermal Average Phase A VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0109H-010AH	00266-00267	57	1	30	Thermal Average Phase B VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
010BH-010CH	00268-00269	57	2	30	Thermal Average Phase C VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
010DH-010EH	00270-00271	58	0	30	Thermal Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
010FH-0110H	00272-00273	59	0	30	Thermal Average Phase A VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0111H-0112H	00274-00275	59	1	30	Thermal Average Phase B VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0113H-0114H	00276-00277	58	2	30	Thermal Average Phase C VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0115H-0116H	00278-00279	60	0	30	Thermal Average VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0117H-0118H	00280-00281	61	0	30	Thermal Average Phase A Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
0119H-011AH	00282-00283	61	1	30	Thermal Average Phase B Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
011BH-011CH	00284-00285	61	2	30	Thermal Average Phase C Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
011DH-011EH	00286-00287	62	0	30	Thermal Average Watts	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
011FH-0120H	00288-00289	63	0	30	Thermal Average Frequency	+ 32767 Hz / 0 Hz	1/ 65536 Hz	F7	R	
0121H	00290	64	0	30	Thermal Average Phase A Power Factor	3.999 / 0	0.001 PF	F8	R	
0122H	00291	64	1	30	Thermal Average Phase B Power Factor	3.999 / 0	0.001 PF	F8	R	
0123H	00292	64	2	30	Thermal Average Phase C Power Factor	3.999 / 0	0.001 PF	F8	R	
0124H	00293	65	0	30	Thermal Average Power Factor	3.999 / 0	0.001 PF	F8	R	
0125H	00294	66	0	30	Thermal Average Voltage Imbalance	+327.67% / -327.68%	0.01%	F10	R	
0126H	00295	66	1	30	Thermal Average Current Imbalance	+327.67% / -327.68%	0.01%	F10	R	
Maximum Block										
0127H-012AH	00296-00299	67	0	50	Maximum Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
012BH-012CH	00300-00301	68	0	30	Maximum Thermal Average Phase A-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
012DH-012EH	00302-00303	68	1	30	Maximum Thermal Average Phase B-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
012FH-0130H	00304-00305	68	2	30	Maximum Thermal Average Phase C-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0133H-0134H	00308-00309	70	0	30	Maximum Thermal Average Phase A Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
0135H-0136H	00310-00311	70	1	30	Maximum Thermal Average Phase B Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
0137H-0138H	00312-00313	70	2	30	Maximum Thermal Average Phase C Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
0139H-013AH	00314-00315	71	0	30	Maximum Thermal Average Measured Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	
013BH-013CH	00316-00317	72	0	30	Maximum Thermal Average Calculated Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
013DH-013EH	00318-00319	73	0	30	Maximum Thermal Average Phase A-B Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
013FH-0140H	00320-00321	73	1	30	Maximum Thermal Average Phase B-C Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0141H-0142H	00322-00323	73	2	30	Maximum Thermal Average Phase C-A Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0143H-0144H	00324-00325	74	0	30	Maximum Thermal Average Phase A VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0145H-0146H	00326-00327	74	1	30	Maximum Thermal Average Phase B VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0147H-0148H	00328-00329	74	2	30	Maximum Thermal Average Phase C VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0149H-014AH	00330-00331	75	0	30	Maximum Thermal Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
014BH-014CH	00332-00333	76	0	30	Maximum Thermal Average Phase A Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
014DH-014EH	00334-00335	76	1	30	Maximum Thermal Average Phase B Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
014FH-0150H	00336-00337	76	2	30	Maximum Thermal Average Phase C Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0151H-0152H	00338-00339	77	0	30	Maximum Thermal Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0153H-0154H	00340-00341	78	0	30	Maximum Thermal Average Phase A Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0155H-0156H	00342-00343	78	1	30	Maximum Thermal Average Phase B Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0157H-0158H	00344-00345	78	2	30	Maximum Thermal Average Phase C Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0159H-015AH	00346-00347	79	0	30	Maximum Thermal Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
015BH-015CH	00348-00349	80	0	30	Maximum Thermal Average Phase A Watts Positive	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
015DH-015EH	00350-00351	80	1	30	Maximum Thermal Average Phase B Watts Positive	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
015FH-0160H	00352-00353	80	2	30	Maximum Thermal Average Phase C Watts Positive	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
0161H-0162H	00354-00355	81	0	30	Maximum Thermal Average Positive Watts	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
0163H-0164H	00356-00357	82	0	30	Maximum Thermal Average Phase A Watts Negative	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0165H-0166H	00358-00359	82	1	30	Maximum Thermal Average Phase B Watts Negative	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0167H-0168H	00360-00361	82	2	30	Maximum Thermal Average Phase C Watts Negative	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0169H-016AH	00362-00363	83	0	30	Maximum Thermal Average Negative Watts	0 W / -32768 W	1/ 65536 W sec	F7	R	9
016BH-016CH	00364-00365	84	0	30	Maximum Thermal Average Frequency	+ 32767 Hz / 0 Hz	1/ 65536 Hz	F7	R	
016DH	00366	85	0	30	Maximum Thermal Average Phase A Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
016EH	00367	85	1	30	Maximum Thermal Average Phase B Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
016FH	00368	85	2	30	Maximum Thermal Average Phase C Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
0170H	00369	86	0	30	Maximum Thermal Average Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
0171H	00370	87	0	30	Maximum Thermal Average Phase A Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
0172H	00371	87	1	30	Maximum Thermal Average Phase B Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
0173H	00372	87	2	30	Maximum Thermal Average Phase C Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0174H	00373	88	0	30	Maximum Thermal Average Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
0175H	00374	89	0	30	Maximum Thermal Average Phase A Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
0176H	00375	89	1	30	Maximum Thermal Average Phase B Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
0177H	00376	89	2	30	Maximum Thermal Average Phase C Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
0178H	00377	90	0	30	Maximum Thermal Average Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
0179H	00378	91	0	30	Maximum Thermal Average Phase A Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
017AH	00379	91	1	30	Maximum Thermal Average Phase B Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
017BH	00380	91	2	30	Maximum Thermal Average Phase C Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
017CH	00381	92	0	30	Maximum Thermal Average Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
017DH	00382	93	0	30	Maximum Thermal Average Voltage Imbalance	+327.67% / -327.68%	0.01%	F10	R	
017EH	00383	93	1	30	Maximum Thermal Average Current Imbalance	+327.67% / -327.68%	0.01%	F10	R	
017FH	00384	94	0	30	Maximum THD Phase A-N / A-B Voltage	+327.67% / -327.68%	0.01%	F10	R	
0180H	00385	94	1	30	Maximum THD Phase B-N / B-C Voltage	+327.67% / -327.68%	0.01%	F10	R	
0181H	00386	94	2	30	Maximum THD Phase C-N / C-A Voltage	+327.67% / -327.68%	0.01%	F10	R	
0182H	00387	95	0	30	Maximum THD Phase A Current	+327.67% / -327.68%	0.01%	F10	R	
0183H	00388	95	1	30	Maximum THD Phase B Current	+327.67% / -327.68%	0.01%	F10	R	
0184H	00389	95	2	30	Maximum THD Phase C Current	+327.67% / -327.68%	0.01%	F10	R	
0185H	00390	96	0	30	Maximum K-Factor Phase A Current	327.67 / -327.68	0.01	F67	R	
0186H	00391	96	1	30	Maximum K-Factor Phase B Current	327.67 / -327.68	0.01	F67	R	
0187H	00392	96	2	30	Maximum K-Factor Phase C Current	327.67 / -327.68	0.01	F67	R	
0188H-0189H	00393-00394	97	0	30	Coincident Thermal Average VAR for Maximum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 W sec	F7	R	9
018AH-018BH	00395-00396	97	1	30	Coincident Thermal Average VAR for Maximum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 W sec	F7	R	9
Minimum Block										
018CH-018FH	00397-00400	98	0	50	Minimum Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0190H-0191H	00401-00402	99	0	30	Minimum Thermal Average Phase A-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0192H-0193H	00403-00404	99	1	30	Minimum Thermal Average Phase B-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0194H-0195H	00405-00406	99	2	30	Minimum Thermal Average Phase C-N Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
0198H-0199H	00409-00410	101	0	30	Minimum Thermal Average Phase A Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
019AH-019BH	00411-00412	101	1	30	Minimum Thermal Average Phase B Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
019CH-019DH	00413-00414	101	2	30	Minimum Thermal Average Phase C Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
019EH-019FH	00415-00416	102	0	30	Minimum Thermal Average Measured Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	
01A0H-01A1H	00417-00418	103	0	30	Minimum Thermal Average Calculated Neutral Current	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
01A2H-01A3H	00419-00420	104	0	30	Minimum Thermal Average Phase A-B Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
01A4H-01A5H	00421-00422	104	1	30	Minimum Thermal Average Phase B-C Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4
01A6H-01A7H	00423-00424	104	2	30	Minimum Thermal Average Phase C-A Voltage	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	4

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
01A8H-01A9H	00425-00426	105	0	30	Minimum Thermal Average Phase A VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
01AAH-01ABH	00427-00428	105	1	30	Minimum Thermal Average Phase B VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
01ACH-01ADH	00429-00430	105	2	30	Minimum Thermal Average Phase C VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
01AEH-01AFH	00431-00432	106	0	30	Minimum Thermal Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
01B0H-01B1H	00433-00434	107	0	30	Minimum Thermal Average Phase A Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
01B2H-01B3H	00435-00436	107	1	30	Minimum Thermal Average Phase B Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
01B4H-01B5H	00437-00438	107	2	30	Minimum Thermal Average Phase C Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
01B6H-01B7H	00439-00440	108	0	30	Minimum Thermal Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
01B8H-01B9H	00441-00442	109	0	30	Minimum Thermal Average Phase A Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
01BAH-01BBH	00443-00444	109	1	30	Minimum Thermal Average Phase B Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
01BCH-01BDH	00445-00446	109	2	30	Minimum Thermal Average Phase C Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
01BEH-01BFH	00447-00448	110	0	30	Minimum Thermal Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
01C0H-01C1H	00449-00450	111	0	30	Minimum Thermal Average Phase A Positive Watts	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
01C2H-01C3H	00451-00452	111	1	30	Minimum Thermal Average Phase B Positive Watts	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
01C4H-01C5H	00453-00454	111	2	30	Minimum Thermal Average Phase C Positive Watts	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
01C6H-01C7H	00455-00456	112	0	30	Minimum Thermal Average Positive Watts	+32767 W / 0 W	1/ 65536 W sec	F7	R	9
01C8H-01C9H	00457-00458	113	0	30	Minimum Thermal Average Phase A Negative Watts	0 W / -32768 W	1/ 65536 W sec	F7	R	9
01CAH-01CBH	00459-00460	113	1	30	Minimum Thermal Average Phase B Negative Watts	0 W / -32768 W	1/ 65536 W sec	F7	R	9
01CCH-01CDH	00461-00462	113	2	30	Minimum Thermal Average Phase C Negative Watts	0 W / -32768 W	1/ 65536 W sec	F7	R	9
01CEH-01CFH	00463-00464	114	0	30	Minimum Thermal Average Negative Watts	0 W / -32768 W	1/ 65536 W sec	F7	R	9
01D0H-01D1H	00465-00466	115	0	30	Minimum Thermal Average Frequency	+ 32767 Hz / 0 Hz	1/ 65536 Hz	F7	R	
01D2H	00467	116	0	30	Minimum Thermal Average Phase A Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
01D3H	00468	116	1	30	Minimum Thermal Average Phase B Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
01D4H	00469	116	2	30	Minimum Thermal Average Phase C Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
01D5H	00470	117	0	30	Minimum Thermal Average Power Factor Quadrant 1	0.999 / 0	0.001 PF	F8	R	
01D6H	00471	118	0	30	Minimum Thermal Average Phase A Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
01D7H	00472	118	1	30	Minimum Thermal Average Phase B Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
01D8H	00473	118	2	30	Minimum Thermal Average Phase C Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
01D9H	00474	119	0	30	Minimum Thermal Average Power Factor Quadrant 2	3.999 / 3.000	0.001 PF	F8	R	
01DAH	00475	120	0	30	Minimum Thermal Average Phase A Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
01DBH	00476	120	1	30	Minimum Thermal Average Phase B Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
01DCH	00477	120	2	30	Minimum Thermal Average Phase C Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
01DDH	00478	121	0	30	Minimum Thermal Average Power Factor Quadrant 3	2.999 / 2.000	0.001 PF	F8	R	
01DEH	00479	122	0	30	Minimum Thermal Average Phase A Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
01DFH	00480	122	1	30	Minimum Thermal Average Phase B Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
01E0H	00481	122	2	30	Minimum Thermal Average Phase C Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	
01E1H	00482	123	0	30	Minimum Thermal Average Power Factor Quadrant 4	1.999 / 1.000	0.001 PF	F8	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
01E2H	00483	124	0	30	Minimum Thermal Average Voltage Imbalance	+327.67% / -327.68%	0.01%	F10	R	
01E3H	00484	124	1	30	Minimum Thermal Average Current Imbalance	+327.67% / -327.68%	0.01%	F10	R	
01E4H	00485	125	0	30	Minimum THD Phase A-N Voltage / Phase A-B Voltage	+327.67% / -327.68%	0.01%	F10	R	
01E5H	00486	125	1	30	Minimum THD Phase B-N Voltage / Phase B-C Voltage	+327.67% / -327.68%	0.01%	F10	R	
01E6H	00487	125	2	30	Minimum THD Phase C-N Voltage / Phase C-A Voltage	+327.67% / -327.68%	0.01%	F10	R	
01E7H	00488	126	0	30	Minimum THD Phase A Current	+327.67% / -327.68%	0.01%	F10	R	
01E8H	00489	126	1	30	Minimum THD Phase B Current	+327.67% / -327.68%	0.01%	F10	R	
01E9H	00490	126	2	30	Minimum THD Phase C Current	+327.67% / -327.68%	0.01%	F10	R	
01EAH	00491	127	0	30	Minimum K-Factor Phase A Current	327.67 / -327.68	0.01	F67	R	
01EBH	00492	127	1	30	Minimum K-Factor Phase B Current	327.67 / -327.68	0.01	F67	R	
01ECH	00493	127	2	30	Minimum K-Factor Phase C Current	327.67 / -327.68	0.01	F67	R	
01EDH-01EEH	00494-00495	128	0	30	Coincident Thermal Average VAR for Minimum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 W sec	F7	R	9
01EFH-01F0H	00496-00497	128	1	30	Coincident Thermal Average VAR for Minimum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 W sec	F7	R	9
					Maximum Timestamp Block					
01F1H-01F4H	00498-00501	129	0	50	Maximum Thermal Average Phase A-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
01F5H-01F8H	00502-00505	129	1	50	Maximum Thermal Average Phase B-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
01F9H-01FCH	00506-00509	129	2	50	Maximum Thermal Average Phase C-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
01FDH-0200H	00510-00513	129	3	50	Maximum Thermal Average Auxiliary Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0201H-0204H	00514-00517	129	4	50	Maximum Thermal Average Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0205H-0208H	00518-00521	129	5	50	Maximum Thermal Average Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0209H-020CH	00522-00525	129	6	50	Maximum Thermal Average Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
020DH-0210H	00526-00529	129	7	50	Maximum Thermal Average Measured Neutral Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0211H-0214H	00530-00533	129	8	50	Maximum Thermal Average Calculated Neutral Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0215H-0218H	00534-00537	129	9	50	Maximum Thermal Average Phase A-B Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0219H-021CH	00538-00541	129	10	50	Maximum Thermal Average Phase B-C Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
021DH-0220H	00542-00545	129	11	50	Maximum Thermal Average Phase C-A Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0221H-0224H	00546-00549	129	12	50	Maximum Thermal Average Phase A VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0225H-0228H	00550-00553	129	13	50	Maximum Thermal Average Phase B VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0229H-022CH	00554-00557	129	14	50	Maximum Thermal Average Phase C VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
022DH-023H	00558-00561	129	15	50	Maximum Thermal Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0231H-0234H	00562-00565	129	16	50	Maximum Thermal Average Phase A Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0235H-0238H	00566-00569	129	17	50	Maximum Thermal Average Phase B Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0239H-023CH	00570-00573	129	18	50	Maximum Thermal Average Phase C Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
023DH-0240H	00574-00577	129	19	50	Maximum Thermal Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0241H-0244H	00578-00581	129	20	50	Maximum Thermal Average Phase A Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0245H-0248H	00582-00585	129	21	50	Maximum Thermal Average Phase B Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0249H-024CH	00586-00589	129	22	50	Maximum Thermal Average Phase C Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
024DH-0250H	00590-00593	129	23	50	Maximum Thermal Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0251H-0254H	00594-00597	129	24	50	Maximum Thermal Average Phase A Watts Positive Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0255H-0258H	00598-00601	129	25	50	Maximum Thermal Average Phase B Watts Positive Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0259H-025CH	00602-00605	129	26	50	Maximum Thermal Average Phase C Watts Positive Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
025DH-0260H	00606-00609	129	27	50	Maximum Thermal Average Positive Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0261H-0264H	00610-00613	129	28	50	Maximum Thermal Average Phase A Watts Negative Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0265H-0268H	00614-00617	129	29	50	Maximum Thermal Average Phase B Watts Negative Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0269H-026CH	00618-00621	129	30	50	Maximum Thermal Average Phase C Watts Negative Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
026DH-0270H	00622-00625	129	31	50	Maximum Thermal Average Negative Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0271H-0274H	00626-00629	129	32	50	Maximum Thermal Average Frequency Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0275H-0278H	00630-00633	129	33	50	Maximum Thermal Average Phase A Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0279H-027CH	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	1
027DH-0280H	00638-00641	129	35	50	Maximum Thermal Average Phase C Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0281H-0284H	00642-00645	129	36	50	Maximum Thermal Average Power Factor Quadrant 1	12/31/9999 23:59:59.99	10 msec	F3	R	1
0285H-0288H	00646-00649	129	37	50	Maximum Thermal Average Phase A Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0289H-028CH	00650-00653	129	38	50	Maximum Thermal Average Phase B Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
028DH-0290H	00654-00657	129	39	50	Maximum Thermal Average Phase C Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0291H-0294H	00658-00661	129	40	50	Maximum Thermal Average Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0295H-0298H	00662-00665	129	41	50	Maximum Thermal Average Phase A Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0299H-029CH	00666-00669	129	42	50	Maximum Thermal Average Phase B Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
029DH-02A0H	00670-00673	129	43	50	Maximum Thermal Average Phase C Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02A1H-02A4H	00674-00677	129	44	50	Maximum Thermal Average Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02A5H-02A8H	00678-00681	129	45	50	Maximum Thermal Average Phase A Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02A9H-02ACH	00682-00685	129	46	50	Maximum Thermal Average Phase B Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02ADH-02B0H	00686-00689	129	47	50	Maximum Thermal Average Phase C Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02B1H-02B4H	00690-00693	129	48	50	Maximum Thermal Average Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02B5H-02B8H	00694-00697	129	49	50	Maximum Thermal Average Voltage Imbalance Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02B9H-02BCH	00698-00701	129	50	50	Maximum Thermal Average Current Imbalance Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02BDH-02C0H	00702-00705	129	51	50	Maximum THD Phase A-N / A-B Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02C1H-02C4H	00706-00709	129	52	50	Maximum THD Phase B-N / B-C Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02C5H-02C8H	00710-00713	129	53	50	Maximum THD Phase C-N / C-A Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02C9H-02CCH	00714-00717	129	54	50	Maximum THD Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02CDH-02D0H	00718-00721	129	55	50	Maximum THD Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02D1H-02D4H	00722-00725	129	56	50	Maximum THD Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02D5H-02D8H	00726-00729	129	57	50	Maximum K-Factor Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02D9H-02DCH	00730-00733	129	58	50	Maximum K-Factor Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02DDH-02E0H	00734-00737	129	59	50	Maximum K-Factor Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
					Minimum Timestamp Block					
02E1H-02E4H	00738-00741	130	0	50	Minimum Thermal Average Phase A-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02E5H-02E8H	00742-00745	130	1	50	Minimum Thermal Average Phase B-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02E9H-02ECH	00746-00749	130	2	50	Minimum Thermal Average Phase C-N Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02EDH-02F0H	00750-00753	130	3	50	Minimum Thermal Average Auxiliary Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02F1H-02F4H	00754-00757	130	4	50	Minimum Thermal Average Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02F5H-02F8H	00758-00761	130	5	50	Minimum Thermal Average Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
02F9H-02FCH	00762-00765	130	6	50	Minimum Thermal Average Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
02FDH-0300H	00766-00769	130	7	50	Minimum Thermal Average Measured Neutral Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0301H-0304H	00770-00773	130	8	50	Minimum Thermal Average Calculated Neutral Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0305H-0308H	00774-00777	130	9	50	Minimum Thermal Average Phase A-B Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0309H-030CH	00778-00781	130	10	50	Minimum Thermal Average Phase B-C Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
030DH-0310H	00782-00785	130	11	50	Minimum Thermal Average Phase C-A Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0311H-0314H	00786-00789	130	12	50	Minimum Thermal Average Phase A VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0315H-0318H	00790-00793	130	13	50	Minimum Thermal Average Phase B VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0319H-031CH	00794-00797	130	14	50	Minimum Thermal Average Phase C VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
031DH-0320H	00798-00801	130	15	50	Minimum Thermal Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0321H-0324H	00802-00805	130	16	50	Minimum Thermal Average Phase A Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0325H-0328H	00806-00809	130	17	50	Minimum Thermal Average Phase B Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0329H-032CH	00810-00813	130	18	50	Minimum Thermal Average Phase C Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
032DH-0330H	00814-00817	130	19	50	Minimum Thermal Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0331H-0334H	00818-00821	130	20	50	Minimum Thermal Average Phase A Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0335H-0338H	00822-00825	130	21	50	Minimum Thermal Average Phase B Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0339H-033CH	00826-00829	130	22	50	Minimum Thermal Average Phase C Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
033DH-0340H	00830-00833	130	23	50	Minimum Thermal Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0341H-0344H	00834-00837	130	24	50	Minimum Thermal Average Phase A Positive Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0345H-0348H	00838-00841	130	25	50	Minimum Thermal Average Phase B Positive Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0349H-034CH	00842-00845	130	26	50	Minimum Thermal Average Phase C Positive Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
034DH-0350H	00846-00849	130	27	50	Minimum Thermal Average Positive Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0351H-0354H	00850-00853	130	28	50	Minimum Thermal Average Phase A Negative Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0355H-0358H	00854-00857	130	29	50	Minimum Thermal Average Phase B Negative Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0359H-035CH	00858-00861	130	30	50	Minimum Thermal Average Phase C Negative Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
035DH-0360H	00862-00865	130	31	50	Minimum Thermal Average Negative Watts Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0361H-0364H	00866-00869	130	32	50	Minimum Thermal Average Frequency Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0365H-0368H	00870-00873	130	33	50	Minimum Thermal Average Phase A Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0369H-036CH	00874-00877	130	34	50	Minimum Thermal Average Phase B Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
036DH-0370H	00878-00881	130	35	50	Minimum Thermal Average Phase C Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0371H-0374H	00882-00885	130	36	50	Minimum Thermal Average Power Factor Quadrant 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0375H-0378H	00886-00889	130	37	50	Minimum Thermal Average Phase A Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0379H-037CH	00890-00893	130	38	50	Minimum Thermal Average Phase B Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
037DH-0380H	00894-00897	130	39	50	Minimum Thermal Average Phase C Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0381H-0384H	00898-00901	130	40	50	Minimum Thermal Average Power Factor Quadrant 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0385H-0388H	00902-00905	130	41	50	Minimum Thermal Average Phase A Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0389H-038CH	00906-00909	130	42	50	Minimum Thermal Average Phase B Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
038DH-0390H	00910-00913	130	43	50	Minimum Thermal Average Phase C Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0391H-0394H	00914-00917	130	44	50	Minimum Thermal Average Power Factor Quadrant 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0395H-0398H	00918-00921	130	45	50	Minimum Thermal Average Phase A Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0399H-039CH	00922-00925	130	46	50	Minimum Thermal Average Phase B Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
039DH-03A0H	00926-00929	130	47	50	Minimum Thermal Average Phase C Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03A1H-03A4H	00930-00933	130	48	50	Minimum Thermal Average Power Factor Quadrant 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03A5H-03A8H	00934-00937	130	49	50	Minimum Thermal Average Voltage Imbalance Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03A9H-03ACH	00938-00941	130	50	50	Minimum Thermal Average Current Imbalance Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03ADH-03B0H	00942-00945	130	51	50	Minimum THD Phase A-N Voltage / Phase A-B Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
03B1H-01B4H	00946-00949	130	52	50	Minimum THD Phase B-N Voltage / Phase B-C Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03B5H-03B8H	00950-00953	130	53	50	Minimum THD Phase C-N Voltage / Phase C-A Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03B9H-03BCH	00954-00957	130	54	50	Minimum THD Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03BDH-03C0H	00958-00961	130	55	50	Minimum THD Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03C1H-03C4H	00962-00965	130	56	50	Minimum THD Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03C5H-03C8H	00966-00969	130	57	50	Minimum K-Factor Phase A Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03C9H-03CCH	00970-00973	130	58	50	Minimum K-Factor Phase B Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03CDH-03D0H	00974-00977	130	59	50	Minimum K-Factor Phase C Current Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Energy Block (Secondary)										
03D1H-03D4H	00978-00981	131	0	50	Energy Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
03D5H-03D8H	00982-00985	132	0	20	VAhour (BCD)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F11	R	
03D9H-03DCH	00986-00989	132	1	20	Positive VARhour (BCD)	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F11	R	
03DDH-03E0H	00990-00993	132	2	20	Negative VARhour (BCD)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F11	R	
03E1H-03E4H	00994-00997	132	3	20	Positive Watthour (BCD)	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F11	R	
03E5H-03E8H	00998-01001	132	4	20	Negative Watthour (BCD)	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F11	R	
03E9H-03ECH	01002-01005	133	0	20	VAhour (Binary)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
03EDH-03F0H	01006-01009	133	1	20	Positive VARhour (Binary)	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
03F1H-03F4H	01010-01013	133	2	20	Negative VARhour (Binary)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F12	R	
03F5H-03F8H	01014-01017	133	3	20	Positive Watthour (Binary)	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F12	R	
03F9H-03FCH	01018-01021	133	4	20	Negative Watthour (Binary)	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F12	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Harmonic Magnitude Block (IEC 61000-4-30 1.6 sec Update)									
03FDH	01022	134	0	30	Phase A-N / Phase A-B Voltage 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
03FEH	01023	134	1	30	Phase A-N / Phase A-B Voltage 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
03FFH	01024	134	2	30	Phase A-N / Phase A-B Voltage 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0400H	01025	134	3	30	Phase A-N / Phase A-B Voltage 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0401H	01026	134	4	30	Phase A-N / Phase A-B Voltage 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0402H	01027	134	5	30	Phase A-N / Phase A-B Voltage 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0403H	01028	134	6	30	Phase A-N / Phase A-B Voltage 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0404H	01029	134	7	30	Phase A-N / Phase A-B Voltage 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0405H	01030	135	0	30	Phase A-N / Phase A-B Voltage 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0406H	01031	135	1	30	Phase A-N / Phase A-B Voltage 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0407H	01032	135	2	30	Phase A-N / Phase A-B Voltage 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0408H	01033	135	3	30	Phase A-N / Phase A-B Voltage 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0409H	01034	135	4	30	Phase A-N / Phase A-B Voltage 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040AH	01035	135	5	30	Phase A-N / Phase A-B Voltage 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040BH	01036	135	6	30	Phase A-N / Phase A-B Voltage 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040CH	01037	135	7	30	Phase A-N / Phase A-B Voltage 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040DH	01038	136	0	30	Phase A-N / Phase A-B Voltage 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040EH	01039	136	1	30	Phase A-N / Phase A-B Voltage 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
040FH	01040	136	2	30	Phase A-N / Phase A-B Voltage 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0410H	01041	136	3	30	Phase A-N / Phase A-B Voltage 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0411H	01042	136	4	30	Phase A-N / Phase A-B Voltage 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0412H	01043	136	5	30	Phase A-N / Phase A-B Voltage 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0413H	01044	136	6	30	Phase A-N / Phase A-B Voltage 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0414H	01045	136	7	30	Phase A-N / Phase A-B Voltage 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0415H	01046	136	8	30	Phase A-N / Phase A-B Voltage 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0416H	01047	136	9	30	Phase A-N / Phase A-B Voltage 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0417H	01048	136	10	30	Phase A-N / Phase A-B Voltage 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0418H	01049	136	11	30	Phase A-N / Phase A-B Voltage 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0419H	01050	136	12	30	Phase A-N / Phase A-B Voltage 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
041AH	01051	136	13	30	Phase A-N / Phase A-B Voltage 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
041BH	01052	136	14	30	Phase A-N / Phase A-B Voltage 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
041CH	01053	136	15	30	Phase A-N / Phase A-B Voltage 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
041DH	01054	137	0	30	Phase A-N / Phase A-B Voltage 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
041EH	01055	137	1	30	Phase A-N / Phase A-B Voltage 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
041FH	01056	137	2	30	Phase A-N / Phase A-B Voltage 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0420H	01057	137	3	30	Phase A-N / Phase A-B Voltage 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0421H	01058	137	4	30	Phase A-N / Phase A-B Voltage 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0422H	01059	137	5	30	Phase A-N / Phase A-B Voltage 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0423H	01060	137	6	30	Phase A-N / Phase A-B Voltage 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0424H	01061	137	7	30	Phase A-N / Phase A-B Voltage 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0425H	01062	137	8	30	Phase A-N / Phase A-B Voltage 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0426H	01063	137	9	30	Phase A-N / Phase A-B Voltage 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0427H	01064	137	10	30	Phase A-N / Phase A-B Voltage 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0428H	01065	137	11	30	Phase A-N / Phase A-B Voltage 43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0429H	01066	137	12	30	Phase A-N / Phase A-B Voltage 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042AH	01067	137	13	30	Phase A-N / Phase A-B Voltage 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042BH	01068	137	14	30	Phase A-N / Phase A-B Voltage 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042CH	01069	137	15	30	Phase A-N / Phase A-B Voltage 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042DH	01070	137	16	30	Phase A-N / Phase A-B Voltage 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042EH	01071	137	17	30	Phase A-N / Phase A-B Voltage 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
042FH	01072	137	18	30	Phase A-N / Phase A-B Voltage 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0430H	01073	137	19	30	Phase A-N / Phase A-B Voltage 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0431H	01074	137	20	30	Phase A-N / Phase A-B Voltage 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0432H	01075	137	21	30	Phase A-N / Phase A-B Voltage 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0433H	01076	137	22	30	Phase A-N / Phase A-B Voltage 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0434H	01077	137	23	30	Phase A-N / Phase A-B Voltage 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0435H	01078	137	24	30	Phase A-N / Phase A-B Voltage 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0436H	01079	137	25	30	Phase A-N / Phase A-B Voltage 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0437H	01080	137	26	30	Phase A-N / Phase A-B Voltage 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0438H	01081	137	27	30	Phase A-N / Phase A-B Voltage 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0439H	01082	137	28	30	Phase A-N / Phase A-B Voltage 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
043AH	01083	137	29	30	Phase A-N / Phase A-B Voltage 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
043BH	01084	137	30	30	Phase A-N / Phase A-B Voltage 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
043CH	01085	137	31	30	Phase A-N / Phase A-B Voltage 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
043DH	01086	138	0	30	Phase A-N / Phase A-B Voltage 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
043EH	01087	138	1	30	Phase A-N / Phase A-B Voltage 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
043FH	01088	138	2	30	Phase A-N / Phase A-B Voltage 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0440H	01089	138	3	30	Phase A-N / Phase A-B Voltage 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0441H	01090	138	4	30	Phase A-N / Phase A-B Voltage 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0442H	01091	138	5	30	Phase A-N / Phase A-B Voltage 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0443H	01092	138	6	30	Phase A-N / Phase A-B Voltage 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0444H	01093	138	7	30	Phase A-N / Phase A-B Voltage 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0445H	01094	138	8	30	Phase A-N / Phase A-B Voltage 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0446H	01095	138	9	30	Phase A-N / Phase A-B Voltage 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0447H	01096	138	10	30	Phase A-N / Phase A-B Voltage 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0448H	01097	138	11	30	Phase A-N / Phase A-B Voltage 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0449H	01098	138	12	30	Phase A-N / Phase A-B Voltage 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044AH	01099	138	13	30	Phase A-N / Phase A-B Voltage 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044BH	01100	138	14	30	Phase A-N / Phase A-B Voltage 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044CH	01101	138	15	30	Phase A-N / Phase A-B Voltage 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044DH	01102	138	16	30	Phase A-N / Phase A-B Voltage 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044EH	01103	138	17	30	Phase A-N / Phase A-B Voltage 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
044FH	01104	138	18	30	Phase A-N / Phase A-B Voltage 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0450H	01105	138	19	30	Phase A-N / Phase A-B Voltage 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0451H	01106	138	20	30	Phase A-N / Phase A-B Voltage 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0452H	01107	138	21	30	Phase A-N / Phase A-B Voltage 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0453H	01108	138	22	30	Phase A-N / Phase A-B Voltage 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0454H	01109	138	23	30	Phase A-N / Phase A-B Voltage 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0455H	01110	138	24	30	Phase A-N / Phase A-B Voltage 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0456H	01111	138	25	30	Phase A-N / Phase A-B Voltage 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0457H	01112	138	26	30	Phase A-N / Phase A-B Voltage 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0458H	01113	138	27	30	Phase A-N / Phase A-B Voltage 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0459H	01114	138	28	30	Phase A-N / Phase A-B Voltage 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
045AH	01115	138	29	30	Phase A-N / Phase A-B Voltage 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
045BH	01116	138	30	30	Phase A-N / Phase A-B Voltage 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
045CH	01117	138	31	30	Phase A-N / Phase A-B Voltage 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
045DH	01118	138	32	30	Phase A-N / Phase A-B Voltage 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
045EH	01119	138	33	30	Phase A-N / Phase A-B Voltage 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
045FH	01120	138	34	30	Phase A-N / Phase A-B Voltage 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0460H	01121	138	35	30	Phase A-N / Phase A-B Voltage 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0461H	01122	138	36	30	Phase A-N / Phase A-B Voltage 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0462H	01123	138	37	30	Phase A-N / Phase A-B Voltage 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0463H	01124	138	38	30	Phase A-N / Phase A-B Voltage 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0464H	01125	138	39	30	Phase A-N / Phase A-B Voltage 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0465H	01126	138	40	30	Phase A-N / Phase A-B Voltage 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0466H	01127	138	41	30	Phase A-N / Phase A-B Voltage 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0467H	01128	138	42	30	Phase A-N / Phase A-B Voltage 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0468H	01129	138	43	30	Phase A-N / Phase A-B Voltage 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0469H	01130	138	44	30	Phase A-N / Phase A-B Voltage 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046AH	01131	138	45	30	Phase A-N / Phase A-B Voltage 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046BH	01132	138	46	30	Phase A-N / Phase A-B Voltage 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046CH	01133	138	47	30	Phase A-N / Phase A-B Voltage 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046DH	01134	138	48	30	Phase A-N / Phase A-B Voltage 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046EH	01135	138	49	30	Phase A-N / Phase A-B Voltage 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
046FH	01136	138	50	30	Phase A-N / Phase A-B Voltage 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0470H	01137	138	51	30	Phase A-N / Phase A-B Voltage 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0471H	01138	138	52	30	Phase A-N / Phase A-B Voltage 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0472H	01139	138	53	30	Phase A-N / Phase A-B Voltage 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0473H	01140	138	54	30	Phase A-N / Phase A-B Voltage 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0474H	01141	138	55	30	Phase A-N / Phase A-B Voltage 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0475H	01142	138	56	30	Phase A-N / Phase A-B Voltage 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0476H	01143	138	57	30	Phase A-N / Phase A-B Voltage 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0477H	01144	138	58	30	Phase A-N / Phase A-B Voltage 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0478H	01145	138	59	30	Phase A-N / Phase A-B Voltage 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0479H	01146	138	60	30	Phase A-N / Phase A-B Voltage 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047AH	01147	138	61	30	Phase A-N / Phase A-B Voltage 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047BH	01148	138	62	30	Phase A-N / Phase A-B Voltage 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047CH	01149	138	63	30	Phase A-N / Phase A-B Voltage 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047DH	01150	139	0	30	Phase B-N / Phase B-C Voltage 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047EH	01151	139	1	30	Phase B-N / Phase B-C Voltage 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
047FH	01152	139	2	30	Phase B-N / Phase B-C Voltage 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0480H	01153	139	3	30	Phase B-N / Phase B-C Voltage 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0481H	01154	139	4	30	Phase B-N / Phase B-C Voltage 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0482H	01155	139	5	30	Phase B-N / Phase B-C Voltage 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0483H	01156	139	6	30	Phase B-N / Phase B-C Voltage 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0484H	01157	139	7	30	Phase B-N / Phase B-C Voltage 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0485H	01158	140	0	30	Phase B-N / Phase B-C Voltage 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0486H	01159	140	1	30	Phase B-N / Phase B-C Voltage 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0487H	01160	140	2	30	Phase B-N / Phase B-C Voltage 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0488H	01161	140	3	30	Phase B-N / Phase B-C Voltage 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0489H	01162	140	4	30	Phase B-N / Phase B-C Voltage 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048AH	01163	140	5	30	Phase B-N / Phase B-C Voltage 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048BH	01164	140	6	30	Phase B-N / Phase B-C Voltage 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048CH	01165	140	7	30	Phase B-N / Phase B-C Voltage 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048DH	01166	141	0	30	Phase B-N / Phase B-C Voltage 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048EH	01167	141	1	30	Phase B-N / Phase B-C Voltage 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
048FH	01168	141	2	30	Phase B-N / Phase B-C Voltage 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0490H	01169	141	3	30	Phase B-N / Phase B-C Voltage 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0491H	01170	141	4	30	Phase B-N / Phase B-C Voltage 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0492H	01171	141	5	30	Phase B-N / Phase B-C Voltage 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0493H	01172	141	6	30	Phase B-N / Phase B-C Voltage 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0494H	01173	141	7	30	Phase B-N / Phase B-C Voltage 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0495H	01174	141	8	30	Phase B-N / Phase B-C Voltage 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0496H	01175	141	9	30	Phase B-N / Phase B-C Voltage 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0497H	01176	141	10	30	Phase B-N / Phase B-C Voltage 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0498H	01177	141	11	30	Phase B-N / Phase B-C Voltage 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0499H	01178	141	12	30	Phase B-N / Phase B-C Voltage 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049AH	01179	141	13	30	Phase B-N / Phase B-C Voltage 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049BH	01180	141	14	30	Phase B-N / Phase B-C Voltage 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049CH	01181	141	15	30	Phase B-N / Phase B-C Voltage 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049DH	01182	142	0	30	Phase B-N / Phase B-C Voltage 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049EH	01183	142	1	30	Phase B-N / Phase B-C Voltage 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
049FH	01184	142	2	30	Phase B-N / Phase B-C Voltage 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A0H	01185	142	3	30	Phase B-N / Phase B-C Voltage 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
04A1H	01186	142	4	30	Phase B-N / Phase B-C Voltage 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A2H	01187	142	5	30	Phase B-N / Phase B-C Voltage 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A3H	01188	142	6	30	Phase B-N / Phase B-C Voltage 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A4H	01189	142	7	30	Phase B-N / Phase B-C Voltage 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A5H	01190	142	8	30	Phase B-N / Phase B-C Voltage 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A6H	01191	142	9	30	Phase B-N / Phase B-C Voltage 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A7H	01192	142	10	30	Phase B-N / Phase B-C Voltage 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A8H	01193	142	11	30	Phase B-N / Phase B-C Voltage 43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04A9H	01194	142	12	30	Phase B-N / Phase B-C Voltage 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04AAH	01195	142	13	30	Phase B-N / Phase B-C Voltage 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04ABH	01196	142	14	30	Phase B-N / Phase B-C Voltage 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04ACH	01197	142	15	30	Phase B-N / Phase B-C Voltage 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04ADH	01198	142	16	30	Phase B-N / Phase B-C Voltage 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04AEH	01199	142	17	30	Phase B-N / Phase B-C Voltage 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04AFH	01200	142	18	30	Phase B-N / Phase B-C Voltage 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B0H	01201	142	19	30	Phase B-N / Phase B-C Voltage 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B1H	01202	142	20	30	Phase B-N / Phase B-C Voltage 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B2H	01203	142	21	30	Phase B-N / Phase B-C Voltage 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B3H	01204	142	22	30	Phase B-N / Phase B-C Voltage 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B4H	01205	142	23	30	Phase B-N / Phase B-C Voltage 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B5H	01206	142	24	30	Phase B-N / Phase B-C Voltage 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B6H	01207	142	25	30	Phase B-N / Phase B-C Voltage 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B7H	01208	142	26	30	Phase B-N / Phase B-C Voltage 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B8H	01209	142	27	30	Phase B-N / Phase B-C Voltage 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04B9H	01210	142	28	30	Phase B-N / Phase B-C Voltage 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BAH	01211	142	29	30	Phase B-N / Phase B-C Voltage 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BBH	01212	142	30	30	Phase B-N / Phase B-C Voltage 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BCH	01213	142	31	30	Phase B-N / Phase B-C Voltage 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BDH	01214	143	0	30	Phase B-N / Phase B-C Voltage 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BEH	01215	143	1	30	Phase B-N / Phase B-C Voltage 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04BFH	01216	143	2	30	Phase B-N / Phase B-C Voltage 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C0H	01217	143	3	30	Phase B-N / Phase B-C Voltage 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C1H	01218	143	4	30	Phase B-N / Phase B-C Voltage 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
04C2H	01219	143	5	30	Phase B-N / Phase B-C Voltage 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C3H	01220	143	6	30	Phase B-N / Phase B-C Voltage 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C4H	01221	143	7	30	Phase B-N / Phase B-C Voltage 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C5H	01222	143	8	30	Phase B-N / Phase B-C Voltage 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C6H	01223	143	9	30	Phase B-N / Phase B-C Voltage 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C7H	01224	143	10	30	Phase B-N / Phase B-C Voltage 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C8H	01225	143	11	30	Phase B-N / Phase B-C Voltage 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04C9H	01226	143	12	30	Phase B-N / Phase B-C Voltage 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CAH	01227	143	13	30	Phase B-N / Phase B-C Voltage 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CBH	01228	143	14	30	Phase B-N / Phase B-C Voltage 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CCH	01229	143	15	30	Phase B-N / Phase B-C Voltage 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CDH	01230	143	16	30	Phase B-N / Phase B-C Voltage 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CEH	01231	143	17	30	Phase B-N / Phase B-C Voltage 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04CFH	01232	143	18	30	Phase B-N / Phase B-C Voltage 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D0H	01233	143	19	30	Phase B-N / Phase B-C Voltage 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D1H	01234	143	20	30	Phase B-N / Phase B-C Voltage 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D2H	01235	143	21	30	Phase B-N / Phase B-C Voltage 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D3H	01236	143	22	30	Phase B-N / Phase B-C Voltage 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D4H	01237	143	23	30	Phase B-N / Phase B-C Voltage 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D5H	01238	143	24	30	Phase B-N / Phase B-C Voltage 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D6H	01239	143	25	30	Phase B-N / Phase B-C Voltage 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D7H	01240	143	26	30	Phase B-N / Phase B-C Voltage 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D8H	01241	143	27	30	Phase B-N / Phase B-C Voltage 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04D9H	01242	143	28	30	Phase B-N / Phase B-C Voltage 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DAH	01243	143	29	30	Phase B-N / Phase B-C Voltage 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DBH	01244	143	30	30	Phase B-N / Phase B-C Voltage 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DCH	01245	143	31	30	Phase B-N / Phase B-C Voltage 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DDH	01246	143	32	30	Phase B-N / Phase B-C Voltage 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DEH	01247	143	33	30	Phase B-N / Phase B-C Voltage 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04DFH	01248	143	34	30	Phase B-N / Phase B-C Voltage 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E0H	01249	143	35	30	Phase B-N / Phase B-C Voltage 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E1H	01250	143	36	30	Phase B-N / Phase B-C Voltage 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E2H	01251	143	37	30	Phase B-N / Phase B-C Voltage 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
04E3H	01252	143	38	30	Phase B-N / Phase B-C Voltage 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E4H	01253	143	39	30	Phase B-N / Phase B-C Voltage 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E5H	01254	143	40	30	Phase B-N / Phase B-C Voltage 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E6H	01255	143	41	30	Phase B-N / Phase B-C Voltage 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E7H	01256	143	42	30	Phase B-N / Phase B-C Voltage 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E8H	01257	143	43	30	Phase B-N / Phase B-C Voltage 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04E9H	01258	143	44	30	Phase B-N / Phase B-C Voltage 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04EAH	01259	143	45	30	Phase B-N / Phase B-C Voltage 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04EBH	01260	143	46	30	Phase B-N / Phase B-C Voltage 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04ECH	01261	143	47	30	Phase B-N / Phase B-C Voltage 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04EDH	01262	143	48	30	Phase B-N / Phase B-C Voltage 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04EEH	01263	143	49	30	Phase B-N / Phase B-C Voltage 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04EFH	01264	143	50	30	Phase B-N / Phase B-C Voltage 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F0H	01265	143	51	30	Phase B-N / Phase B-C Voltage 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F1H	01266	143	52	30	Phase B-N / Phase B-C Voltage 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F2H	01267	143	53	30	Phase B-N / Phase B-C Voltage 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F3H	01268	143	54	30	Phase B-N / Phase B-C Voltage 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F4H	01269	143	55	30	Phase B-N / Phase B-C Voltage 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F5H	01270	143	56	30	Phase B-N / Phase B-C Voltage 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F6H	01271	143	57	30	Phase B-N / Phase B-C Voltage 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F7H	01272	143	58	30	Phase B-N / Phase B-C Voltage 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F8H	01273	143	59	30	Phase B-N / Phase B-C Voltage 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04F9H	01274	143	60	30	Phase B-N / Phase B-C Voltage 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FAH	01275	143	61	30	Phase B-N / Phase B-C Voltage 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FBH	01276	143	62	30	Phase B-N / Phase B-C Voltage 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FCH	01277	143	63	30	Phase B-N / Phase B-C Voltage 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FDH	01278	144	0	30	Phase C-N / Phase C-A Voltage 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FEH	01279	144	1	30	Phase C-N / Phase C-A Voltage 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
04FFH	01280	144	2	30	Phase C-N / Phase C-A Voltage 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0500H	01281	144	3	30	Phase C-N / Phase C-A Voltage 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0501H	01282	144	4	30	Phase C-N / Phase C-A Voltage 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0502H	01283	144	5	30	Phase C-N / Phase C-A Voltage 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0503H	01284	144	6	30	Phase C-N / Phase C-A Voltage 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0504H	01285	144	7	30	Phase C-N / Phase C-A Voltage 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0505H	01286	145	0	30	Phase C-N / Phase C-A Voltage 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0506H	01287	145	1	30	Phase C-N / Phase C-A Voltage 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0507H	01288	145	2	30	Phase C-N / Phase C-A Voltage 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0508H	01289	145	3	30	Phase C-N / Phase C-A Voltage 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0509H	01290	145	4	30	Phase C-N / Phase C-A Voltage 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050AH	01291	145	5	30	Phase C-N / Phase C-A Voltage 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050BH	01292	145	6	30	Phase C-N / Phase C-A Voltage 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050CH	01293	145	7	30	Phase C-N / Phase C-A Voltage 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050DH	01294	146	0	30	Phase C-N / Phase C-A Voltage 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050EH	01295	146	1	30	Phase C-N / Phase C-A Voltage 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
050FH	01296	146	2	30	Phase C-N / Phase C-A Voltage 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0510H	01297	146	3	30	Phase C-N / Phase C-A Voltage 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0511H	01298	146	4	30	Phase C-N / Phase C-A Voltage 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0512H	01299	146	5	30	Phase C-N / Phase C-A Voltage 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0513H	01300	146	6	30	Phase C-N / Phase C-A Voltage 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0514H	01301	146	7	30	Phase C-N / Phase C-A Voltage 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0515H	01302	146	8	30	Phase C-N / Phase C-A Voltage 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0516H	01303	146	9	30	Phase C-N / Phase C-A Voltage 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0517H	01304	146	10	30	Phase C-N / Phase C-A Voltage 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0518H	01305	146	11	30	Phase C-N / Phase C-A Voltage 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0519H	01306	146	12	30	Phase C-N / Phase C-A Voltage 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051AH	01307	146	13	30	Phase C-N / Phase C-A Voltage 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051BH	01308	146	14	30	Phase C-N / Phase C-A Voltage 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051CH	01309	146	15	30	Phase C-N / Phase C-A Voltage 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051DH	01310	147	0	30	Phase C-N / Phase C-A Voltage 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051EH	01311	147	1	30	Phase C-N / Phase C-A Voltage 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
051FH	01312	147	2	30	Phase C-N / Phase C-A Voltage 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0520H	01313	147	3	30	Phase C-N / Phase C-A Voltage 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0521H	01314	147	4	30	Phase C-N / Phase C-A Voltage 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0522H	01315	147	5	30	Phase C-N / Phase C-A Voltage 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0523H	01316	147	6	30	Phase C-N / Phase C-A Voltage 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0524H	01317	147	7	30	Phase C-N / Phase C-A Voltage 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0525H	01318	147	8	30	Phase C-N / Phase C-A Voltage 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0526H	01319	147	9	30	Phase C-N / Phase C-A Voltage 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0527H	01320	147	10	30	Phase C-N / Phase C-A Voltage 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0528H	01321	147	11	30	Phase C-N / Phase C-A Voltage 43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0529H	01322	147	12	30	Phase C-N / Phase C-A Voltage 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052AH	01323	147	13	30	Phase C-N / Phase C-A Voltage 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052BH	01324	147	14	30	Phase C-N / Phase C-A Voltage 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052CH	01325	147	15	30	Phase C-N / Phase C-A Voltage 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052DH	01326	147	16	30	Phase C-N / Phase C-A Voltage 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052EH	01327	147	17	30	Phase C-N / Phase C-A Voltage 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
052FH	01328	147	18	30	Phase C-N / Phase C-A Voltage 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0530H	01329	147	19	30	Phase C-N / Phase C-A Voltage 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0531H	01330	147	20	30	Phase C-N / Phase C-A Voltage 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0532H	01331	147	21	30	Phase C-N / Phase C-A Voltage 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0533H	01332	147	22	30	Phase C-N / Phase C-A Voltage 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0534H	01333	147	23	30	Phase C-N / Phase C-A Voltage 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0535H	01334	147	24	30	Phase C-N / Phase C-A Voltage 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0536H	01335	147	25	30	Phase C-N / Phase C-A Voltage 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0537H	01336	147	26	30	Phase C-N / Phase C-A Voltage 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0538H	01337	147	27	30	Phase C-N / Phase C-A Voltage 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0539H	01338	147	28	30	Phase C-N / Phase C-A Voltage 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053AH	01339	147	29	30	Phase C-N / Phase C-A Voltage 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053BH	01340	147	30	30	Phase C-N / Phase C-A Voltage 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053CH	01341	147	31	30	Phase C-N / Phase C-A Voltage 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053DH	01342	148	0	30	Phase C-N / Phase C-A Voltage 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053EH	01343	148	1	30	Phase C-N / Phase C-A Voltage 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
053FH	01344	148	2	30	Phase C-N / Phase C-A Voltage 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0540H	01345	148	3	30	Phase C-N / Phase C-A Voltage 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0541H	01346	148	4	30	Phase C-N / Phase C-A Voltage 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0542H	01347	148	5	30	Phase C-N / Phase C-A Voltage 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0543H	01348	148	6	30	Phase C-N / Phase C-A Voltage 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0544H	01349	148	7	30	Phase C-N / Phase C-A Voltage 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0545H	01350	148	8	30	Phase C-N / Phase C-A Voltage 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0546H	01351	148	9	30	Phase C-N / Phase C-A Voltage 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0547H	01352	148	10	30	Phase C-N / Phase C-A Voltage 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0548H	01353	148	11	30	Phase C-N / Phase C-A Voltage 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0549H	01354	148	12	30	Phase C-N / Phase C-A Voltage 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054AH	01355	148	13	30	Phase C-N / Phase C-A Voltage 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054BH	01356	148	14	30	Phase C-N / Phase C-A Voltage 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054CH	01357	148	15	30	Phase C-N / Phase C-A Voltage 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054DH	01358	148	16	30	Phase C-N / Phase C-A Voltage 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054EH	01359	148	17	30	Phase C-N / Phase C-A Voltage 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
054FH	01360	148	18	30	Phase C-N / Phase C-A Voltage 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0550H	01361	148	19	30	Phase C-N / Phase C-A Voltage 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0551H	01362	148	20	30	Phase C-N / Phase C-A Voltage 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0552H	01363	148	21	30	Phase C-N / Phase C-A Voltage 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0553H	01364	148	22	30	Phase C-N / Phase C-A Voltage 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0554H	01365	148	23	30	Phase C-N / Phase C-A Voltage 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0555H	01366	148	24	30	Phase C-N / Phase C-A Voltage 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0556H	01367	148	25	30	Phase C-N / Phase C-A Voltage 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0557H	01368	148	26	30	Phase C-N / Phase C-A Voltage 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0558H	01369	148	27	30	Phase C-N / Phase C-A Voltage 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0559H	01370	148	28	30	Phase C-N / Phase C-A Voltage 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055AH	01371	148	29	30	Phase C-N / Phase C-A Voltage 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055BH	01372	148	30	30	Phase C-N / Phase C-A Voltage 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055CH	01373	148	31	30	Phase C-N / Phase C-A Voltage 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055DH	01374	148	32	30	Phase C-N / Phase C-A Voltage 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055EH	01375	148	33	30	Phase C-N / Phase C-A Voltage 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
055FH	01376	148	34	30	Phase C-N / Phase C-A Voltage 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0560H	01377	148	35	30	Phase C-N / Phase C-A Voltage 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0561H	01378	148	36	30	Phase C-N / Phase C-A Voltage 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0562H	01379	148	37	30	Phase C-N / Phase C-A Voltage 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0563H	01380	148	38	30	Phase C-N / Phase C-A Voltage 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0564H	01381	148	39	30	Phase C-N / Phase C-A Voltage 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0565H	01382	148	40	30	Phase C-N / Phase C-A Voltage 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0566H	01383	148	41	30	Phase C-N / Phase C-A Voltage 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0567H	01384	148	42	30	Phase C-N / Phase C-A Voltage 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0568H	01385	148	43	30	Phase C-N / Phase C-A Voltage 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0569H	01386	148	44	30	Phase C-N / Phase C-A Voltage 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056AH	01387	148	45	30	Phase C-N / Phase C-A Voltage 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056BH	01388	148	46	30	Phase C-N / Phase C-A Voltage 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056CH	01389	148	47	30	Phase C-N / Phase C-A Voltage 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056DH	01390	148	48	30	Phase C-N / Phase C-A Voltage 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056EH	01391	148	49	30	Phase C-N / Phase C-A Voltage 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
056FH	01392	148	50	30	Phase C-N / Phase C-A Voltage 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0570H	01393	148	51	30	Phase C-N / Phase C-A Voltage 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0571H	01394	148	52	30	Phase C-N / Phase C-A Voltage 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0572H	01395	148	53	30	Phase C-N / Phase C-A Voltage 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0573H	01396	148	54	30	Phase C-N / Phase C-A Voltage 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0574H	01397	148	55	30	Phase C-N / Phase C-A Voltage 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0575H	01398	148	56	30	Phase C-N / Phase C-A Voltage 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0576H	01399	148	57	30	Phase C-N / Phase C-A Voltage 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0577H	01400	148	58	30	Phase C-N / Phase C-A Voltage 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0578H	01401	148	59	30	Phase C-N / Phase C-A Voltage 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0579H	01402	148	60	30	Phase C-N / Phase C-A Voltage 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057AH	01403	148	61	30	Phase C-N / Phase C-A Voltage 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057BH	01404	148	62	30	Phase C-N / Phase C-A Voltage 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057CH	01405	148	63	30	Phase C-N / Phase C-A Voltage 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057DH	01406	149	0	30	Phase A Current 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057EH	01407	149	1	30	Phase A Current 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
057FH	01408	149	2	30	Phase A Current 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0580H	01409	149	3	30	Phase A Current 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0581H	01410	149	4	30	Phase A Current 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0582H	01411	149	5	30	Phase A Current 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0583H	01412	149	6	30	Phase A Current 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0584H	01413	149	7	30	Phase A Current 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0585H	01414	150	0	30	Phase A Current 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0586H	01415	150	1	30	Phase A Current 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0587H	01416	150	2	30	Phase A Current 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0588H	01417	150	3	30	Phase A Current 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0589H	01418	150	4	30	Phase A Current 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058AH	01419	150	5	30	Phase A Current 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058BH	01420	150	6	30	Phase A Current 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058CH	01421	150	7	30	Phase A Current 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058DH	01422	151	0	30	Phase A Current 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058EH	01423	151	1	30	Phase A Current 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
058FH	01424	151	2	30	Phase A Current 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0590H	01425	151	3	30	Phase A Current 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0591H	01426	151	4	30	Phase A Current 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0592H	01427	151	5	30	Phase A Current 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0593H	01428	151	6	30	Phase A Current 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0594H	01429	151	7	30	Phase A Current 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0595H	01430	151	8	30	Phase A Current 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0596H	01431	151	9	30	Phase A Current 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0597H	01432	151	10	30	Phase A Current 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0598H	01433	151	11	30	Phase A Current 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0599H	01434	151	12	30	Phase A Current 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059AH	01435	151	13	30	Phase A Current 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059BH	01436	151	14	30	Phase A Current 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059CH	01437	151	15	30	Phase A Current 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059DH	01438	152	0	30	Phase A Current 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059EH	01439	152	1	30	Phase A Current 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
059FH	01440	152	2	30	Phase A Current 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A0H	01441	152	3	30	Phase A Current 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A1H	01442	152	4	30	Phase A Current 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A2H	01443	152	5	30	Phase A Current 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A3H	01444	152	6	30	Phase A Current 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A4H	01445	152	7	30	Phase A Current 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A5H	01446	152	8	30	Phase A Current 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A6H	01447	152	9	30	Phase A Current 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A7H	01448	152	10	30	Phase A Current 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05A8H	01449	152	11	30	Phase A Current43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
05A9H	01450	152	12	30	Phase A Current 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05AAH	01451	152	13	30	Phase A Current 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05ABH	01452	152	14	30	Phase A Current 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05ACH	01453	152	15	30	Phase A Current 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05ADH	01454	152	16	30	Phase A Current 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05AEH	01455	152	17	30	Phase A Current 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05AFH	01456	152	18	30	Phase A Current 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B0H	01457	152	19	30	Phase A Current 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B1H	01458	152	20	30	Phase A Current 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B2H	01459	152	21	30	Phase A Current 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B3H	01460	152	22	30	Phase A Current 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B4H	01461	152	23	30	Phase A Current 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B5H	01462	152	24	30	Phase A Current 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B6H	01463	152	25	30	Phase A Current 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B7H	01464	152	26	30	Phase A Current 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B8H	01465	152	27	30	Phase A Current 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05B9H	01466	152	28	30	Phase A Current 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BAH	01467	152	29	30	Phase A Current 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BBH	01468	152	30	30	Phase A Current 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BCH	01469	152	31	30	Phase A Current 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BDH	01470	153	0	30	Phase A Current 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BEH	01471	153	1	30	Phase A Current 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05BFH	01472	153	2	30	Phase A Current 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C0H	01473	153	3	30	Phase A Current 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C1H	01474	153	4	30	Phase A Current 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C2H	01475	153	5	30	Phase A Current 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C3H	01476	153	6	30	Phase A Current 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C4H	01477	153	7	30	Phase A Current 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C5H	01478	153	8	30	Phase A Current 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C6H	01479	153	9	30	Phase A Current 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C7H	01480	153	10	30	Phase A Current 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C8H	01481	153	11	30	Phase A Current 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05C9H	01482	153	12	30	Phase A Current 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
05CAH	01483	153	13	30	Phase A Current 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05CBH	01484	153	14	30	Phase A Current 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05CCH	01485	153	15	30	Phase A Current 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05CDH	01486	153	16	30	Phase A Current 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05CEH	01487	153	17	30	Phase A Current 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05CFH	01488	153	18	30	Phase A Current 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D0H	01489	153	19	30	Phase A Current 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D1H	01490	153	20	30	Phase A Current 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D2H	01491	153	21	30	Phase A Current 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D3H	01492	153	22	30	Phase A Current 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D4H	01493	153	23	30	Phase A Current 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D5H	01494	153	24	30	Phase A Current 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D6H	01495	153	25	30	Phase A Current 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D7H	01496	153	26	30	Phase A Current 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D8H	01497	153	27	30	Phase A Current 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05D9H	01498	153	28	30	Phase A Current 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DAH	01499	153	29	30	Phase A Current 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DBH	01500	153	30	30	Phase A Current 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DCH	01501	153	31	30	Phase A Current 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DDH	01502	153	32	30	Phase A Current 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DEH	01503	153	33	30	Phase A Current 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05DFH	01504	153	34	30	Phase A Current 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E0H	01505	153	35	30	Phase A Current 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E1H	01506	153	36	30	Phase A Current 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E2H	01507	153	37	30	Phase A Current 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E3H	01508	153	38	30	Phase A Current 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E4H	01509	153	39	30	Phase A Current 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E5H	01510	153	40	30	Phase A Current 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E6H	01511	153	41	30	Phase A Current 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E7H	01512	153	42	30	Phase A Current 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E8H	01513	153	43	30	Phase A Current 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05E9H	01514	153	44	30	Phase A Current 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05EAH	01515	153	45	30	Phase A Current 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
05EBH	01516	153	46	30	Phase A Current 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05ECH	01517	153	47	30	Phase A Current 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05EDH	01518	153	48	30	Phase A Current 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05EEH	01519	153	49	30	Phase A Current 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05EFH	01520	153	50	30	Phase A Current 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F0H	01521	153	51	30	Phase A Current 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F1H	01522	153	52	30	Phase A Current 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F2H	01523	153	53	30	Phase A Current 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F3H	01524	153	54	30	Phase A Current 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F4H	01525	153	55	30	Phase A Current 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F5H	01526	153	56	30	Phase A Current 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F6H	01527	153	57	30	Phase A Current 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F7H	01528	153	58	30	Phase A Current 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F8H	01529	153	59	30	Phase A Current 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05F9H	01530	153	60	30	Phase A Current 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FAH	01531	153	61	30	Phase A Current 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FBH	01532	153	62	30	Phase A Current 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FCH	01533	153	63	30	Phase A Current 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FDH	01534	154	0	30	Phase B Current 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FEH	01535	154	1	30	Phase B Current 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
05FFH	01536	154	2	30	Phase B Current 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0600H	01537	154	3	30	Phase B Current 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0601H	01538	154	4	30	Phase B Current 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0602H	01539	154	5	30	Phase B Current 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0603H	01540	154	6	30	Phase B Current 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0604H	01541	154	7	30	Phase B Current 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0605H	01542	155	0	30	Phase B Current 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0606H	01543	155	1	30	Phase B Current 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0607H	01544	155	2	30	Phase B Current 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0608H	01545	155	3	30	Phase B Current 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0609H	01546	155	4	30	Phase B Current 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
060AH	01547	155	5	30	Phase B Current 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
060BH	01548	155	6	30	Phase B Current 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
060CH	01549	155	7	30	Phase B Current 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
060DH	01550	156	0	30	Phase B Current 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
060EH	01551	156	1	30	Phase B Current 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
060FH	01552	156	2	30	Phase B Current 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0610H	01553	156	3	30	Phase B Current 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0611H	01554	156	4	30	Phase B Current 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0612H	01555	156	5	30	Phase B Current 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0613H	01556	156	6	30	Phase B Current 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0614H	01557	156	7	30	Phase B Current 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0615H	01558	156	8	30	Phase B Current 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0616H	01559	156	9	30	Phase B Current 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0617H	01560	156	10	30	Phase B Current 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0618H	01561	156	11	30	Phase B Current 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0619H	01562	156	12	30	Phase B Current 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061AH	01563	156	13	30	Phase B Current 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061BH	01564	156	14	30	Phase B Current 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061CH	01565	156	15	30	Phase B Current 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061DH	01566	157	0	30	Phase B Current 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061EH	01567	157	1	30	Phase B Current 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
061FH	01568	157	2	30	Phase B Current 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0620H	01569	157	3	30	Phase B Current 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0621H	01570	157	4	30	Phase B Current 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0622H	01571	157	5	30	Phase B Current 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0623H	01572	157	6	30	Phase B Current 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0624H	01573	157	7	30	Phase B Current 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0625H	01574	157	8	30	Phase B Current 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0626H	01575	157	9	30	Phase B Current 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0627H	01576	157	10	30	Phase B Current 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0628H	01577	157	11	30	Phase B Current43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0629H	01578	157	12	30	Phase B Current 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
062AH	01579	157	13	30	Phase B Current 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
062BH	01580	157	14	30	Phase B Current 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
062CH	01581	157	15	30	Phase B Current 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
062DH	01582	157	16	30	Phase B Current 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
062EH	01583	157	17	30	Phase B Current 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
062FH	01584	157	18	30	Phase B Current 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0630H	01585	157	19	30	Phase B Current 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0631H	01586	157	20	30	Phase B Current 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0632H	01587	157	21	30	Phase B Current 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0633H	01588	157	22	30	Phase B Current 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0634H	01589	157	23	30	Phase B Current 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0635H	01590	157	24	30	Phase B Current 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0636H	01591	157	25	30	Phase B Current 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0637H	01592	157	26	30	Phase B Current 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0638H	01593	157	27	30	Phase B Current 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0639H	01594	157	28	30	Phase B Current 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063AH	01595	157	29	30	Phase B Current 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063BH	01596	157	30	30	Phase B Current 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063CH	01597	157	31	30	Phase B Current 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063DH	01598	158	0	30	Phase B Current 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063EH	01599	158	1	30	Phase B Current 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
063FH	01600	158	2	30	Phase B Current 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0640H	01601	158	3	30	Phase B Current 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0641H	01602	158	4	30	Phase B Current 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0642H	01603	158	5	30	Phase B Current 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0643H	01604	158	6	30	Phase B Current 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0644H	01605	158	7	30	Phase B Current 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0645H	01606	158	8	30	Phase B Current 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0646H	01607	158	9	30	Phase B Current 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0647H	01608	158	10	30	Phase B Current 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0648H	01609	158	11	30	Phase B Current 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0649H	01610	158	12	30	Phase B Current 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
064AH	01611	158	13	30	Phase B Current 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
064BH	01612	158	14	30	Phase B Current 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
064CH	01613	158	15	30	Phase B Current 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
064DH	01614	158	16	30	Phase B Current 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
064EH	01615	158	17	30	Phase B Current 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
064FH	01616	158	18	30	Phase B Current 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0650H	01617	158	19	30	Phase B Current 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0651H	01618	158	20	30	Phase B Current 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0652H	01619	158	21	30	Phase B Current 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0653H	01620	158	22	30	Phase B Current 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0654H	01621	158	23	30	Phase B Current 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0655H	01622	158	24	30	Phase B Current 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0656H	01623	158	25	30	Phase B Current 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0657H	01624	158	26	30	Phase B Current 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0658H	01625	158	27	30	Phase B Current 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0659H	01626	158	28	30	Phase B Current 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065AH	01627	158	29	30	Phase B Current 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065BH	01628	158	30	30	Phase B Current 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065CH	01629	158	31	30	Phase B Current 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065DH	01630	158	32	30	Phase B Current 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065EH	01631	158	33	30	Phase B Current 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
065FH	01632	158	34	30	Phase B Current 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0660H	01633	158	35	30	Phase B Current 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0661H	01634	158	36	30	Phase B Current 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0662H	01635	158	37	30	Phase B Current 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0663H	01636	158	38	30	Phase B Current 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0664H	01637	158	39	30	Phase B Current 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0665H	01638	158	40	30	Phase B Current 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0666H	01639	158	41	30	Phase B Current 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0667H	01640	158	42	30	Phase B Current 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0668H	01641	158	43	30	Phase B Current 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0669H	01642	158	44	30	Phase B Current 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
066AH	01643	158	45	30	Phase B Current 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
066BH	01644	158	46	30	Phase B Current 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
066CH	01645	158	47	30	Phase B Current 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
066DH	01646	158	48	30	Phase B Current 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
066EH	01647	158	49	30	Phase B Current 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
066FH	01648	158	50	30	Phase B Current 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0670H	01649	158	51	30	Phase B Current 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0671H	01650	158	52	30	Phase B Current 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0672H	01651	158	53	30	Phase B Current 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0673H	01652	158	54	30	Phase B Current 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0674H	01653	158	55	30	Phase B Current 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0675H	01654	158	56	30	Phase B Current 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0676H	01655	158	57	30	Phase B Current 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0677H	01656	158	58	30	Phase B Current 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0678H	01657	158	59	30	Phase B Current 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0679H	01658	158	60	30	Phase B Current 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067AH	01659	158	61	30	Phase B Current 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067BH	01660	158	62	30	Phase B Current 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067CH	01661	158	63	30	Phase B Current 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067DH	01662	159	0	30	Phase C Current 0th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067EH	01663	159	1	30	Phase C Current 1st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
067FH	01664	159	2	30	Phase C Current 2nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0680H	01665	159	3	30	Phase C Current 3rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0681H	01666	159	4	30	Phase C Current 4th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0682H	01667	159	5	30	Phase C Current 5th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0683H	01668	159	6	30	Phase C Current 6th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0684H	01669	159	7	30	Phase C Current 7th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0685H	01670	160	0	30	Phase C Current 8th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0686H	01671	160	1	30	Phase C Current 9th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0687H	01672	160	2	30	Phase C Current 10th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0688H	01673	160	3	30	Phase C Current 11th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0689H	01674	160	4	30	Phase C Current 12th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068AH	01675	160	5	30	Phase C Current 13th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068BH	01676	160	6	30	Phase C Current 14th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068CH	01677	160	7	30	Phase C Current 15th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068DH	01678	161	0	30	Phase C Current 16th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068EH	01679		1	30	Phase C Current 17th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
068FH	01680	161	2	30	Phase C Current 18th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0690H	01681	161	3	30	Phase C Current 19th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0691H	01682	161	4	30	Phase C Current 20th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0692H	01683	161	5	30	Phase C Current 21st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0693H	01684	161	6	30	Phase C Current 22nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0694H	01685	161	7	30	Phase C Current 23rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0695H	01686	161	8	30	Phase C Current 24th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0696H	01687	161	9	30	Phase C Current 25th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0697H	01688	161	10	30	Phase C Current 26th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0698H	01689	161	11	30	Phase C Current 27th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
0699H	01690	161	12	30	Phase C Current 28th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069AH	01691	161	13	30	Phase C Current 29th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069BH	01692	161	14	30	Phase C Current 30th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069CH	01693	161	15	30	Phase C Current 31st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069DH	01694	162	0	30	Phase C Current 32nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069EH	01695	162	1	30	Phase C Current 33rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
069FH	01696	162	2	30	Phase C Current 34th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A0H	01697	162	3	30	Phase C Current 35th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A1H	01698	162	4	30	Phase C Current 36th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A2H	01699	162	5	30	Phase C Current 37th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A3H	01700	162	6	30	Phase C Current 38th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A4H	01701	162	7	30	Phase C Current 39th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A5H	01702	162	8	30	Phase C Current 40th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A6H	01703	162	9	30	Phase C Current 41st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A7H	01704	162	10	30	Phase C Current 42nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A8H	01705	162	11	30	Phase C Current43rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06A9H	01706	162	12	30	Phase C Current 44th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06AAH	01707	162	13	30	Phase C Current 45th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06ABH	01708	162	14	30	Phase C Current 46th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06ACH	01709	162	15	30	Phase C Current 47th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06ADH	01710	162	16	30	Phase C Current 48th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06AEH	01711	162	17	30	Phase C Current 49th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06AFH	01712	162	18	30	Phase C Current 50th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B0H	01713	162	19	30	Phase C Current 51st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
06B1H	01714	162	20	30	Phase C Current 52nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B2H	01715	162	21	30	Phase C Current 53rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B3H	01716	162	22	30	Phase C Current 54th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B4H	01717	162	23	30	Phase C Current 55th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B5H	01718	162	24	30	Phase C Current 56th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B6H	01719	162	25	30	Phase C Current 57th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B7H	01720	162	26	30	Phase C Current 58th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B8H	01721	162	27	30	Phase C Current 59th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06B9H	01722	162	28	30	Phase C Current 60th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BAH	01723	162	29	30	Phase C Current 61st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BBH	01724	162	30	30	Phase C Current 62nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BCH	01725	162	31	30	Phase C Current 63rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BDH	01726	163	0	30	Phase C Current 64th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BEH	01727	163	1	30	Phase C Current 65th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06BFH	01728	163	2	30	Phase C Current 66th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C0H	01729	163	3	30	Phase C Current 67th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C1H	01730	163	4	30	Phase C Current 68th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C2H	01731	163	5	30	Phase C Current 69th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C3H	01732	163	6	30	Phase C Current 70th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C4H	01733	163	7	30	Phase C Current 71st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C5H	01734	163	8	30	Phase C Current 72nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C6H	01735	163	9	30	Phase C Current 73rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C7H	01736	163	10	30	Phase C Current 74th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C8H	01737	163	11	30	Phase C Current 75th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06C9H	01738	163	12	30	Phase C Current 76th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CAH	01739	163	13	30	Phase C Current 77th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CBH	01740	163	14	30	Phase C Current 78th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CCH	01741	163	15	30	Phase C Current 79th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CDH	01742	163	16	30	Phase C Current 80th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CEH	01743	163	17	30	Phase C Current 81st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06CFH	01744	163	18	30	Phase C Current 82nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D0H	01745	163	19	30	Phase C Current 83rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D1H	01746	163	20	30	Phase C Current 84th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
06D2H	01747	163	21	30	Phase C Current 85th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D3H	01748	163	22	30	Phase C Current 86th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D4H	01749	163	23	30	Phase C Current 87th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D5H	01750	163	24	30	Phase C Current 88th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D6H	01751	163	25	30	Phase C Current 89th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D7H	01752	163	26	30	Phase C Current 90th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D8H	01753	163	27	30	Phase C Current 91st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06D9H	01754	163	28	30	Phase C Current 92nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DAH	01755	163	29	30	Phase C Current 93rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DBH	01756	163	30	30	Phase C Current 94th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DCH	01757	163	31	30	Phase C Current 95th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DDH	01758	163	32	30	Phase C Current 96th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DEH	01759	163	33	30	Phase C Current 97th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06DFH	01760	163	34	30	Phase C Current 98th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E0H	01761	163	35	30	Phase C Current 99th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E1H	01762	163	36	30	Phase C Current 100th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E2H	01763	163	37	30	Phase C Current 101st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E3H	01764	163	38	30	Phase C Current 102nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E4H	01765	163	39	30	Phase C Current 103rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E5H	01766	163	40	30	Phase C Current 104th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E6H	01767	163	41	30	Phase C Current 105th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E7H	01768	163	42	30	Phase C Current 106th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E8H	01769	163	43	30	Phase C Current 107th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06E9H	01770	163	44	30	Phase C Current 108th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06EAH	01771	163	45	30	Phase C Current 109th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06EBH	01772	163	46	30	Phase C Current 110th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06ECH	01773	163	47	30	Phase C Current 111th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06EDH	01774	163	48	30	Phase C Current 112th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06EEH	01775	163	49	30	Phase C Current 113th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06EFH	01776	163	50	30	Phase C Current 114th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F0H	01777	163	51	30	Phase C Current 115th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F1H	01778	163	52	30	Phase C Current 116th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F2H	01779	163	53	30	Phase C Current 117th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
06F3H	01780	163	54	30	Phase C Current 118th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F4H	01781	163	55	30	Phase C Current 119th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F5H	01782	163	56	30	Phase C Current 120th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F6H	01783	163	57	30	Phase C Current 121st Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F7H	01784	163	58	30	Phase C Current 122nd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F8H	01785	163	59	30	Phase C Current 123rd Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06F9H	01786	163	60	30	Phase C Current 124th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06FAH	01787	163	61	30	Phase C Current 125th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06FBH	01788	163	62	30	Phase C Current 126th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
06FCH	01789	163	63	30	Phase C Current 127th Harmonic Magnitude	+327.67% / -327.68%	0.01%	F10	R	
					Harmonic Phase Block					
06FDH	01790	164	0	30	Phase A-N / Phase A-B Voltage 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
06FEH	01791	164	1	30	Phase A-N / Phase A-B Voltage 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
06FFH	01792	164	2	30	Phase A-N / Phase A-B Voltage 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0700H	01793	164	3	30	Phase A-N / Phase A-B Voltage 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0701H	01794	164	4	30	Phase A-N / Phase A-B Voltage 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0702H	01795	164	5	30	Phase A-N / Phase A-B Voltage 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0703H	01796	164	6	30	Phase A-N / Phase A-B Voltage 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0704H	01797	164	7	30	Phase A-N / Phase A-B Voltage 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0705H	01798	165	0	30	Phase A-N / Phase A-B Voltage 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0706H	01799	165	1	30	Phase A-N / Phase A-B Voltage 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0707H	01800	165	2	30	Phase A-N / Phase A-B Voltage 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0708H	01801	165	3	30	Phase A-N / Phase A-B Voltage 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0709H	01802	165	4	30	Phase A-N / Phase A-B Voltage 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070AH	01803	165	5	30	Phase A-N / Phase A-B Voltage 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070BH	01804	165	6	30	Phase A-N / Phase A-B Voltage 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070CH	01805	165	7	30	Phase A-N / Phase A-B Voltage 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070DH	01806	166	0	30	Phase A-N / Phase A-B Voltage 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070EH	01807	166	1	30	Phase A-N / Phase A-B Voltage 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
070FH	01808	166	2	30	Phase A-N / Phase A-B Voltage 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0710H	01809	166	3	30	Phase A-N / Phase A-B Voltage 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0711H	01810	166	4	30	Phase A-N / Phase A-B Voltage 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0712H	01811	166	5	30	Phase A-N / Phase A-B Voltage 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0713H	01812	166	6	30	Phase A-N / Phase A-B Voltage 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0714H	01813	166	7	30	Phase A-N / Phase A-B Voltage 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0715H	01814	166	8	30	Phase A-N / Phase A-B Voltage 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0716H	01815	166	9	30	Phase A-N / Phase A-B Voltage 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0717H	01816	166	10	30	Phase A-N / Phase A-B Voltage 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0718H	01817	166	11	30	Phase A-N / Phase A-B Voltage 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0719H	01818	166	12	30	Phase A-N / Phase A-B Voltage 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071AH	01819	166	13	30	Phase A-N / Phase A-B Voltage 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071BH	01820	166	14	30	Phase A-N / Phase A-B Voltage 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071CH	01821	166	15	30	Phase A-N / Phase A-B Voltage 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071DH	01822	167	0	30	Phase A-N / Phase A-B Voltage 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071EH	01823	167	1	30	Phase A-N / Phase A-B Voltage 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
071FH	01824	167	2	30	Phase A-N / Phase A-B Voltage 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0720H	01825	167	3	30	Phase A-N / Phase A-B Voltage 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0721H	01826	167	4	30	Phase A-N / Phase A-B Voltage 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0722H	01827	167	5	30	Phase A-N / Phase A-B Voltage 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0723H	01828	167	6	30	Phase A-N / Phase A-B Voltage 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0724H	01829	167	7	30	Phase A-N / Phase A-B Voltage 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0725H	01830	167	8	30	Phase A-N / Phase A-B Voltage 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0726H	01831	167	9	30	Phase A-N / Phase A-B Voltage 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0727H	01832	167	10	30	Phase A-N / Phase A-B Voltage 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0728H	01833	167	11	30	Phase A-N / Phase A-B Voltage 43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0729H	01834	167	12	30	Phase A-N / Phase A-B Voltage 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072AH	01835	167	13	30	Phase A-N / Phase A-B Voltage 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072BH	01836	167	14	30	Phase A-N / Phase A-B Voltage 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072CH	01837	167	15	30	Phase A-N / Phase A-B Voltage 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072DH	01838	167	16	30	Phase A-N / Phase A-B Voltage 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072EH	01839	167	17	30	Phase A-N / Phase A-B Voltage 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
072FH	01840	167	18	30	Phase A-N / Phase A-B Voltage 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0730H	01841	167	19	30	Phase A-N / Phase A-B Voltage 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0731H	01842	167	20	30	Phase A-N / Phase A-B Voltage 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0732H	01843	167	21	30	Phase A-N / Phase A-B Voltage 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0733H	01844	167	22	30	Phase A-N / Phase A-B Voltage 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0734H	01845	167	23	30	Phase A-N / Phase A-B Voltage 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0735H	01846	167	24	30	Phase A-N / Phase A-B Voltage 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0736H	01847	167	25	30	Phase A-N / Phase A-B Voltage 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0737H	01848	167	26	30	Phase A-N / Phase A-B Voltage 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0738H	01849	167	27	30	Phase A-N / Phase A-B Voltage 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0739H	01850	167	28	30	Phase A-N / Phase A-B Voltage 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073AH	01851	167	29	30	Phase A-N / Phase A-B Voltage 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073BH	01852	167	30	30	Phase A-N / Phase A-B Voltage 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073CH	01853	167	31	30	Phase A-N / Phase A-B Voltage 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073DH	01854	168	0	30	Phase A-N / Phase A-B Voltage 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073EH	01855	168	1	30	Phase A-N / Phase A-B Voltage 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
073FH	01856	168	2	30	Phase A-N / Phase A-B Voltage 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0740H	01857	168	3	30	Phase A-N / Phase A-B Voltage 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0741H	01858	168	4	30	Phase A-N / Phase A-B Voltage 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0742H	01859	168	5	30	Phase A-N / Phase A-B Voltage 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0743H	01860	168	6	30	Phase A-N / Phase A-B Voltage 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0744H	01861	168	7	30	Phase A-N / Phase A-B Voltage 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0745H	01862	168	8	30	Phase A-N / Phase A-B Voltage 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0746H	01863	168	9	30	Phase A-N / Phase A-B Voltage 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0747H	01864	168	10	30	Phase A-N / Phase A-B Voltage 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0748H	01865	168	11	30	Phase A-N / Phase A-B Voltage 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0749H	01866	168	12	30	Phase A-N / Phase A-B Voltage 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074AH	01867	168	13	30	Phase A-N / Phase A-B Voltage 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074BH	01868	168	14	30	Phase A-N / Phase A-B Voltage 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074CH	01869	168	15	30	Phase A-N / Phase A-B Voltage 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074DH	01870	168	16	30	Phase A-N / Phase A-B Voltage 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074EH	01871	168	17	30	Phase A-N / Phase A-B Voltage 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
074FH	01872	168	18	30	Phase A-N / Phase A-B Voltage 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0750H	01873	168	19	30	Phase A-N / Phase A-B Voltage 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0751H	01874	168	20	30	Phase A-N / Phase A-B Voltage 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0752H	01875	168	21	30	Phase A-N / Phase A-B Voltage 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0753H	01876	168	22	30	Phase A-N / Phase A-B Voltage 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0754H	01877	168	23	30	Phase A-N / Phase A-B Voltage 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0755H	01878	168	24	30	Phase A-N / Phase A-B Voltage 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0756H	01879	168	25	30	Phase A-N / Phase A-B Voltage 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0757H	01880	168	26	30	Phase A-N / Phase A-B Voltage 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0758H	01881	168	27	30	Phase A-N / Phase A-B Voltage 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0759H	01882	168	28	30	Phase A-N / Phase A-B Voltage 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075AH	01883	168	29	30	Phase A-N / Phase A-B Voltage 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075BH	01884	168	30	30	Phase A-N / Phase A-B Voltage 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075CH	01885	168	31	30	Phase A-N / Phase A-B Voltage 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075DH	01886	168	32	30	Phase A-N / Phase A-B Voltage 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075EH	01887	168	33	30	Phase A-N / Phase A-B Voltage 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
075FH	01888	168	34	30	Phase A-N / Phase A-B Voltage 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0760H	01889	168	35	30	Phase A-N / Phase A-B Voltage 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0761H	01890	168	36	30	Phase A-N / Phase A-B Voltage 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0762H	01891	168	37	30	Phase A-N / Phase A-B Voltage 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0763H	01892	168	38	30	Phase A-N / Phase A-B Voltage 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0764H	01893	168	39	30	Phase A-N / Phase A-B Voltage 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0765H	01894	168	40	30	Phase A-N / Phase A-B Voltage 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0766H	01895	168	41	30	Phase A-N / Phase A-B Voltage 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0767H	01896	168	42	30	Phase A-N / Phase A-B Voltage 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0768H	01897	168	43	30	Phase A-N / Phase A-B Voltage 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0769H	01898	168	44	30	Phase A-N / Phase A-B Voltage 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076AH	01899	168	45	30	Phase A-N / Phase A-B Voltage 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076BH	01900	168	46	30	Phase A-N / Phase A-B Voltage 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076CH	01901	168	47	30	Phase A-N / Phase A-B Voltage 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076DH	01902	168	48	30	Phase A-N / Phase A-B Voltage 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076EH	01903	168	49	30	Phase A-N / Phase A-B Voltage 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
076FH	01904	168	50	30	Phase A-N / Phase A-B Voltage 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0770H	01905	168	51	30	Phase A-N / Phase A-B Voltage 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0771H	01906	168	52	30	Phase A-N / Phase A-B Voltage 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0772H	01907	168	53	30	Phase A-N / Phase A-B Voltage 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0773H	01908	168	54	30	Phase A-N / Phase A-B Voltage 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0774H	01909	168	55	30	Phase A-N / Phase A-B Voltage 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0775H	01910	168	56	30	Phase A-N / Phase A-B Voltage 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0776H	01911	168	57	30	Phase A-N / Phase A-B Voltage 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0777H	01912	168	58	30	Phase A-N / Phase A-B Voltage 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0778H	01913	168	59	30	Phase A-N / Phase A-B Voltage 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0779H	01914	168	60	30	Phase A-N / Phase A-B Voltage 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077AH	01915	168	61	30	Phase A-N / Phase A-B Voltage 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077BH	01916	168	62	30	Phase A-N / Phase A-B Voltage 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077CH	01917	168	63	30	Phase A-N / Phase A-B Voltage 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077DH	01918	169	0	30	Phase B-N / Phase B-C Voltage 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077EH	01919	169	1	30	Phase B-N / Phase B-C Voltage 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
077FH	01920	169	2	30	Phase B-N / Phase B-C Voltage 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0780H	01921	169	3	30	Phase B-N / Phase B-C Voltage 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0781H	01922	169	4	30	Phase B-N / Phase B-C Voltage 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0782H	01923	169	5	30	Phase B-N / Phase B-C Voltage 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0783H	01924	169	6	30	Phase B-N / Phase B-C Voltage 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0784H	01925	169	7	30	Phase B-N / Phase B-C Voltage 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0785H	01926	170	0	30	Phase B-N / Phase B-C Voltage 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0786H	01927	170	1	30	Phase B-N / Phase B-C Voltage 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0787H	01928	170	2	30	Phase B-N / Phase B-C Voltage 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0788H	01929	170	3	30	Phase B-N / Phase B-C Voltage 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0789H	01930	170	4	30	Phase B-N / Phase B-C Voltage 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078AH	01931	170	5	30	Phase B-N / Phase B-C Voltage 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078BH	01932	170	6	30	Phase B-N / Phase B-C Voltage 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078CH	01933	170	7	30	Phase B-N / Phase B-C Voltage 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078DH	01934	171	0	30	Phase B-N / Phase B-C Voltage 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078EH	01935	171	1	30	Phase B-N / Phase B-C Voltage 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
078FH	01936	171	2	30	Phase B-N / Phase B-C Voltage 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0790H	01937	171	3	30	Phase B-N / Phase B-C Voltage 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0791H	01938	171	4	30	Phase B-N / Phase B-C Voltage 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0792H	01939	171	5	30	Phase B-N / Phase B-C Voltage 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0793H	01940	171	6	30	Phase B-N / Phase B-C Voltage 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0794H	01941	171	7	30	Phase B-N / Phase B-C Voltage 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0795H	01942	171	8	30	Phase B-N / Phase B-C Voltage 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0796H	01943	171	9	30	Phase B-N / Phase B-C Voltage 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0797H	01944	171	10	30	Phase B-N / Phase B-C Voltage 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0798H	01945	171	11	30	Phase B-N / Phase B-C Voltage 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0799H	01946	171	12	30	Phase B-N / Phase B-C Voltage 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079AH	01947	171	13	30	Phase B-N / Phase B-C Voltage 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079BH	01948	171	14	30	Phase B-N / Phase B-C Voltage 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079CH	01949	171	15	30	Phase B-N / Phase B-C Voltage 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079DH	01950	172	0	30	Phase B-N / Phase B-C Voltage 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079EH	01951	172	1	30	Phase B-N / Phase B-C Voltage 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
079FH	01952	172	2	30	Phase B-N / Phase B-C Voltage 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A0H	01953	172	3	30	Phase B-N / Phase B-C Voltage 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A1H	01954	172	4	30	Phase B-N / Phase B-C Voltage 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A2H	01955	172	5	30	Phase B-N / Phase B-C Voltage 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A3H	01956	172	6	30	Phase B-N / Phase B-C Voltage 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A4H	01957	172	7	30	Phase B-N / Phase B-C Voltage 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A5H	01958	172	8	30	Phase B-N / Phase B-C Voltage 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A6H	01959	172	9	30	Phase B-N / Phase B-C Voltage 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A7H	01960	172	10	30	Phase B-N / Phase B-C Voltage 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A8H	01961	172	11	30	Phase B-N / Phase B-C Voltage 43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07A9H	01962	172	12	30	Phase B-N / Phase B-C Voltage 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07AAH	01963	172	13	30	Phase B-N / Phase B-C Voltage 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07ABH	01964	172	14	30	Phase B-N / Phase B-C Voltage 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07ACH	01965	172	15	30	Phase B-N / Phase B-C Voltage 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07ADH	01966	172	16	30	Phase B-N / Phase B-C Voltage 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07AEH	01967	172	17	30	Phase B-N / Phase B-C Voltage 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07AFH	01968	172	18	30	Phase B-N / Phase B-C Voltage 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B0H	01969	172	19	30	Phase B-N / Phase B-C Voltage 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B1H	01970	172	20	30	Phase B-N / Phase B-C Voltage 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B2H	01971	172	21	30	Phase B-N / Phase B-C Voltage 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B3H	01972	172	22	30	Phase B-N / Phase B-C Voltage 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B4H	01973	172	23	30	Phase B-N / Phase B-C Voltage 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B5H	01974	172	24	30	Phase B-N / Phase B-C Voltage 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B6H	01975	172	25	30	Phase B-N / Phase B-C Voltage 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B7H	01976	172	26	30	Phase B-N / Phase B-C Voltage 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
07B8H	01977	172	27	30	Phase B-N / Phase B-C Voltage 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07B9H	01978	172	28	30	Phase B-N / Phase B-C Voltage 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BAH	01979	172	29	30	Phase B-N / Phase B-C Voltage 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BBH	01980	172	30	30	Phase B-N / Phase B-C Voltage 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BCH	01981	172	31	30	Phase B-N / Phase B-C Voltage 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BDH	01982	173	0	30	Phase B-N / Phase B-C Voltage 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BEH	01983	173	1	30	Phase B-N / Phase B-C Voltage 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07BFH	01984	173	2	30	Phase B-N / Phase B-C Voltage 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C0H	01985	173	3	30	Phase B-N / Phase B-C Voltage 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C1H	01986	173	4	30	Phase B-N / Phase B-C Voltage 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C2H	01987	173	5	30	Phase B-N / Phase B-C Voltage 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C3H	01988	173	6	30	Phase B-N / Phase B-C Voltage 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C4H	01989	173	7	30	Phase B-N / Phase B-C Voltage 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C5H	01990	173	8	30	Phase B-N / Phase B-C Voltage 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C6H	01991	173	9	30	Phase B-N / Phase B-C Voltage 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C7H	01992	173	10	30	Phase B-N / Phase B-C Voltage 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C8H	01993	173	11	30	Phase B-N / Phase B-C Voltage 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07C9H	01994	173	12	30	Phase B-N / Phase B-C Voltage 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CAH	01995	173	13	30	Phase B-N / Phase B-C Voltage 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CBH	01996	173	14	30	Phase B-N / Phase B-C Voltage 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CCH	01997	173	15	30	Phase B-N / Phase B-C Voltage 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CDH	01998	173	16	30	Phase B-N / Phase B-C Voltage 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CEH	01999	173	17	30	Phase B-N / Phase B-C Voltage 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07CFH	02000	173	18	30	Phase B-N / Phase B-C Voltage 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D0H	02001	173	19	30	Phase B-N / Phase B-C Voltage 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D1H	02002	173	20	30	Phase B-N / Phase B-C Voltage 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D2H	02003	173	21	30	Phase B-N / Phase B-C Voltage 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D3H	02004	173	22	30	Phase B-N / Phase B-C Voltage 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D4H	02005	173	23	30	Phase B-N / Phase B-C Voltage 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D5H	02006	173	24	30	Phase B-N / Phase B-C Voltage 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D6H	02007	173	25	30	Phase B-N / Phase B-C Voltage 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D7H	02008	173	26	30	Phase B-N / Phase B-C Voltage 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07D8H	02009	173	27	30	Phase B-N / Phase B-C Voltage 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
07D9H	02010	173	28	30	Phase B-N / Phase B-C Voltage 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DAH	02011	173	29	30	Phase B-N / Phase B-C Voltage 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DBH	02012	173	30	30	Phase B-N / Phase B-C Voltage 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DCH	02013	173	31	30	Phase B-N / Phase B-C Voltage 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DDH	02014	173	32	30	Phase B-N / Phase B-C Voltage 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DEH	02015	173	33	30	Phase B-N / Phase B-C Voltage 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07DFH	02016	173	34	30	Phase B-N / Phase B-C Voltage 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E0H	02017	173	35	30	Phase B-N / Phase B-C Voltage 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E1H	02018	173	36	30	Phase B-N / Phase B-C Voltage 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E2H	02019	173	37	30	Phase B-N / Phase B-C Voltage 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E3H	02020	173	38	30	Phase B-N / Phase B-C Voltage 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E4H	02021	173	39	30	Phase B-N / Phase B-C Voltage 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E5H	02022	173	40	30	Phase B-N / Phase B-C Voltage 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E6H	02023	173	41	30	Phase B-N / Phase B-C Voltage 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E7H	02024	173	42	30	Phase B-N / Phase B-C Voltage 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E8H	02025	173	43	30	Phase B-N / Phase B-C Voltage 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07E9H	02026	173	44	30	Phase B-N / Phase B-C Voltage 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07EAH	02027	173	45	30	Phase B-N / Phase B-C Voltage 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07EBH	02028	173	46	30	Phase B-N / Phase B-C Voltage 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07ECH	02029	173	47	30	Phase B-N / Phase B-C Voltage 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07EDH	02030	173	48	30	Phase B-N / Phase B-C Voltage 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07EEH	02031	173	49	30	Phase B-N / Phase B-C Voltage 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07EFH	02032	173	50	30	Phase B-N / Phase B-C Voltage 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F0H	02033	173	51	30	Phase B-N / Phase B-C Voltage 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F1H	02034	173	52	30	Phase B-N / Phase B-C Voltage 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F2H	02035	173	53	30	Phase B-N / Phase B-C Voltage 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F3H	02036	173	54	30	Phase B-N / Phase B-C Voltage 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F4H	02037	173	55	30	Phase B-N / Phase B-C Voltage 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F5H	02038	173	56	30	Phase B-N / Phase B-C Voltage 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F6H	02039	173	57	30	Phase B-N / Phase B-C Voltage 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F7H	02040	173	58	30	Phase B-N / Phase B-C Voltage 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F8H	02041	173	59	30	Phase B-N / Phase B-C Voltage 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07F9H	02042	173	60	30	Phase B-N / Phase B-C Voltage 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
07FAH	02043	173	61	30	Phase B-N / Phase B-C Voltage 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07FBH	02044	173	62	30	Phase B-N / Phase B-C Voltage 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07FCH	02045	173	63	30	Phase B-N / Phase B-C Voltage 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07FDH	02046	174	0	30	Phase C-N / Phase C-A Voltage 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07FEH	02047	174	1	30	Phase C-N / Phase C-A Voltage 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
07FFH	02048	174	2	30	Phase C-N / Phase C-A Voltage 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0800H	02049	174	3	30	Phase C-N / Phase C-A Voltage 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0801H	02050	174	4	30	Phase C-N / Phase C-A Voltage 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0802H	02051	174	5	30	Phase C-N / Phase C-A Voltage 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0803H	02052	174	6	30	Phase C-N / Phase C-A Voltage 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0804H	02053	174	7	30	Phase C-N / Phase C-A Voltage 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0805H	02054	175	0	30	Phase C-N / Phase C-A Voltage 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0806H	02055	175	1	30	Phase C-N / Phase C-A Voltage 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0807H	02056	175	2	30	Phase C-N / Phase C-A Voltage 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0808H	02057	175	3	30	Phase C-N / Phase C-A Voltage 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0809H	02058	175	4	30	Phase C-N / Phase C-A Voltage 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080AH	02059	175	5	30	Phase C-N / Phase C-A Voltage 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080BH	02060	175	6	30	Phase C-N / Phase C-A Voltage 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080CH	02061	175	7	30	Phase C-N / Phase C-A Voltage 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080DH	02062	176	0	30	Phase C-N / Phase C-A Voltage 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080EH	02063	176	1	30	Phase C-N / Phase C-A Voltage 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
080FH	02064	176	2	30	Phase C-N / Phase C-A Voltage 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0810H	02065	176	3	30	Phase C-N / Phase C-A Voltage 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0811H	02066	176	4	30	Phase C-N / Phase C-A Voltage 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0812H	02067	176	5	30	Phase C-N / Phase C-A Voltage 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0813H	02068	176	6	30	Phase C-N / Phase C-A Voltage 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0814H	02069	176	7	30	Phase C-N / Phase C-A Voltage 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0815H	02070	176	8	30	Phase C-N / Phase C-A Voltage 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0816H	02071	176	9	30	Phase C-N / Phase C-A Voltage 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0817H	02072	176	10	30	Phase C-N / Phase C-A Voltage 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0818H	02073	176	11	30	Phase C-N / Phase C-A Voltage 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0819H	02074	176	12	30	Phase C-N / Phase C-A Voltage 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
081AH	02075	176	13	30	Phase C-N / Phase C-A Voltage 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
081BH	02076	176	14	30	Phase C-N / Phase C-A Voltage 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
081CH	02077	176	15	30	Phase C-N / Phase C-A Voltage 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
081DH	02078	177	0	30	Phase C-N / Phase C-A Voltage 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
081EH	02079	177	1	30	Phase C-N / Phase C-A Voltage 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
081FH	02080	177	2	30	Phase C-N / Phase C-A Voltage 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0820H	02081	177	3	30	Phase C-N / Phase C-A Voltage 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0821H	02082	177	4	30	Phase C-N / Phase C-A Voltage 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0822H	02083	177	5	30	Phase C-N / Phase C-A Voltage 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0823H	02084	177	6	30	Phase C-N / Phase C-A Voltage 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0824H	02085	177	7	30	Phase C-N / Phase C-A Voltage 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0825H	02086	177	8	30	Phase C-N / Phase C-A Voltage 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0826H	02087	177	9	30	Phase C-N / Phase C-A Voltage 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0827H	02088	177	10	30	Phase C-N / Phase C-A Voltage 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0828H	02089	177	11	30	Phase C-N / Phase C-A Voltage 43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0829H	02090	177	12	30	Phase C-N / Phase C-A Voltage 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082AH	02091	177	13	30	Phase C-N / Phase C-A Voltage 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082BH	02092	177	14	30	Phase C-N / Phase C-A Voltage 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082CH	02093	177	15	30	Phase C-N / Phase C-A Voltage 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082DH	02094	177	16	30	Phase C-N / Phase C-A Voltage 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082EH	02095	177	17	30	Phase C-N / Phase C-A Voltage 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
082FH	02096	177	18	30	Phase C-N / Phase C-A Voltage 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0830H	02097	177	19	30	Phase C-N / Phase C-A Voltage 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0831H	02098	177	20	30	Phase C-N / Phase C-A Voltage 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0832H	02099	177	21	30	Phase C-N / Phase C-A Voltage 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0833H	02100	177	22	30	Phase C-N / Phase C-A Voltage 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0834H	02101	177	23	30	Phase C-N / Phase C-A Voltage 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0835H	02102	177	24	30	Phase C-N / Phase C-A Voltage 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0836H	02103	177	25	30	Phase C-N / Phase C-A Voltage 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0837H	02104	177	26	30	Phase C-N / Phase C-A Voltage 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0838H	02105	177	27	30	Phase C-N / Phase C-A Voltage 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0839H	02106	177	28	30	Phase C-N / Phase C-A Voltage 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
083AH	02107	177	29	30	Phase C-N / Phase C-A Voltage 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
083BH	02108	177	30	30	Phase C-N / Phase C-A Voltage 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
083CH	02109	177	31	30	Phase C-N / Phase C-A Voltage 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
083DH	02110	178	0	30	Phase C-N / Phase C-A Voltage 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
083EH	02111	178	1	30	Phase C-N / Phase C-A Voltage 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
083FH	02112	178	2	30	Phase C-N / Phase C-A Voltage 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0840H	02113	178	3	30	Phase C-N / Phase C-A Voltage 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0841H	02114	178	4	30	Phase C-N / Phase C-A Voltage 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0842H	02115	178	5	30	Phase C-N / Phase C-A Voltage 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0843H	02116	178	6	30	Phase C-N / Phase C-A Voltage 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0844H	02117	178	7	30	Phase C-N / Phase C-A Voltage 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0845H	02118	178	8	30	Phase C-N / Phase C-A Voltage 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0846H	02119	178	9	30	Phase C-N / Phase C-A Voltage 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0847H	02120	178	10	30	Phase C-N / Phase C-A Voltage 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0848H	02121	178	11	30	Phase C-N / Phase C-A Voltage 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0849H	02122	178	12	30	Phase C-N / Phase C-A Voltage 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084AH	02123	178	13	30	Phase C-N / Phase C-A Voltage 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084BH	02124	178	14	30	Phase C-N / Phase C-A Voltage 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084CH	02125	178	15	30	Phase C-N / Phase C-A Voltage 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084DH	02126	178	16	30	Phase C-N / Phase C-A Voltage 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084EH	02127	178	17	30	Phase C-N / Phase C-A Voltage 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
084FH	02128	178	18	30	Phase C-N / Phase C-A Voltage 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0850H	02129	178	19	30	Phase C-N / Phase C-A Voltage 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0851H	02130	178	20	30	Phase C-N / Phase C-A Voltage 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0852H	02131	178	21	30	Phase C-N / Phase C-A Voltage 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0853H	02132	178	22	30	Phase C-N / Phase C-A Voltage 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0854H	02133	178	23	30	Phase C-N / Phase C-A Voltage 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0855H	02134	178	24	30	Phase C-N / Phase C-A Voltage 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0856H	02135	178	25	30	Phase C-N / Phase C-A Voltage 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0857H	02136	178	26	30	Phase C-N / Phase C-A Voltage 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0858H	02137	178	27	30	Phase C-N / Phase C-A Voltage 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0859H	02138	178	28	30	Phase C-N / Phase C-A Voltage 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
085AH	02139	178	29	30	Phase C-N / Phase C-A Voltage 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
085BH	02140	178	30	30	Phase C-N / Phase C-A Voltage 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
085CH	02141	178	31	30	Phase C-N / Phase C-A Voltage 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
085DH	02142	178	32	30	Phase C-N / Phase C-A Voltage 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
085EH	02143	178	33	30	Phase C-N / Phase C-A Voltage 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
085FH	02144	178	34	30	Phase C-N / Phase C-A Voltage 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0860H	02145	178	35	30	Phase C-N / Phase C-A Voltage 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0861H	02146	178	36	30	Phase C-N / Phase C-A Voltage 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0862H	02147	178	37	30	Phase C-N / Phase C-A Voltage 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0863H	02148	178	38	30	Phase C-N / Phase C-A Voltage 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0864H	02149	178	39	30	Phase C-N / Phase C-A Voltage 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0865H	02150	178	40	30	Phase C-N / Phase C-A Voltage 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0866H	02151	178	41	30	Phase C-N / Phase C-A Voltage 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0867H	02152	178	42	30	Phase C-N / Phase C-A Voltage 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0868H	02153	178	43	30	Phase C-N / Phase C-A Voltage 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0869H	02154	178	44	30	Phase C-N / Phase C-A Voltage 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086AH	02155	178	45	30	Phase C-N / Phase C-A Voltage 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086BH	02156	178	46	30	Phase C-N / Phase C-A Voltage 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086CH	02157	178	47	30	Phase C-N / Phase C-A Voltage 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086DH	02158	178	48	30	Phase C-N / Phase C-A Voltage 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086EH	02159	178	49	30	Phase C-N / Phase C-A Voltage 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
086FH	02160	178	50	30	Phase C-N / Phase C-A Voltage 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0870H	02161	178	51	30	Phase C-N / Phase C-A Voltage 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0871H	02162	178	52	30	Phase C-N / Phase C-A Voltage 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0872H	02163	178	53	30	Phase C-N / Phase C-A Voltage 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0873H	02164	178	54	30	Phase C-N / Phase C-A Voltage 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0874H	02165	178	55	30	Phase C-N / Phase C-A Voltage 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0875H	02166	178	56	30	Phase C-N / Phase C-A Voltage 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0876H	02167	178	57	30	Phase C-N / Phase C-A Voltage 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0877H	02168	178	58	30	Phase C-N / Phase C-A Voltage 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0878H	02169	178	59	30	Phase C-N / Phase C-A Voltage 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0879H	02170	178	60	30	Phase C-N / Phase C-A Voltage 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
087AH	02171	178	61	30	Phase C-N / Phase C-A Voltage 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
087BH	02172	178	62	30	Phase C-N / Phase C-A Voltage 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
087CH	02173	178	63	30	Phase C-N / Phase C-A Voltage 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
087DH	02174	179	0	30	Phase A Current 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
087EH	02175	179	1	30	Phase A Current 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
087FH	02176	179	2	30	Phase A Current 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0880H	02177	179	3	30	Phase A Current 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0881H	02178	179	4	30	Phase A Current 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0882H	02179	179	5	30	Phase A Current 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0883H	02180	179	6	30	Phase A Current 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0884H	02181	179	7	30	Phase A Current 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0885H	02182	180	0	30	Phase A Current 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0886H	02183	180	1	30	Phase A Current 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0887H	02184	180	2	30	Phase A Current 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0888H	02185	180	3	30	Phase A Current 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0889H	02186	180	4	30	Phase A Current 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088AH	02187	180	5	30	Phase A Current 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088BH	02188	180	6	30	Phase A Current 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088CH	02189	180	7	30	Phase A Current 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088DH	02190	181	0	30	Phase A Current 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088EH	02191	181	1	30	Phase A Current 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
088FH	02192	181	2	30	Phase A Current 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0890H	02193	181	3	30	Phase A Current 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0891H	02194	181	4	30	Phase A Current 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0892H	02195	181	5	30	Phase A Current 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0893H	02196	181	6	30	Phase A Current 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0894H	02197	181	7	30	Phase A Current 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0895H	02198	181	8	30	Phase A Current 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0896H	02199	181	9	30	Phase A Current 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0897H	02200	181	10	30	Phase A Current 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0898H	02201	181	11	30	Phase A Current 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0899H	02202	181	12	30	Phase A Current 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
089AH	02203	181	13	30	Phase A Current 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
089BH	02204	181	14	30	Phase A Current 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
089CH	02205	181	15	30	Phase A Current 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
089DH	02206	182	0	30	Phase A Current 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
089EH	02207	182	1	30	Phase A Current 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
089FH	02208	182	2	30	Phase A Current 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A0H	02209	182	3	30	Phase A Current 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A1H	02210	182	4	30	Phase A Current 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A2H	02211	182	5	30	Phase A Current 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A3H	02212	182	6	30	Phase A Current 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A4H	02213	182	7	30	Phase A Current 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A5H	02214	182	8	30	Phase A Current 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A6H	02215	182	9	30	Phase A Current 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A7H	02216	182	10	30	Phase A Current 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A8H	02217	182	11	30	Phase A Current43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08A9H	02218	182	12	30	Phase A Current 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08AAH	02219	182	13	30	Phase A Current 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08ABH	02220	182	14	30	Phase A Current 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08ACH	02221	182	15	30	Phase A Current 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08ADH	02222	182	16	30	Phase A Current 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08AEH	02223	182	17	30	Phase A Current 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08AFH	02224	182	18	30	Phase A Current 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B0H	02225	182	19	30	Phase A Current 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B1H	02226	182	20	30	Phase A Current 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B2H	02227	182	21	30	Phase A Current 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B3H	02228	182	22	30	Phase A Current 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B4H	02229	182	23	30	Phase A Current 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B5H	02230	182	24	30	Phase A Current 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B6H	02231	182	25	30	Phase A Current 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B7H	02232	182	26	30	Phase A Current 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B8H	02233	182	27	30	Phase A Current 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08B9H	02234	182	28	30	Phase A Current 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BAH	02235	182	29	30	Phase A Current 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BBH	02236	182	30	30	Phase A Current 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BCH	02237	182	31	30	Phase A Current 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BDH	02238	183	0	30	Phase A Current 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BEH	02239	183	1	30	Phase A Current 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08BFH	02240	183	2	30	Phase A Current 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
08C0H	02241	183	3	30	Phase A Current 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C1H	02242	183	4	30	Phase A Current 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C2H	02243	183	5	30	Phase A Current 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C3H	02244	183	6	30	Phase A Current 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C4H	02245	183	7	30	Phase A Current 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C5H	02246	183	8	30	Phase A Current 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C6H	02247	183	9	30	Phase A Current 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C7H	02248	183	10	30	Phase A Current 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C8H	02249	183	11	30	Phase A Current 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08C9H	02250	183	12	30	Phase A Current 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CAH	02251	183	13	30	Phase A Current 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CBH	02252	183	14	30	Phase A Current 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CCH	02253	183	15	30	Phase A Current 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CDH	02254	183	16	30	Phase A Current 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CEH	02255	183	17	30	Phase A Current 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08CFH	02256	183	18	30	Phase A Current 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D0H	02257	183	19	30	Phase A Current 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D1H	02258	183	20	30	Phase A Current 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D2H	02259	183	21	30	Phase A Current 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D3H	02260	183	22	30	Phase A Current 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D4H	02261	183	23	30	Phase A Current 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D5H	02262	183	24	30	Phase A Current 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D6H	02263	183	25	30	Phase A Current 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D7H	02264	183	26	30	Phase A Current 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D8H	02265	183	27	30	Phase A Current 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08D9H	02266	183	28	30	Phase A Current 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DAH	02267	183	29	30	Phase A Current 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DBH	02268	183	30	30	Phase A Current 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DCH	02269	183	31	30	Phase A Current 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DDH	02270	183	32	30	Phase A Current 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DEH	02271	183	33	30	Phase A Current 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08DFH	02272	183	34	30	Phase A Current 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E0H	02273	183	35	30	Phase A Current 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
08E1H	02274	183	36	30	Phase A Current 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E2H	02275	183	37	30	Phase A Current 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E3H	02276	183	38	30	Phase A Current 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E4H	02277	183	39	30	Phase A Current 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E5H	02278	183	40	30	Phase A Current 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E6H	02279	183	41	30	Phase A Current 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E7H	02280	183	42	30	Phase A Current 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E8H	02281	183	43	30	Phase A Current 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08E9H	02282	183	44	30	Phase A Current 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08EAH	02283	183	45	30	Phase A Current 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08EBH	02284	183	46	30	Phase A Current 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08ECH	02285	183	47	30	Phase A Current 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08EDH	02286	183	48	30	Phase A Current 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08EEH	02287	183	49	30	Phase A Current 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08EFH	02288	183	50	30	Phase A Current 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F0H	02289	183	51	30	Phase A Current 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F1H	02290	183	52	30	Phase A Current 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F2H	02291	183	53	30	Phase A Current 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F3H	02292	183	54	30	Phase A Current 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F4H	02293	183	55	30	Phase A Current 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F5H	02294	183	56	30	Phase A Current 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F6H	02295	183	57	30	Phase A Current 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F7H	02296	183	58	30	Phase A Current 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F8H	02297	183	59	30	Phase A Current 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08F9H	02298	183	60	30	Phase A Current 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FAH	02299	183	61	30	Phase A Current 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FBH	02300	183	62	30	Phase A Current 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FCH	02301	183	63	30	Phase A Current 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FDH	02302	184	0	30	Phase B Current 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FEH	02303	184	1	30	Phase B Current 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
08FFH	02304	184	2	30	Phase B Current 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0900H	02305	184	3	30	Phase B Current 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0901H	02306	184	4	30	Phase B Current 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0902H	02307	184	5	30	Phase B Current 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0903H	02308	184	6	30	Phase B Current 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0904H	02309	184	7	30	Phase B Current 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0905H	02310	185	0	30	Phase B Current 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0906H	02311	185	1	30	Phase B Current 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0907H	02312	185	2	30	Phase B Current 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0908H	02313	185	3	30	Phase B Current 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0909H	02314	185	4	30	Phase B Current 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090AH	02315	185	5	30	Phase B Current 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090BH	02316	185	6	30	Phase B Current 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090CH	02317	185	7	30	Phase B Current 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090DH	02318	186	0	30	Phase B Current 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090EH	02319	186	1	30	Phase B Current 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
090FH	02320	186	2	30	Phase B Current 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0910H	02321	186	3	30	Phase B Current 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0911H	02322	186	4	30	Phase B Current 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0912H	02323	186	5	30	Phase B Current 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0913H	02324	186	6	30	Phase B Current 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0914H	02325	186	7	30	Phase B Current 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0915H	02326	186	8	30	Phase B Current 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0916H	02327	186	9	30	Phase B Current 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0917H	02328	186	10	30	Phase B Current 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0918H	02329	186	11	30	Phase B Current 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0919H	02330	186	12	30	Phase B Current 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091AH	02331	186	13	30	Phase B Current 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091BH	02332	186	14	30	Phase B Current 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091CH	02333	186	15	30	Phase B Current 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091DH	02334	187	0	30	Phase B Current 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091EH	02335	187	1	30	Phase B Current 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
091FH	02336	187	2	30	Phase B Current 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0920H	02337	187	3	30	Phase B Current 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0921H	02338	187	4	30	Phase B Current 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0922H	02339	187	5	30	Phase B Current 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0923H	02340	187	6	30	Phase B Current 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0924H	02341	187	7	30	Phase B Current 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0925H	02342	187	8	30	Phase B Current 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0926H	02343	187	9	30	Phase B Current 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0927H	02344	187	10	30	Phase B Current 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0928H	02345	187	11	30	Phase B Current43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0929H	02346	187	12	30	Phase B Current 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092AH	02347	187	13	30	Phase B Current 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092BH	02348	187	14	30	Phase B Current 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092CH	02349	187	15	30	Phase B Current 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092DH	02350	187	16	30	Phase B Current 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092EH	02351	187	17	30	Phase B Current 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
092FH	02352	187	18	30	Phase B Current 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0930H	02353	187	19	30	Phase B Current 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0931H	02354	187	20	30	Phase B Current 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0932H	02355	187	21	30	Phase B Current 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0933H	02356	187	22	30	Phase B Current 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0934H	02357	187	23	30	Phase B Current 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0935H	02358	187	24	30	Phase B Current 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0936H	02359	187	25	30	Phase B Current 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0937H	02360	187	26	30	Phase B Current 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0938H	02361	187	27	30	Phase B Current 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0939H	02362	187	28	30	Phase B Current 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093AH	02363	187	29	30	Phase B Current 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093BH	02364	187	30	30	Phase B Current 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093CH	02365	187	31	30	Phase B Current 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093DH	02366	188	0	30	Phase B Current 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093EH	02367	188	1	30	Phase B Current 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
093FH	02368	188	2	30	Phase B Current 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0940H	02369	188	3	30	Phase B Current 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0941H	02370	188	4	30	Phase B Current 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0942H	02371	188	5	30	Phase B Current 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0943H	02372	188	6	30	Phase B Current 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0944H	02373	188	7	30	Phase B Current 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0945H	02374	188	8	30	Phase B Current 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0946H	02375	188	9	30	Phase B Current 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0947H	02376	188	10	30	Phase B Current 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0948H	02377	188	11	30	Phase B Current 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0949H	02378	188	12	30	Phase B Current 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094AH	02379	188	13	30	Phase B Current 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094BH	02380	188	14	30	Phase B Current 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094CH	02381	188	15	30	Phase B Current 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094DH	02382	188	16	30	Phase B Current 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094EH	02383	188	17	30	Phase B Current 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
094FH	02384	188	18	30	Phase B Current 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0950H	02385	188	19	30	Phase B Current 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0951H	02386	188	20	30	Phase B Current 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0952H	02387	188	21	30	Phase B Current 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0953H	02388	188	22	30	Phase B Current 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0954H	02389	188	23	30	Phase B Current 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0955H	02390	188	24	30	Phase B Current 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0956H	02391	188	25	30	Phase B Current 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0957H	02392	188	26	30	Phase B Current 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0958H	02393	188	27	30	Phase B Current 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0959H	02394	188	28	30	Phase B Current 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095AH	02395	188	29	30	Phase B Current 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095BH	02396	188	30	30	Phase B Current 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095CH	02397	188	31	30	Phase B Current 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095DH	02398	188	32	30	Phase B Current 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095EH	02399	188	33	30	Phase B Current 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
095FH	02400	188	34	30	Phase B Current 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0960H	02401	188	35	30	Phase B Current 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0961H	02402	188	36	30	Phase B Current 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0962H	02403	188	37	30	Phase B Current 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0963H	02404	188	38	30	Phase B Current 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0964H	02405	188	39	30	Phase B Current 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0965H	02406	188	40	30	Phase B Current 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0966H	02407	188	41	30	Phase B Current 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0967H	02408	188	42	30	Phase B Current 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0968H	02409	188	43	30	Phase B Current 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0969H	02410	188	44	30	Phase B Current 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096AH	02411	188	45	30	Phase B Current 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096BH	02412	188	46	30	Phase B Current 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096CH	02413	188	47	30	Phase B Current 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096DH	02414	188	48	30	Phase B Current 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096EH	02415	188	49	30	Phase B Current 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
096FH	02416	188	50	30	Phase B Current 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0970H	02417	188	51	30	Phase B Current 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0971H	02418	188	52	30	Phase B Current 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0972H	02419	188	53	30	Phase B Current 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0973H	02420	188	54	30	Phase B Current 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0974H	02421	188	55	30	Phase B Current 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0975H	02422	188	56	30	Phase B Current 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0976H	02423	188	57	30	Phase B Current 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0977H	02424	188	58	30	Phase B Current 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0978H	02425	188	59	30	Phase B Current 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0979H	02426	188	60	30	Phase B Current 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097AH	02427	188	61	30	Phase B Current 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097BH	02428	188	62	30	Phase B Current 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097CH	02429	188	63	30	Phase B Current 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097DH	02430	189	0	30	Phase C Current 0th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097EH	02431	189	1	30	Phase C Current 1st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
097FH	02432	189	2	30	Phase C Current 2nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0980H	02433	189	3	30	Phase C Current 3rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0981H	02434	189	4	30	Phase C Current 4th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0982H	02435	189	5	30	Phase C Current 5th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0983H	02436	189	6	30	Phase C Current 6th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0984H	02437	189	7	30	Phase C Current 7th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0985H	02438	190	0	30	Phase C Current 8th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0986H	02439	190	1	30	Phase C Current 9th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0987H	02440	190	2	30	Phase C Current 10th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0988H	02441	190	3	30	Phase C Current 11th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0989H	02442	190	4	30	Phase C Current 12th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098AH	02443	190	5	30	Phase C Current 13th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098BH	02444	190	6	30	Phase C Current 14th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098CH	02445	190	7	30	Phase C Current 15th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098DH	02446	191	0	30	Phase C Current 16th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098EH	02447	191	1	30	Phase C Current 17th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
098FH	02448	191	2	30	Phase C Current 18th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0990H	02449	191	3	30	Phase C Current 19th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0991H	02450	191	4	30	Phase C Current 20th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0992H	02451	191	5	30	Phase C Current 21st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0993H	02452	191	6	30	Phase C Current 22nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0994H	02453	191	7	30	Phase C Current 23rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0995H	02454	191	8	30	Phase C Current 24th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0996H	02455	191	9	30	Phase C Current 25th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0997H	02456	191	10	30	Phase C Current 26th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0998H	02457	191	11	30	Phase C Current 27th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
0999H	02458	191	12	30	Phase C Current 28th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099AH	02459	191	13	30	Phase C Current 29th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099BH	02460	191	14	30	Phase C Current 30th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099CH	02461	191	15	30	Phase C Current 31st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099DH	02462	192	0	30	Phase C Current 32nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099EH	02463	192	1	30	Phase C Current 33rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
099FH	02464	192	2	30	Phase C Current 34th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A0H	02465	192	3	30	Phase C Current 35th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A1H	02466	192	4	30	Phase C Current 36th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A2H	02467	192	5	30	Phase C Current 37th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A3H	02468	192	6	30	Phase C Current 38th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A4H	02469	192	7	30	Phase C Current 39th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A5H	02470	192	8	30	Phase C Current 40th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A6H	02471	192	9	30	Phase C Current 41st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
09A7H	02472	192	10	30	Phase C Current 42nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A8H	02473	192	11	30	Phase C Current43rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09A9H	02474	192	12	30	Phase C Current 44th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09AAH	02475	192	13	30	Phase C Current 45th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09ABH	02476	192	14	30	Phase C Current 46th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09ACH	02477	192	15	30	Phase C Current 47th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09ADH	02478	192	16	30	Phase C Current 48th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09AEH	02479	192	17	30	Phase C Current 49th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09AFH	02480	192	18	30	Phase C Current 50th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B0H	02481	192	19	30	Phase C Current 51st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B1H	02482	192	20	30	Phase C Current 52nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B2H	02483	192	21	30	Phase C Current 53rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B3H	02484	192	22	30	Phase C Current 54th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B4H	02485	192	23	30	Phase C Current 55th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B5H	02486	192	24	30	Phase C Current 56th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B6H	02487	192	25	30	Phase C Current 57th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B7H	02488	192	26	30	Phase C Current 58th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B8H	02489	192	27	30	Phase C Current 59th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09B9H	02490	192	28	30	Phase C Current 60th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BAH	02491	192	29	30	Phase C Current 61st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BBH	02492	192	30	30	Phase C Current 62nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BCH	02493	192	31	30	Phase C Current 63rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BDH	02494	193	0	30	Phase C Current 64th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BEH	02495	193	1	30	Phase C Current 65th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09BFH	02496	193	2	30	Phase C Current 66th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C0H	02497	193	3	30	Phase C Current 67th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C1H	02498	193	4	30	Phase C Current 68th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C2H	02499	193	5	30	Phase C Current 69th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C3H	02500	193	6	30	Phase C Current 70th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C4H	02501	193	7	30	Phase C Current 71st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C5H	02502	193	8	30	Phase C Current 72nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C6H	02503	193	9	30	Phase C Current 73rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C7H	02504	193	10	30	Phase C Current 74th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
09C8H	02505	193	11	30	Phase C Current 75th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09C9H	02506	193	12	30	Phase C Current 76th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CAH	02507	193	13	30	Phase C Current 77th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CBH	02508	193	14	30	Phase C Current 78th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CCH	02509	193	15	30	Phase C Current 79th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CDH	02510	193	16	30	Phase C Current 80th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CEH	02511	193	17	30	Phase C Current 81st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09CFH	02512	193	18	30	Phase C Current 82nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D0H	02513	193	19	30	Phase C Current 83rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D1H	02514	193	20	30	Phase C Current 84th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D2H	02515	193	21	30	Phase C Current 85th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D3H	02516	193	22	30	Phase C Current 86th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D4H	02517	193	23	30	Phase C Current 87th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D5H	02518	193	24	30	Phase C Current 88th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D6H	02519	193	25	30	Phase C Current 89th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D7H	02520	193	26	30	Phase C Current 90th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D8H	02521	193	27	30	Phase C Current 91st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09D9H	02522	193	28	30	Phase C Current 92nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DAH	02523	193	29	30	Phase C Current 93rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DBH	02524	193	30	30	Phase C Current 94th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DCH	02525	193	31	30	Phase C Current 95th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DDH	02526	193	32	30	Phase C Current 96th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DEH	02527	193	33	30	Phase C Current 97th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09DFH	02528	193	34	30	Phase C Current 98th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E0H	02529	193	35	30	Phase C Current 99th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E1H	02530	193	36	30	Phase C Current 100th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E2H	02531	193	37	30	Phase C Current 101st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E3H	02532	193	38	30	Phase C Current 102nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E4H	02533	193	39	30	Phase C Current 103rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E5H	02534	193	40	30	Phase C Current 104th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E6H	02535	193	41	30	Phase C Current 105th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E7H	02536	193	42	30	Phase C Current 106th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09E8H	02537	193	43	30	Phase C Current 107th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
09E9H	02538	193	44	30	Phase C Current 108th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09EAH	02539	193	45	30	Phase C Current 109th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09EBH	02540	193	46	30	Phase C Current 110th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09ECH	02541	193	47	30	Phase C Current 111th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09EDH	02542	193	48	30	Phase C Current 112th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09EEH	02543	193	49	30	Phase C Current 113th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09EFH	02544	193	50	30	Phase C Current 114th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F0H	02545	193	51	30	Phase C Current 115th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F1H	02546	193	52	30	Phase C Current 116th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F2H	02547	193	53	30	Phase C Current 117th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F3H	02548	193	54	30	Phase C Current 118th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F4H	02549	193	55	30	Phase C Current 119th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F5H	02550	193	56	30	Phase C Current 120th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F6H	02551	193	57	30	Phase C Current 121st Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F7H	02552	193	58	30	Phase C Current 122nd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F8H	02553	193	59	30	Phase C Current 123rd Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09F9H	02554	193	60	30	Phase C Current 124th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09FAH	02555	193	61	30	Phase C Current 125th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09FBH	02556	193	62	30	Phase C Current 126th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
09FCH	02557	193	63	30	Phase C Current 127th Harmonic Phase	+180 degree / -180 degree	0.01 degree	F9	R	
	THD/K-Factor Block									
09FDH	02558	194	0	30	Phase A-N / Phase A-B Voltage THD	+327.67% / -327.68%	0.01%	F10	R	
09FEH	02559	195	0	30	Phase B-N / Phase B-C Voltage THD	+327.67% / -327.68%	0.01%	F10	R	
09FFH	02560	196	0	30	Phase C-N / Phase C-A Voltage THD	+327.67% / -327.68%	0.01%	F10	R	
0A00H	02561	197	0	30	Phase A Current THD	+327.67% / -327.68%	0.01%	F10	R	
0A01H	02562	198	0	30	Phase B Current THD	+327.67% / -327.68%	0.01%	F10	R	
0A02H	02563	199	0	30	Phase C Current THD	+327.67% / -327.68%	0.01%	F10	R	
0A03H	02564	200	0	30	Phase A Current K-Factor	327.67 / -327.68	0.01	F67	R	
0A04H	02565	201	0	30	Phase B Current K-Factor	327.67 / -327.68	0.01	F67	R	
0A05H	02566	202	0	30	Phase C Current K-Factor	327.67 / -327.68	0.01	F67	R	
	Harmonic Timestamp Block									
0A06H-0A09H	02567-02570	203	0	50	Phase A-N / Phase A-B Voltage Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A0AH-0A0DH	02571-02574	204	0	50	Phase B-N / Phase B-C Voltage Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A0EH-0A11H	02575-02578	205	0	50	Phase C-N / Phase C-A Voltage Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A12H-0A15H	02579-02582	206	0	50	Phase A Current Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0A16H-0A19H	02583-02586	207	0	50	Phase B Current Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A1AH-0A1DH	02587-02590	208	0	50	Phase C Current Harmonic Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Phase Angle Block									
0A1EH-0A21H	02591-02594	209	0	50	Phase Angle Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A22H	02595	210	0	30	Phase Angle Phase A-N Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A23H	02596	210	1	30	Phase Angle Phase B-N Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A24H	02597	210	2	30	Phase Angle Phase C-N Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A25H	02598	211	0	30	Phase Angle Phase A Current	+180 degree / -180 degree	0.01 degree	F9	R	
0A26H	02599	211	1	30	Phase Angle Phase B Current	+180 degree / -180 degree	0.01 degree	F9	R	
0A27H	02600	211	2	30	Phase Angle Phase C Current	+180 degree / -180 degree	0.01 degree	F9	R	
0A28H	02601	212	0	30	Phase Angle Phase A-B Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A29H	02602	212	1	30	Phase Angle Phase B-C Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A2AH	02603	212	2	30	Phase Angle Phase C-A Voltage	+180 degree / -180 degree	0.01 degree	F9	R	
0A2BH	02604	213	0	30	Voltage Phase Sequence			F13	R	
	Block Window Average Block									
0A2CH-0A2FH	02605-02608	214	0	50	Block Window Average Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A30H	02609	215	0	30	Block Window Average Status			F14	R	
0A31H-0A32H	02610-02611	216	0	30	Block Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A33H-0A34H	02612-02613	216	1	30	Block Window Average VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A35H-0A36H	02614-02615	216	2	30	Block Window Average Watt	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
0A37H-0A38H	02616-02617	217	0	30	Maximum Block Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A39H-0A3AH	02618-02619	217	1	30	Maximum Block Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0A32BH-0A3CH	02620-02621	217	2	30	Maximum Block Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A3DH-0A3EH	02622-02623	217	3	30	Maximum Block Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
0A3FH-0A40H	02624-02625	217	4	30	Maximum Block Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0A41H-0A42H	02626-02627	218	0	30	Minimum Block Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A43H-0A44H	02628-02629	218	1	30	Minimum Block Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0A45H-0A46H	02630-02631	218	2	30	Minimum Block Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A47H-0A48H	02632-02633	218	3	30	Minimum Block Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
0A49H-0A4AH	02634-02635	218	4	30	Minimum Block Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0A4BH-0A4CH	02636-02637	219	0	30	Coincident Block Window Average VAR for Maximum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A4DH-0A4EH	02638-02639	219	1	30	Coincident Block Window Average VAR for Maximum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A4FH-0A50H	02640-02641	219	2	30	Coincident Block Window Average VAR for Minimum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0A51H-0A52H	02642-02643	219	3	30	Coincident Block Window Average VAR for Minimum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A53H-0A56H	02644-02647	220	0	50	Maximum Block Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A57H-0A5AH	02648-02651	220	1	50	Maximum Block Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A5BH-0A5EH	02652-02655	220	2	50	Maximum Block Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A5FH-0A62H	02656-02659	220	3	50	Maximum Block Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A63H-0A66H	02660-02663	220	4	50	Maximum Block Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A67H-0A6AH	02664-02667	221	0	50	Minimum Block Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A6BH-0A6EH	02668-02671	221	1	50	Minimum Block Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A6FH-0A72H	02672-02675	221	2	50	Minimum Block Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A73H-0A76H	02676-02679	221	3	50	Minimum Block Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A77H-0A7AH	02680-02683	221	4	50	Minimum Block Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
					Rolling Window/Predictive Rolling Window Block					
0A7BH-0A7EH	02684-02687	222	0	50	Rolling Window Average Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0A7FH	02688	223	0	30	Rolling Window Average Status			F14	R	
0A80H-0A81H	02689-02690	224	0	30	Predictive Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A82H-0A83H	02691-02692	224	1	30	Predictive Rolling Window Average VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A84H-0A85H	02693-02694	224	2	30	Predictive Rolling Window Average W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
0A86H-0A87H	02695-02696	225	0	30	Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A88H-0A89H	02697-02698	225	1	30	Rolling Window Average VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A8AH-0A8BH	02699-02700	225	2	30	Rolling Window Average W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
0A8CH-0A8DH	02701-02702	226	0	30	Maximum Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A8EH-0A8FH	02703-02704	226	1	30	Maximum Rolling Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0A910H-0A91H	02705-02706	226	2	30	Maximum Rolling Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A92H-0A93H	02707-02708	226	3	30	Maximum Rolling Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
0A94H-0A95H	02709-02710	226	4	30	Maximum Rolling Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0A96H-0A97H	02711-02712	227	0	30	Minimum Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
0A98H-0A99H	02713-02714	227	1	30	Minimum Rolling Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0A9AH-0A9BH	02715-02716	227	2	30	Minimum Rolling Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0A9CH-0A9DH	02717-02718	227	3	30	Minimum Rolling Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
0A9EH-0A9FH	02719-02720	227	4	30	Minimum Rolling Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
0AA0H-0AA1H	02721-02722	228	0	30	Coincident Rolling Window Average VAR for Maximum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0AA2H-0AA3H	02723-02724	228	1	30	Coincident Rolling Window Average VAR for Maximum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0AA4H-0AA5H	02725-02726	228	2	30	Coincident Rolling Window Average VAR for Minimum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0AA6H-0AA7H	02727-02728	228	3	30	Coincident Rolling Window Average VAR for Minimum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0AA8H-0AABH	02729-02732	229	0	50	Maximum Rolling Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AACH-0AAFH	02733-02736	229	1	50	Maximum Rolling Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AB0H-0AB3H	02737-02740	229	2	50	Maximum Rolling Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AB4H-0AB7H	02741-02744	229	3	50	Maximum Rolling Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AB8H-0ABBH	02745-02748	229	4	50	Maximum Rolling Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0ABCH-0ABFH	02749-02752	230	0	50	Minimum Rolling Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AC0H-0AC3H	02753-02756	230	1	50	Minimum Rolling Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AC4H-0AC7H	02757-02760	230	2	50	Minimum Rolling Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0AC8H-0ACBH	02761-02764	230	3	50	Minimum Rolling Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0ACCH-0ACFH	02765-02768	230	4	50	Minimum Rolling Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Limit Block										
0AD0H	02769	231	0-15	1	Limit States, Value 1 Comparisons, 1-16			F15	R	
0AD1H	02770	231	16-31	1	Limit States, Value 1 Comparisons, 17-32			F15	R	
0AD2H	02771	232	0-15	1	Limit States, Value 2 Comparisons, 1-16			F15	R	
0AD3H	02772	232	16-31	1	Limit States, Value 2 Comparisons, 17-32			F15	R	
0AD4H	02773	233	0-7	1	Low Speed (Internal) Inputs			F16	R	
Digital Input Option Board Block										
0AD5H	2774	234	0-7	1	Bits in the most significant byte are associated with channel 1 to 8 from 1st option board (slot 3): LSB=channel 1, MSB=channel 8. Least significant byte is undefined.			F17	R	
0AD6H-0AD7H	2775-2776	235	0	20	Accumulator channel 01 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AD8H-0AD9H	2777-2778	235	1	20	Accumulator channel 02 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0ADAH-0ADBH	2779-2780	235	2	20	Accumulator channel 03 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0ADCH-0ADDH	2781-2782	235	3	20	Accumulator channel 04 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0ADEH-0ADFH	2783-2784	235	4	20	Accumulator channel 05 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AE0H-0AE1H	2785-2786	235	5	20	Accumulator channel 06 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AE2H-0AE3H	2787-2788	235	6	20	Accumulator channel 07 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AE4H-0AE5H	2789-2790	235	7	20	Accumulator channel 08 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AE6H	2791	236	0-7	1	Bits in the most significant byte are associated with channel 9 to 16 from 1st option board (slot 3): LSB=channel 9, MSB=channel 16. Least significant byte is undefined.			F17	R	
0AE7H-0AE8H	2792-2793	237	0	20	Accumulator channel 09 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AE9H-0AEAH	2794-2795	237	1	20	Accumulator channel 10 from 1st option board (slot 3).	4,294,967,295/0		F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0AEBH-0AECH	2796-2797	237	2	20	Accumulator channel 11 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AEDH-0AEEH	2798-2799	237	3	20	Accumulator channel 12 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AEFH-0AF0H	2800-2801	237	4	20	Accumulator channel 13 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AF1H-0AF2H	2802-2803	237	5	20	Accumulator channel 14 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AF3H-0AF4H	2804-2805	237	6	20	Accumulator channel 15 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AF5H-0AF6H	2806-2807	237	7	20	Accumulator channel 16 from 1st option board (slot 3).	4,294,967,295/0		F18	R	
0AF7H	2808	238	0-7	1	Bits in the most significant byte are associated with channel 17 to 24 from 2nd option board (slot 4): LSB=channel 17, MSB=channel 24. Least significant byte is undefined.			F17	R	
0AF8H-0AF9H	2809-2810	239	0	20	Accumulator channel 17 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0AFAH-0AFBH	2811-2812	239	1	20	Accumulator channel 18 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0AFCH-0AFDH	2813-2814	239	2	20	Accumulator channel 19 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0AFEH-0AFFH	2815-2816	239	3	20	Accumulator channel 20 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B00H-0B01H	2817-2818	239	4	20	Accumulator channel 21 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B02H-0B03H	2819-2820	239	5	20	Accumulator channel 22 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B04H-0B05H	2821-2822	239	6	20	Accumulator channel 23 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B06H-0B07H	2823-2824	239	7	20	Accumulator channel 24 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B08H	2825	240	0-7	1	Bits in the most significant byte are associated with channel 25 to 32 from 2nd option board (slot 4): LSB=channel 25, MSB=channel 32. Least significant byte is undefined.			F17	R	
0B09H-0B0AH	2826-2827	241	0	20	Accumulator channel 25 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B0BH-0B0CH	2828-2829	241	1	20	Accumulator channel 26 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B0DH-0B0EH	2830-2831	241	2	20	Accumulator channel 27 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B0FH-0B10H	2832-2833	241	3	20	Accumulator channel 28 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B11H-0B12H	2834-2835	241	4	20	Accumulator channel 29 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B13H-0B14H	2836-2837	241	5	20	Accumulator channel 30 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B15H-0B16H	2838-2839	241	6	20	Accumulator channel 31 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
0B17H-0B18H	2840-2841	241	7	20	Accumulator channel 32 from 2nd option board (slot 4).	4,294,967,295/0		F18	R	
	Primary Accumulation Block									
0B19H-0B1CH	02842-02845	242	0	50	Primary Accumulation Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0B1DH-0B20H	02846-02849	243	0	20	Positive Watthour (Quadrant 1 + 4)	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F19	R	
0B21H-0B24H	02850-02853	243	1	20	VAhour while Positive Watthour and Positive VARhour (Quadrant 1)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F19	R	
0B25H-0B28H	02854-02857	243	2	20	Positive VARhour while Positive Watthour (Quadrant 1)	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F19	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0B29H-0B2CH	02858-02861	243	3	20	VAhour while Positive Watthour and Negative VARhour (Quadrant 4)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F19	R	
0B2DH-0B30H	02862-02865	243	4	20	Negative VARhour while Positive Watthour (Quadrant 4)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F19	R	
0B31H-0B34H	02866-02869	243	5	20	Negative Watthour (Quadrant 2 + 3)	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F19	R	
0B35H-0B38H	02870-02873	243	6	20	VAhour while Negative Watthour and Positive VARhour (Quadrant 2)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F19	R	
0B39H-0B3CH	02874-02877	243	7	20	Positive VARhour while Negative Watthour (Quadrant 2)	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F19	R	
0B3DH-0B40H	02878-02881	243	8	20	VAhour while Negative Watthour and Negative VARhour (Quadrant 3)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F19	R	
0B41H-0B44H	02882-02885	243	9	20	Negative VARhour while Negative Watthour (Quadrant 3)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F19	R	
0B45H-0B48H	02886-02889	244	0	20	Positive Watthour (Quadrant 1 + 4)	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F20	R	
0B49H-0B4CH	02890-02893	244	1	20	VAhour while Positive Watthour and Positive VARhour (Quadrant 1)	+9,999,999,999,999,999 VAh / 0 VAh	1 W_H	F20	R	
0B4DH-0B50H	02894-02897	244	2	20	Positive VARhour while Positive Watthour (Quadrant 1)	+9,999,999,999,999,999 VARh / 0 VARh	1 VA_H	F20	R	
0B51H-0B54H	02898-02901	244	3	20	VAhour while Positive Watthour and Negative VARhour (Quadrant 4)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
0B55H-0B58H	02902-02905	244	4	20	Negative VARhour while Positive Watthour (Quadrant 4)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F20	R	
0B59H-0B5CH	02906-02909	244	5	20	Negative Watthour (Quadrant 2 + 3)	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F20	R	
0B5DH-0B60H	02910-02913	244	6	20	VAhour while Negative Watthour and Positive VARhour (Quadrant 2)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
0B61H-0B64H	02914-02917	244	7	20	Positive VARhour while Negative Watthour (Quadrant 2)	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0B65H-0B68H	02918-02921	244	8	20	VAhour while Negative Watthour and Negative VARhour (Quadrant 3)	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
0B69H-0B6CH	02922-02925	244	9	20	Negative VARhour while Negative Watthour (Quadrant 3)	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F20	R	
0B6DH-0B70H	02926-02929	245	0	20	I^2t Phase A	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F19	R	
0B71H-0B74H	02930-02933	245	1	20	I^2t Phase B	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F19	R	
0B75H-0B78H	02934-02937	245	2	20	I^2t Phase C	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F19	R	
0B79H-0B7CH	02938-02941	245	3	20	V^2t Phase A	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F19	R	
0B7DH-0B80H	02942-02945	245	4	20	V^2t Phase B	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F19	R	
0B81H-0B84H	02946-02949	245	5	20	V^2t Phase C	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F19	R	
0B85H-0B88H	02950-02953	246	0	20	I^2t Phase A	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
0B89H-0B8CH	02954-02957	246	1	20	I^2t Phase B	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
0B8DH-0B90H	02958-02961	246	2	20	I^2t Phase C	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
0B91H-0B94H	02962-02965	246	3	20	V^2t Phase A	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
0B95H-0B98H	02966-02969	246	4	20	V^2t Phase B	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
0B99H-0B9CH	02970-02973	246	5	20	V^2t Phase C	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
Time of Use Period Timestamp Block										
0B9DH	02974	247	0	30	Time of Use Status			F14	R	
0B9EH-0BA1H	02975-02978	248	0	50	Time of Use Frozen Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BA2H-0BA5H	02979-02982	248	1	50	Time of Use Frozen End Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BA6H-0BA9H	02983-02986	248	2	50	Time of Use Prior Month Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BAAH-0BADH	02987-02990	248	3	50	Time of Use Prior Month End Time	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0BAEH-0BB1H	02991-02994	248	4	50	Time of Use Active Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BB2H-0BB5H	02995-02998	248	5	50	Time of Use Active End Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BB6H-0BB9H	02999-03002	248	6	50	Time of Use Current Month Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BBAH-0BBDH	03003-03006	248	7	50	Time of Use Current Month End Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
0BBEH	03007	249	0	30	Time of Use Frozen / Prior Month Average Select					
0BBFH	03008	249	1	30	Time of Use Active / Current Month Average Select					
0BC0H-0BC1H	03009-03010	250	0	30	Time of Use Frozen CT Ratio Numerator					
0BC2H-0BC3H	03011-03012	250	1	30	Time of Use Frozen CT Ratio Denominator					
0BC4H-0BC5H	03013-03014	250	2	30	Time of Use Frozen PT Ratio Numerator					
0BC6H-0BC7H	03015-03016	250	3	30	Time of Use Frozen PT Ratio Denominator					
0BC8H-0BC9H	03017-03018	250	4	30	Time of Use Prior Month CT Ratio Numerator					
0BCAH-0BCBH	03019-03020	250	5	30	Time of Use Prior Month CT Ratio Denominator					
0BCCH-0BCDH	03021-03022	250	6	30	Time of Use Prior Month PT Ratio Numerator					
0BCEH-0BCFH	03023-03024	250	7	30	Time of Use Prior Month PT Ratio Denominator					
0BD0H-0BD1H	03025-03026	250	8	30	Time of Use Active CT Ratio Numerator					
0BD2H-0BD3H	03027-03028	250	9	30	Time of Use Active CT Ratio Denominator					
0BD4H-0BD5H	03029-03030	250	10	30	Time of Use Active PT Ratio Numerator					
0BD6H-0BD7H	03031-03032	250	11	30	Time of Use Active PT Ratio Denominator					
0BD8H-0BD9H	03033-03034	250	12	30	Time of Use Current Month CT Ratio Numerator					
0BDAH-0BDBH	03035-03036	250	13	30	Time of Use Current Month CT Ratio Denominator					
0BDCH-0BDDH	03037-03038	250	14	30	Time of Use Current Month PT Ratio Numerator					
0BDEH-0BDFH	03039-03040	250	15	30	Time of Use Current Month PT Ratio Denominator					
	Time of Use Frozen Register 1 Block									
0C08H-0C09H	03081-03082	252	0	30	TOU Frozen Reg 1 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0C0AH-0C0BH	03083-03084	252	1	30	TOU Frozen Reg 1 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0C0CH-0C0DH	03085-03086	252	2	30	TOU Frozen Reg 1 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0C0EH-0C0FH	03087-03088	252	3	30	TOU Frozen Reg 1 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C10H-0C11H	03089-03090	253	0	30	TOU Frozen Reg 1 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C12H-0C13H	03091-03092	253	1	30	TOU Frozen Reg 1 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C14H-0C17H	03093-03096	254	0	50	TOU Frozen Reg 1 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0C18H-0C1BH	03097-03100	254	1	50	TOU Frozen Reg 1 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0C1CH-0C1FH	03101-03104	254	2	50	TOU Frozen Reg 1 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0C20H-0C23H	03105-03108	254	3	50	TOU Frozen Reg 1 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Frozen Register 2 Block									
0C4CH-0C4DH	03149-03150	256	0	30	TOU Frozen Reg 2 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0C4EH-0C4FH	03151-03152	256	1	30	TOU Frozen Reg 2 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0C50H-0C51H	03153-03154	256	2	30	TOU Frozen Reg 2 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0C52H-0C53H	03155-03156	256	3	30	TOU Frozen Reg 2 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C54H-0C55H	03157-03158	257	0	30	TOU Frozen Reg 2 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C56H-0C57H	03159-03160	257	1	30	TOU Frozen Reg 2 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C58H-0C5BH	03161-03164	258	0	50	TOU Frozen Reg 2 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0C5CH-0C5FH	03165-03168	258	1	50	TOU Frozen Reg 2 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0C60H-0C63H	03169-03172	258	2	50	TOU Frozen Reg 2 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0C64H-0C67H	03173-03176	258	3	50	TOU Frozen Reg 2 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Frozen Reg 3 Block									
0C90H-0C91H	03217-03218	260	0	30	TOU Frozen Reg 3 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0C92H-0C93H	03219-03220	260	1	30	TOU Frozen Reg 3 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0C94H-0C95H	03221-03222	260	2	30	TOU Frozen Reg 3 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0C96H-0C97H	03223-03224	260	3	30	TOU Frozen Reg 3 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C98H-0C99H	03225-03226	261	0	30	TOU Frozen Reg 3 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C9AH-0C9BH	03227-03228	261	1	30	TOU Frozen Reg 3 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0C9CH-0C9FH	03229-03232	262	0	50	TOU Frozen Reg 3 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CA0H-0CA3H	03233-03236	262	1	50	TOU Frozen Reg 3 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CA4H-0CA7H	03237-03240	262	2	50	TOU Frozen Reg 3 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CA8H-0CABH	03241-03244	262	3	50	TOU Frozen Reg 3 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Frozen Reg 4 Block									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0CD4H-0CD5H	03285-03286	264	0	30	TOU Frozen Reg 4 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0CD6H-0CD7H	03287-03288	264	1	30	TOU Frozen Reg 4 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0CD8H-0CD9H	03289-03290	264	2	30	TOU Frozen Reg 4 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0CDAH-0CDBH	03291-03292	264	3	30	TOU Frozen Reg 4 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0CDCH-0CDDH	03293-03294	265	0	30	TOU Frozen Reg 4 Coin. Dmd. VAR to Peak Dmd. Rcv. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0CDEH-0CDFH	03295-03296	265	1	30	TOU Frozen Reg 4 Coin. Dmd. VAR to Peak Dmd. Dlv. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0CE0H-0CE3H	03297-03300	266	0	50	TOU Frozen Reg 4 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CE4H-0CE7H	03301-03304	266	1	50	TOU Frozen Reg 4 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CE8H-0CEBH	03305-03308	266	2	50	TOU Frozen Reg 4 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0CECH-0CEFH	03309-03312	266	3	50	TOU Frozen Reg 4 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Frozen Reg 5 Block										
0D18H-0D19H	03353-03354	268	0	30	TOU Frozen Reg 5 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0D1AH-0D1BH	03355-03356	268	1	30	TOU Frozen Reg 5 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0D1CH-0D1DH	03357-03358	268	2	30	TOU Frozen Reg 5 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0D1EH-0D1FH	03359-03360	268	3	30	TOU Frozen Reg 5 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D20H-0D21H	03361-03362	269	0	30	TOU Frozen Reg 5 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D22H-0D23H	03363-03364	269	1	30	TOU Frozen Reg 5 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D24H-0D27H	03365-03368	270	0	50	TOU Frozen Reg 5 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D28H-0D2BH	03369-03372	270	1	50	TOU Frozen Reg 5 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D2CH-0D2FH	03373-03376	270	2	50	TOU Frozen Reg 5 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D30H-0D33H	03377-03380	270	3	50	TOU Frozen Reg 5 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Frozen Reg 6 Block										
0D5CH-0D5DH	03421-03422	272	0	30	TOU Frozen Reg 6 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0D5EH-0D5FH	03423-03424	272	1	30	TOU Frozen Reg 6 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0D60H-0D61H	03425-03426	272	2	30	TOU Frozen Reg 6 Peak Demand Rec . VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0D62H-0D63H	03427-03428	272	3	30	TOU Frozen Reg 6 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D64H-0D65H	03429-03430	273	0	30	TOU Frozen Reg 6 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D66H-0D67H	03431-03432	273	1	30	TOU Frozen Reg 6 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0D68H-0D6BH	03433-03436	274	0	50	TOU Frozen Reg 6 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D6CH-0D6FH	03437-03440	274	1	50	TOU Frozen Reg 6 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D70H-0D73H	03441-03444	274	2	50	TOU Frozen Reg 6 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0D74H-0D77H	03445-03448	274	3	50	TOU Frozen Reg 6 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Frozen Reg 7 Block										
0DA0H-0DA1H	03489-03490	276	0	30	TOU Frozen Reg 7 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0DA2H-0DA3H	03491-03492	276	1	30	TOU Frozen Reg 7 Peak Demand Del . Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0DA4H-0DA5H	03493-03494	276	2	30	TOU Frozen Reg 7 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0DA6H-0DA7H	03495-03496	276	3	30	TOU Frozen Reg 7 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0DA8H-0DA9H	03497-03498	277	0	30	TOU Frozen Reg 7 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0DAAH-0DABH	03499-03500	277	1	30	TOU Frozen Reg 7 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0DACH-0DAFH	03501-03504	278	0	50	TOU Frozen Reg 7 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DB0H-0DB3H	03505-03508	278	1	50	TOU Frozen Reg 7 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DB4H-0DB7H	03509-03512	278	2	50	TOU Frozen Reg 7 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DB8H-0DBBH	03513-03516	278	3	50	TOU Frozen Reg 7 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Frozen Reg 8 Block										
0DE4H-0DE5H	03557-03558	280	0	30	TOU Frozen Reg 8 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0DE6H-0DE7H	03559-03560	280	1	30	TOU Frozen Reg 8 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0DE8H-0DE9H	03561-03562	280	2	30	TOU Frozen Reg 8 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0DEAH-0DEBH	03563-03564	280	3	30	TOU Frozen Reg 8 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0DECH-0DEDH	03565-03566	281	0	30	TOU Frozen Reg 8 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0DEEH-0DEFH	03567-03568	281	1	30	TOU Frozen Reg 8 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0DF0H-0DF3H	03569-03572	282	0	50	TOU Frozen Reg 8 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DF4H-0DF7H	03573-03576	282	1	50	TOU Frozen Reg 8 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DF8H-0DFBH	03577-03580	282	2	50	TOU Frozen Reg 8 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0DFCH-0DFFH	03581-03584	282	3	50	TOU Frozen Reg 8 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Frozen Total Block										
0E28H-0E29H	03625-03626	284	0	30	TOU Frozen Total Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0E2AH-0E2BH	03627-03628	284	1	30	TOU Frozen Total Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0E2CH-0E2DH	03629-03630	284	2	30	TOU Frozen Total Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0E2EH-0E2FH	03631-03632	284	3	30	TOU Frozen Total Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0E30H-0E31H	03633-03634	285	0	30	TOU Frozen Total Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0E32H-0E33H	03635-03636	285	1	30	TOU Frozen Total Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0E34H-0E37H	03637-03640	286	0	50	TOU Frozen Total Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E38H-0E3BH	03641-03644	286	1	50	TOU Frozen Total Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E3CH-0E3FH	03645-03648	286	2	50	TOU Frozen Total Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E40H-0E43H	03649-03652	286	3	50	TOU Frozen Total Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Prior Month Reg 1 Block										
0E6CH-0E6DH	03693-03694	288	0	30	TOU Prior Month Reg 1 Peak Demand Rcv. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0E6EH-0E6FH	03695-03696	288	1	30	TOU Prior Month Reg 1 Peak Demand Dlv. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0E70H-0E71H	03697-03698	288	2	30	TOU Prior Month Reg 1 Peak Demand Rcv. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0E72H-0E73H	03699-03700	288	3	30	TOU Prior Month Reg 1 Peak Demand Dlv. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0E74H-0E75H	03701-03702	289	0	30	TOU Prior Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Rcv. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0E76H-0E77H	03703-03704	289	1	30	TOU Prior Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Dlv. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0E78H-0E7BH	03705-03708	290	0	50	TOU Prior Month Reg 1 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E7CH-0E7FH	03709-03712	290	1	50	TOU Prior Month Reg 1 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E80H-0E83H	03713-03716	290	2	50	TOU Prior Month Reg 1 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0E84H-0E87H	03717-03720	290	3	50	TOU Prior Month Reg 1 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Reg 2 Block									
0EB0H-0EB1H	03761-03762	292	0	30	TOU Prior Month Reg 2 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0EB2H-0EB3H	03763-03764	292	1	30	TOU Prior Month Reg 2 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0EB4H-0EB5H	03765-03766	292	2	30	TOU Prior Month Reg 2 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0EB6H-0EB7H	03767-03768	292	3	30	TOU Prior Month Reg 2 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0EB8H-0EB9H	03769-03770	293	0	30	TOU Prior Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0EBAH-0EBBH	03771-03772	293	1	30	TOU Prior Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0EBCH-0EBFH	03773-03776	294	0	50	TOU Prior Month Reg 2 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0EC0H-0EC3H	03777-03780	294	1	50	TOU Prior Month Reg 2 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0EC4H-0EC7H	03781-03784	294	2	50	TOU Prior Month Reg 2 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0EC8H-0ECBH	03785-03788	294	3	50	TOU Prior Month Reg 2 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Reg 3 Block									
0EF4H-0EF5H	03829-03830	296	0	30	TOU Prior Month Reg 3 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0EF6H-0EF7H	03831-03832	296	1	30	TOU Prior Month Reg 3 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0EF8H-0EF9H	03833-03834	296	2	30	TOU Prior Month Reg 3 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0EFAH-0EFBH	03835-03836	296	3	30	TOU Prior Month Reg 3 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0EFCH-0EFDH	03837-03838	297	0	30	TOU Prior Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0EFEH-0EFFH	03839-03840	297	1	30	TOU Prior Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F00H-0F03H	03841-03844	298	0	50	TOU Prior Month Reg 3 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F04H-0F07H	03845-03848	298	1	50	TOU Prior Month Reg 3 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F08H-0F0BH	03849-03852	298	2	50	TOU Prior Month Reg 3 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F0CH-0F0FH	03853-03856	298	3	50	TOU Prior Month Reg 3 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Reg 4 Block									
0F38H-0F39H	03897-03898	300	0	30	TOU Prior Month Reg 4 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0F3AH-0F3BH	03899-03900	300	1	30	TOU Prior Month Reg 4 Peak Demand Del . Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0F3CH-0F3DH	03901-03902	300	2	30	TOU Prior Month Reg 4 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0F3EH-0F3FH	03903-03904	300	3	30	TOU Prior Month Reg 4 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F40H-0F41H	03905-03906	301	0	30	TOU Prior Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F42H-0F43H	03907-03908	301	1	30	TOU Prior Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F44H-0F47H	03909-03912	302	0	50	TOU Prior Month Reg 4 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F48H-0F4BH	03913-03916	302	1	50	TOU Prior Month Reg 4 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F4CH-0F4FH	03917-03920	302	2	50	TOU Prior Month Reg 4 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0F50H-0F53H	03921-03924	302	3	50	TOU Prior Month Reg 4 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Reg 5 Block									
0F7CH-0F7DH	03965-03966	304	0	30	TOU Prior Month Reg 5 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0F7EH-0F7FH	03967-03968	304	1	30	TOU Prior Month Reg 5 Peak Demand Del . Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0F80H-0F81H	03969-03970	304	2	30	TOU Prior Month Reg 5 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0F82H-0F83H	03971-03972	304	3	30	TOU Prior Month Reg 5 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F84H-0F85H	03973-03974	305	0	30	TOU Prior Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F86H-0F87H	03975-03976	305	1	30	TOU Prior Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0F88H-0F8BH	03977-03980	306	0	50	TOU Prior Month Reg 5 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F8CH-0F8FH	03981-03984	306	1	50	TOU Prior Month Reg 5 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F90H-0F93H	03985-03988	306	2	50	TOU Prior Month Reg 5 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0F94H-0F97H	03989-03992	306	3	50	TOU Prior Month Reg 5 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Reg 6 Block									
0FC0H-0FC1H	04033-04034	308	0	30	TOU Prior Month Reg 6 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
0FC2H-0FC3H	04035-04036	308	1	30	TOU Prior Month Reg 6 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
0FC4H-0FC5H	04037-04038	308	2	30	TOU Prior Month Reg 6 Peak Demand Rec . VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
0FC6H-0FC7H	04039-04040	308	3	30	TOU Prior Month Reg 6 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
0FC8H-0FC9H	04041-04042	309	0	30	TOU Prior Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Rec . Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
0FCAH-0FCBH	04043-04044	309	1	30	TOU Prior Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
0FCCH-0FCFH	04045-04048	310	0	50	TOU Prior Month Reg 6 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0FD0H-0FD3H	04049-04052	310	1	50	TOU Prior Month Reg 6 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0FD4H-0FD7H	04053-04056	310	2	50	TOU Prior Month Reg 6 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
0FD8H-0FDBH	04057-04060	310	3	50	TOU Prior Month Reg 6 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Prior Month Reg 7 Block										
1004H-1005H	04101-04102	312	0	30	TOU Prior Month Reg 7 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1006H-1007H	04103-04104	312	1	30	TOU Prior Month Reg 7 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1008H-1009H	04105-04106	312	2	30	TOU Prior Month Reg 7 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
100AH-100BH	04107-04108	312	3	30	TOU Prior Month Reg 7 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
100CH-100DH	04109-04110	313	0	30	TOU Prior Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
100EH-100FH	04111-04112	313	1	30	TOU Prior Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1010H-1013H	04113-04116	314	0	50	TOU Prior Month Reg 7 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1014H-1017H	04117-04120	314	1	50	TOU Prior Month Reg 7 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1018H-101BH	04121-04124	314	2	50	TOU Prior Month Reg 7 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
101CH-101FH	04125-04128	314	3	50	TOU Prior Month Reg 7 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Prior Month Reg 8 Block										
1048H-1049H	04169-04170	316	0	30	TOU Prior Month Reg 8 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
104AH-104BH	04171-04172	316	1	30	TOU Prior Month Reg 8 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
104CH-104DH	04173-04174	316	2	30	TOU Prior Month Reg 8 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
104EH-104FH	04175-04176	316	3	30	TOU Prior Month Reg 8 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1050H-1051H	04177-04178	317	0	30	TOU Prior Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1052H-1053H	04179-04180	317	1	30	TOU Prior Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1054H-1057H	04181-04184	318	0	50	TOU Prior Month Reg 8 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1058H-105BH	04185-04188	318	1	50	TOU Prior Month Reg 8 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
105CH-105FH	04189-04192	318	2	50	TOU Prior Month Reg 8 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1060H-1063H	04193-04196	318	3	50	TOU Prior Month Reg 8 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Prior Month Total Block									
108CH-108DH	04237-04238	320	0	30	TOU Prior Month Total Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
108EH-108FH	04239-04240	320	1	30	TOU Prior Month Total Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1090H-1091H	04241-04242	320	2	30	TOU Prior Month Total Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
1092H-1093H	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	9
1094H-1095H	04245-04246	321	0	30	TOU Prior Month Total Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1096H-1097H	04247-04248	321	1	30	TOU Prior Month Total Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1098H-109BH	04249-04252	322	0	50	TOU Prior Month Total Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
109CH-109FH	04253-04256	322	1	50	TOU Prior Month Total Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
10A0H-10A3H	04257-04260	322	2	50	TOU Prior Month Total Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
10A4H-10A7H	04261-04264	322	3	50	TOU Prior Month Total Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Active Reg 1 Block									
10D0H-10D1H	04305-04306	324	0	30	TOU Active Reg 1 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
10D2H-10D3H	04307-04308	324	1	30	TOU Active Reg 1 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
10D4H-10D5H	04309-04310	324	2	30	TOU Active Reg 1 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
10D6H-10D7H	04311-04312	324	3	30	TOU Active Reg 1 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
10D8H-10D9H	04313-04314	325	0	30	TOU Active Reg 1 Coin. Dmd. VAR to Peak Dmd. Rec . Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
10DAH-10DBH	04315-04316	325	1	30	TOU Active Reg 1 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
10DCH-10DFH	04317-04320	326	0	50	TOU Active Reg 1 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
10E0H-10E3H	04321-04324	326	1	50	TOU Active Reg 1 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
10E4H-10E7H	04325-04328	326	2	50	TOU Active Reg 1 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
10E8H-10EBH	04329-04332	326	3	50	TOU Active Reg 1 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Reg 2 Block										
1114H-1115H	04373-04374	328	0	30	TOU Active Reg 2 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1116H-1117H	04375-04376	328	1	30	TOU Active Reg 2 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1118H-1119H	04377-04378	328	2	30	TOU Active Reg 2 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
111AH-111BH	04379-04380	328	3	30	TOU Active Reg 2 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
111CH-111DH	04381-04382	329	0	30	TOU Active Reg 2 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
111EH-111FH	04383-04384	329	1	30	TOU Active Reg 2 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1120H-1123H	04385-04388	330	0	50	TOU Active Reg 2 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1124H-1127H	04389-04392	330	1	50	TOU Active Reg 2 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1128H-112BH	04393-04396	330	2	50	TOU Active Reg 2 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
112CH-112FH	04397-04400	330	3	50	TOU Active Reg 2 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Reg 3 Block										
1158H-1159H	04441-04442	332	0	30	TOU Active Reg 3 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
115AH-115BH	04443-04444	332	1	30	TOU Active Reg 3 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
115CH-115DH	04445-04446	332	2	30	TOU Active Reg 3 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
115EH-115FH	04447-04448	332	3	30	TOU Active Reg 3 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1160H-1161H	04449-04450	333	0	30	TOU Active Reg 3 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1162H-1163H	04451-04452	333	1	30	TOU Active Reg 3 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1164H-1167H	04453-04456	334	0	50	TOU Active Reg 3 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1168H-116BH	04457-04460	334	1	50	TOU Active Reg 3 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
116CH-116FH	04461-04464	334	2	50	TOU Active Reg 3 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1170H-1173H	04465-04468	334	3	50	TOU Active Reg 3 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Reg 4 Block										
119CH-119DH	04509-04510	336	0	30	TOU Active Reg 4 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
119EH-119FH	04511-04512	336	1	30	TOU Active Reg 4 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
11A0H-11A1H	04513-04514	336	2	30	TOU Active Reg 4 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
11A2H-11A3H	04515-04516	336	3	30	TOU Active Reg 4 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
11A4H-11A5H	04517-04518	337	0	30	TOU Active Reg 4 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
11A6H-11A7H	04519-04520	337	1	30	TOU Active Reg 4 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
11A8H-11ABH	04521-04524	338	0	50	TOU Active Reg 4 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11ACH-11AFH	04525-04528	338	1	50	TOU Active Reg 4 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11B0H-11B3H	04529-04532	338	2	50	TOU Active Reg 4 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11B4H-11B7H	04533-04536	338	3	50	TOU Active Reg 4 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Reg 5 Block										
11E0H-11E1H	04577-04578	340	0	30	TOU Active Reg 5 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
11E2H-11E3H	04579-04580	340	1	30	TOU Active Reg 5 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
11E4H-11E5H	04581-04582	340	2	30	TOU Active Reg 5 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
11E6H-11E7H	04583-04584	340	3	30	TOU Active Reg 5 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
11E8H-11E9H	04585-04586	341	0	30	TOU Active Reg 5 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
11EAH-11EBH	04587-04588	341	1	30	TOU Active Reg 5 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
11ECH-11EFH	04589-04592	342	0	50	TOU Active Reg 5 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11F0H-11F3H	04593-04596	342	1	50	TOU Active Reg 5 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11F4H-11F7H	04597-04600	342	2	50	TOU Active Reg 5 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
11F8H-11FBH	04601-04604	342	3	50	TOU Active Reg 5 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Active Reg 6 Block									
1224H-1225H	04645-04646	344	0	30	TOU Active Reg 6 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1226H-1227H	04647-04648	344	1	30	TOU Active Reg 6 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1228H-1229H	04649-04650	344	2	30	TOU Active Reg 6 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
122AH-122BH	04651-04652	344	3	30	TOU Active Reg 6 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
122CH-122DH	04653-04654	345	0	30	TOU Active Reg 6 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
122EH-122FH	04655-04656	345	1	30	TOU Active Reg 6 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1230H-1233H	04657-04660	346	0	50	TOU Active Reg 6 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1234H-1237H	04661-04664	346	1	50	TOU Active Reg 6 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1238H-123BH	04665-04668	346	2	50	TOU Active Reg 6 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
123CH-123FH	04669-04672	346	3	50	TOU Active Reg 6 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Active Reg 7 Block									
1268H-1269H	04713-04714	348	0	30	TOU Active Reg 7 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
126AH-126BH	04715-04716	348	1	30	TOU Active Reg 7 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
126CH-126DH	04717-04718	348	2	30	TOU Active Reg 7 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
126EH-126FH	04719-04720	348	3	30	TOU Active Reg 7 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1270H-1271H	04721-04722	349	0	30	TOU Active Reg 7 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1272H-1273H	04723-04724	349	1	30	TOU Active Reg 7 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1274H-1277H	04725-04728	350	0	50	TOU Active Reg 7 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1278H-127BH	04729-04732	350	1	50	TOU Active Reg 7 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
127CH-127FH	04733-04736	350	2	50	TOU Active Reg 7 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1280H-1283H	04737-04740	350	3	50	TOU Active Reg 7 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Reg 8 Block										
12ACH-12ADH	04781-04782	352	0	30	TOU Active Reg 8 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
12AEH-12AFH	04783-04784	352	1	30	TOU Active Reg 8 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
12B0H-12B1H	04785-04786	352	2	30	TOU Active Reg 8 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
12B2H-12B3H	04787-04788	352	3	30	TOU Active Reg 8 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
12B4H-12B5H	04789-04790	353	0	30	TOU Active Reg 8 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
12B6H-12B7H	04791-04792	353	1	30	TOU Active Reg 8 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
12B8H-12BBH	04793-04796	354	0	50	TOU Active Reg 8 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
12BCH-12BFH	04797-04800	354	1	50	TOU Active Reg 8 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
12C0H-12C3H	04801-04804	354	2	50	TOU Active Reg 8 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
12C4H-12C7H	04805-04808	354	3	50	TOU Active Reg 8 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Active Total Block										
12F0H-12F1H	04849-04850	356	0	30	TOU Active Total Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
12F2H-12F3H	04851-04852	356	1	30	TOU Active Total Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
12F4H-12F5H	04853-04854	356	2	30	TOU Active Total Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
12F6H-12F7H	04855-04856	356	3	30	TOU Active Total Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
12F8H-12F9H	04857-04858	357	0	30	TOU Active Total Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
12FAH-12FBH	04859-04860	357	1	30	TOU Active Total Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
12FCH-12FFH	04861-04864	358	0	50	TOU Active Total Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1300H-1303H	04865-04868	358	1	50	TOU Active Total Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1304H-1307H	04869-04872	358	2	50	TOU Active Total Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1308H-130BH	04873-04876	358	3	50	TOU Active Total Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Current Month Reg 1 Block									
1334H-1335H	04917-04918	360	0	30	TOU Current Month Reg 1 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1336H-1337H	04919-04920	360	1	30	TOU Current Month Reg 1 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1338H-1339H	04921-04922	360	2	30	TOU Current Month Reg 1 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
133AH-133BH	04923-04924	360	3	30	TOU Current Month Reg 1 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
133CH-133DH	04925-04926	361	0	30	TOU Current Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
133EH-133FH	04927-04928	361	1	30	TOU Current Month Reg 1 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1340H-1343H	04929-04932	362	0	50	TOU Current Month Reg 1 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1344H-1347H	04933-04936	362	1	50	TOU Current Month Reg 1 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1348H-134BH	04937-04940	362	2	50	TOU Current Month Reg 1 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
134CH-134FH	04941-04944	362	3	50	TOU Current Month Reg 1 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Current Month Reg 2 Block									
1378H-1379H	04985-04986	364	0	30	TOU Current Month Reg 2 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
137AH-137BH	04987-04988	364	1	30	TOU Current Month Reg 2 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
137CH-137DH	04989-04990	364	2	30	TOU Current Month Reg 2 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
137EH-137FH	04991-04992	364	3	30	TOU Current Month Reg 2 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1380H-1381H	04993-04994	365	0	30	TOU Current Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1382H-1383H	04995-04996	365	1	30	TOU Current Month Reg 2 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1384H-1387H	04997-05000	366	0	50	TOU Current Month Reg 2 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1388H-138BH	05001-05004	366	1	50	TOU Current Month Reg 2 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
138CH-138FH	05005-05008	366	2	50	TOU Current Month Reg 2 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1390H-1393H	05009-05012	366	3	50	TOU Current Month Reg 2 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
					Time of Use Current Month Reg 3 Block					
13BCH-13BDH	05053-05054	368	0	30	TOU Current Month Reg 3 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
13BEH-13BFH	05055-05056	368	1	30	TOU Current Month Reg 3 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
13C0H-13C1H	05057-05058	368	2	30	TOU Current Month Reg 3 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
13C2H-13C3H	05059-05060	368	3	30	TOU Current Month Reg 3 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
13C4H-13C5H	05061-05062	369	0	30	TOU Current Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
13C6H-13C7H	05063-05064	369	1	30	TOU Current Month Reg 3 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
13C8H-13CBH	05065-05068	370	0	50	TOU Current Month Reg 3 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
13CCH-13CFH	05069-05072	370	1	50	TOU Current Month Reg 3 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
13D0H-13D3H	05073-05076	370	2	50	TOU Current Month Reg 3 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
13D4H-13D7H	05077-05080	370	3	50	TOU Current Month Reg 3 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
					Time of Use Current Month Reg 4 Block					
1400H-1401H	05121-05122	372	0	30	TOU Current Month Reg 4 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1402H-1403H	05123-05124	372	1	30	TOU Current Month Reg 4 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1404H-1405H	05125-05126	372	2	30	TOU Current Month Reg 4 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
1406H-1407H	05127-05128	372	3	30	TOU Current Month Reg 4 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1408H-1409H	05129-05130	373	0	30	TOU Current Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
140AH-140BH	05131-05132	373	1	30	TOU Current Month Reg 4 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
140CH-140FH	05133-05136	374	0	50	TOU Current Month Reg 4 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1410H-1413H	05137-05140	374	1	50	TOU Current Month Reg 4 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1414H-1417H	05141-05144	374	2	50	TOU Current Month Reg 4 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1418H-141BH	05145-05148	374	3	50	TOU Current Month Reg 4 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
					Time of Use Current Month Reg 5 Block					
1444H-1445H	05189-05190	376	0	30	TOU Current Month Reg 5 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1446H-1447H	05191-05192	376	1	30	TOU Current Month Reg 5 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1448H-1449H	05193-05194	376	2	30	TOU Current Month Reg 5 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
144AH-144BH	05195-05196	376	3	30	TOU Current Month Reg 5 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
144CH-144DH	05197-05198	377	0	30	TOU Current Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
144EH-144FH	05199-05200	377	1	30	TOU Current Month Reg 5 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1450H-1453H	05201-05204	378	0	50	TOU Current Month Reg 5 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1454H-1457H	05205-05208	378	1	50	TOU Current Month Reg 5 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1458H-145BH	05209-05212	378	2	50	TOU Current Month Reg 5 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
145CH-145FH	05213-05216	378	3	50	TOU Current Month Reg 5 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Current Month Reg 6 Block									
1488H-1489H	05257-05258	380	0	30	TOU Current Month Reg 6 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
148AH-148BH	05259-05260	380	1	30	TOU Current Month Reg 6 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
148CH-148DH	05261-05262	380	2	30	TOU Current Month Reg 6 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
148EH-148FH	05263-05264	380	3	30	TOU Current Month Reg 6 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1490H-1491H	05265-05266	381	0	30	TOU Current Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
1492H-1493H	05267-05268	381	1	30	TOU Current Month Reg 6 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1494H-1497H	05269-05272	382	0	50	TOU Current Month Reg 6 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1498H-149BH	05273-05276	382	1	50	TOU Current Month Reg 6 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
149CH-149FH	05277-05280	382	2	50	TOU Current Month Reg 6 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
14A0H-14A3H	05281-05284	382	3	50	TOU Current Month Reg 6 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Current Month Reg 7 Block									
14CCH-14CDH	05325-05326	384	0	30	TOU Current Month Reg 7 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
14CEH-14CFH	05327-05328	384	1	30	TOU Current Month Reg 7 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
14D0H-14D1H	05329-05330	384	2	30	TOU Current Month Reg 7 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
14D2H-14D3H	05331-05332	384	3	30	TOU Current Month Reg 7 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
14D4H-14D5H	05333-05334	385	0	30	TOU Current Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
14D6H-14D7H	05335-05336	385	1	30	TOU Current Month Reg 7 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
14D8H-14DBH	05337-05340	386	0	50	TOU Current Month Reg 7 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
14DCH-14DFH	05341-05344	386	1	50	TOU Current Month Reg 7 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
14E0H-14E3H	05345-05348	386	2	50	TOU Current Month Reg 7 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
14E4H-14E7H	05349-05352	386	3	50	TOU Current Month Reg 7 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Current Month Reg 8 Block										
1510H-1511H	05393-05394	388	0	30	TOU Current Month Reg 8 Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1512H-1513H	05395-05396	388	1	30	TOU Current Month Reg 8 Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1514H-1515H	05397-05398	388	2	30	TOU Current Month Reg 8 Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
1516H-1517H	05399-05400	388	3	30	TOU Current Month Reg 8 Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1518H-1519H	05401-05402	389	0	30	TOU Current Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
151AH-151BH	05403-05404	389	1	30	TOU Current Month Reg 8 Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
151CH-151FH	05405-05408	390	0	50	TOU Current Month Reg 8 Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1520H-1523H	05409-05412	390	1	50	TOU Current Month Reg 8 Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1524H-1527H	05413-05416	390	2	50	TOU Current Month Reg 8 Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1528H-152BH	05417-05420	390	3	50	TOU Current Month Reg 8 Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Time of Use Current Month Total Block										
1554H-1555H	05461-05462	392	0	30	TOU Current Month Total Peak Demand Rec. Watt (Quadrant 1 + 4)	+32767 Watt / 0 Watt	1/ 65536 W sec	F7	R	9
1556H-1557H	05463-05464	392	1	30	TOU Current Month Total Peak Demand Del. Watt (Quadrant 2 + 3)	0 Watt / -32768 Watt	1/ 65536 W sec	F7	R	9
1558H-1559H	05465-05466	392	2	30	TOU Current Month Total Peak Demand Rec. VAR (Quadrant 1 + 2)	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
155AH-155BH	05467-05468	392	3	30	TOU Current Month Total Peak Demand Del. VAR (Quadrant 3 + 4)	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
155CH-155DH	05469-05470	393	0	30	TOU Current Month Total Coin. Dmd. VAR to Peak Dmd. Rec. Watt	+32767 VAR/ -32768 VAR	1/ 65536 VAR sec	F7	R	9
155EH-155FH	05471-05472	393	1	30	TOU Current Month Total Coin. Dmd. VAR to Peak Dmd. Del. Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
1560H-1563H	05473-05476	394	0	50	TOU Current Month Total Peak Demand Rec. Watt (Q 1 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1564H-1567H	05477-05480	394	1	50	TOU Current Month Total Peak Demand Del. Watt (Q 2 + 3) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1568H-156BH	05481-05484	394	2	50	TOU Current Month Total Peak Demand Rec. VAR (Q 1 + 2) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
156CH-156FH	05485-05488	394	3	50	TOU Current Month Total Peak Demand Del. VAR (Q 3 + 4) Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
	Time of Use Frozen Label Block									
1570H-1577H	05489-05496	395	0		TOU Frozen Reg 1 Label			F2	R	
1578H-157FH	05497-05504	395	1		TOU Frozen Reg 2 Label			F2	R	
1580H-1587H	05505-05512	395	2		TOU Frozen Reg 3 Label			F2	R	
1588H-158FH	05513-05520	395	3		TOU Frozen Reg 4 Label			F2	R	
1590H-1597H	05521-05528	395	4		TOU Frozen Reg 5 Label			F2	R	
1598H-159FH	05529-05536	395	5		TOU Frozen Reg 6 Label			F2	R	
15A0H-15A7H	05537-05544	395	6		TOU Frozen Reg 7 Label			F2	R	
15A8H-15AFH	05545-05552	395	7		TOU Frozen Reg 8 Label			F2	R	
	Time of Use Prior Month Label Block									
15B0H-15B7H	05553-05560	396	0		TOU Prior Month Reg 1 Label			F2	R	
15B8H-15BFH	05561-05568	396	1		TOU Prior Month Reg 2 Label			F2	R	
15C0H-15C7H	05569-05576	396	2		TOU Prior Month Reg 3 Label			F2	R	
15C8H-15CFH	05577-05584	396	3		TOU Prior Month Reg 4 Label			F2	R	
15D0H-15D7H	05585-05592	396	4		TOU Prior Month Reg 5 Label			F2	R	
15D8H-15DFH	05593-05600	396	5		TOU Prior Month Reg 6 Label			F2	R	
15E0H-15E7H	05601-05608	396	6		TOU Prior Month Reg 7 Label			F2	R	
15E8H-15EFH	05609-05616	396	7		TOU Prior Month Reg 8 Label			F2	R	
	Time of Use Active Label Block									
15F0H-15F7H	05617-05624	397	0		TOU Active Reg 1 Label			F2	R	
15F8H-15FFH	05625-05632	397	1		TOU Active Reg 2 Label			F2	R	
1600H-1607H	05633-05640	397	2		TOU Active Reg 3 Label			F2	R	
1608H-160FH	05641-05648	397	3		TOU Active Reg 4 Label			F2	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1610H-1617H	05649-05656	397	4		TOU Active Reg 5 Label			F2	R	
1618H-161FH	05657-05664	397	5		TOU Active Reg 6 Label			F2	R	
1620H-1627H	05665-05672	397	6		TOU Active Reg 7 Label			F2	R	
1628H-162FH	05673-05680	397	7		TOU Active Reg 8 Label			F2	R	
	Time of Use Current Month Label Block									
1630H-1637H	05681-05688	398	0		TOU Current Month Reg 1 Label			F2	R	
1638H-163FH	05689-05696	398	1		TOU Current Month Reg 2 Label			F2	R	
1640H-1647H	05697-05704	398	2		TOU Current Month Reg 3 Label			F2	R	
1648H-164FH	05705-05712	398	3		TOU Current Month Reg 4 Label			F2	R	
1650H-1657H	05713-05720	398	4		TOU Current Month Reg 5 Label			F2	R	
1658H-165FH	05721-05728	398	5		TOU Current Month Reg 6 Label			F2	R	
1660H-1667H	05729-05736	398	6		TOU Current Month Reg 7 Label			F2	R	
1668H-166FH	05737-05744	398	7		TOU Current Month Reg 8 Label			F2	R	
	Internal Input Pulse Accumulation Block									
1670H-1673H	05745-05748	399	0	50	Internal Input Pulse Accumulation Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1674H-1677H	05749-05752	400	0	20	Pulse Accumulation Internal Input 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1678H-167BH	05753-05756	400	1	20	Pulse Accumulation Internal Input 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
167CH-167FH	05757-05760	400	2	20	Pulse Accumulation Internal Input 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1680H-1683H	05761-05764	400	3	20	Pulse Accumulation Internal Input 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1684H-1687H	05765-05768	400	4	20	Pulse Accumulation Internal Input 5	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1688H-168BH	05769-05772	400	5	20	Pulse Accumulation Internal Input 6	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
168CH-168FH	05773-05776	400	6	20	Pulse Accumulation Internal Input 7	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1690H-1693H	05777-05780	400	7	20	Pulse Accumulation Internal Input 8	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1694H-1697H	05781-05784	401	0	20	Pulse Accumulation Aggregation 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1698H-169BH	05785-05788	401	1	20	Pulse Accumulation Aggregation 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
169CH-169FH	05789-05792	401	2	20	Pulse Accumulation Aggregation 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16A0H-16A3H	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									
16A4H-16A7H	05797-05800	402	0	50	Pulse Accumulation Block Window Average / Maximum Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
16A8H	05801	403	0	30	Pulse Accumulation Block Window Average / Maximum Block Status			F14	R	
16A9H-16ACH	05802-05805	404	0	20	Block Window Average Internal Input 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16ADH-16B0H	05806-05809	404	1	20	Block Window Average Internal Input 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16B1H-16B4H	05810-05813	404	2	20	Block Window Average Internal Input 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16B5H-16B8H	05814-05817	404	3	20	Block Window Average Internal Input 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16B9H-16BCH	05818-05821	404	4	20	Block Window Average Internal Input 5	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
16BDH-16C0H	05822-05825	404	5	20	Block Window Average Internal Input 6	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16C1H-16C4H	05826-05829	404	6	20	Block Window Average Internal Input 7	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16C5H-16C8H	05830-05833	404	7	20	Block Window Average Internal Input 8	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16C9H-16CCH	05834-05837	405	0	20	Block Window Average Aggregation 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16CDH-16D0H	05838-05841	405	1	20	Block Window Average Aggregation 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16D1H-16D4H	05842-05845	405	2	20	Block Window Average Aggregation 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16D5H-16D8H	05846-05849	405	3	20	Block Window Average Aggregation 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16D9H-16DCH	05850-05853	406	0	20	Maximum Block Window Average Internal Input 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16DDH-16E0H	05854-05857	406	1	20	Maximum Block Window Average Internal Input 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16E1H-16E4H	05858-05861	406	2	20	Maximum Block Window Average Internal Input 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16E5H-16E8H	05862-05865	406	3	20	Maximum Block Window Average Internal Input 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16E9H-16ECH	05866-05869	406	4	20	Maximum Block Window Average Internal Input 5	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
16EDH-16F0H	05870-05873	406	5	20	Maximum Block Window Average Internal Input 6	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16F1H-16F4H	05874-05877	406	6	20	Maximum Block Window Average Internal Input 7	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16F5H-16F8H	05878-05881	406	7	20	Maximum Block Window Average Internal Input 8	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16F9H-16FCH	05882-05885	407	0	20	Maximum Block Window Average Aggregation 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
16FDH-1700H	05886-05889	407	1	20	Maximum Block Window Average Aggregation 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1701H-1704H	05890-05893	407	2	20	Maximum Block Window Average Aggregation 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1705H-1708H	05894-05897	407	3	20	Maximum Block Window Average Aggregation 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
1709H-170CH	05898-05901	408	0	50	Maximum Block Window Average Internal Input 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
170DH-1710H	05902-05905	408	1	50	Maximum Block Window Average Internal Input 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1711H-1714H	05906-05909	408	2	50	Maximum Block Window Average Internal Input 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1715H-1718H	05910-05913	408	3	50	Maximum Block Window Average Internal Input 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1719H-171CH	05914-05917	408	4	50	Maximum Block Window Average Internal Input 5 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
171DH-1720H	05918-05921	408	5	50	Maximum Block Window Average Internal Input 6 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1721H-1724H	05922-05925	408	6	50	Maximum Block Window Average Internal Input 7 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1725H-1728H	05926-05929	408	7	50	Maximum Block Window Average Internal Input 8 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1729H-172CH	05930-05933	409	0	50	Maximum Block Window Average Aggregation 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
172DH-1730H	05934-05937	409	1	50	Maximum Block Window Average Aggregation 2 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1731H-1734H	05938-05941	409	2	50	Maximum Block Window Average Aggregation 3 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1735H-1738H	05942-05945	409	3	50	Maximum Block Window Average Aggregation 4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
Temperature										
1739H	05946	410	0	30	Nexus Internal Temperature	+3276.7 C / -3276.8 C	0.1 degree C	F33		
Analog Input Block										
173AH	05947	411	0	30	Analog Input 1, Module 1	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
173BH	05948	411	1	30	Analog Input 2, Module 1	+327.67% / -327.68%	0.01%	F10	R	
173CH	05949	411	2	30	Analog Input 3, Module 1	+327.67% / -327.68%	0.01%	F10	R	
173DH	05950	411	3	30	Analog Input 4, Module 1	+327.67% / -327.68%	0.01%	F10	R	
173EH	05951	411	4	30	Analog Input 5, Module 1	+327.67% / -327.68%	0.01%	F10	R	
173FH	05952	411	5	30	Analog Input 6, Module 1	+327.67% / -327.68%	0.01%	F10	R	
1740H	05953	411	6	30	Analog Input 7, Module 1	+327.67% / -327.68%	0.01%	F10	R	
1741H	05954	411	7	30	Analog Input 8, Module 1	+327.67% / -327.68%	0.01%	F10	R	
1742H	05955	412	0	30	Analog Input 1, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1743H	05956	412	1	30	Analog Input 2, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1744H	05957	412	2	30	Analog Input 3, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1745H	05958	412	3	30	Analog Input 4, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1746H	05959	412	4	30	Analog Input 5, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1747H	05960	412	5	30	Analog Input 6, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1748H	05961	412	6	30	Analog Input 7, Module 2	+327.67% / -327.68%	0.01%	F10	R	
1749H	05962	412	7	30	Analog Input 8, Module 2	+327.67% / -327.68%	0.01%	F10	R	
174AH	05963	413	0	30	Analog Input 1, Module 3	+327.67% / -327.68%	0.01%	F10	R	
174BH	05964	413	1	30	Analog Input 2, Module 3	+327.67% / -327.68%	0.01%	F10	R	
174CH	05965	413	2	30	Analog Input 3, Module 3	+327.67% / -327.68%	0.01%	F10	R	
174DH	05966	413	3	30	Analog Input 4, Module 3	+327.67% / -327.68%	0.01%	F10	R	
174EH	05967	413	4	30	Analog Input 5, Module 3	+327.67% / -327.68%	0.01%	F10	R	
174FH	05968	413	5	30	Analog Input 6, Module 3	+327.67% / -327.68%	0.01%	F10	R	
1750H	05969	413	6	30	Analog Input 7, Module 3	+327.67% / -327.68%	0.01%	F10	R	
1751H	05970	413	7	30	Analog Input 8, Module 3	+327.67% / -327.68%	0.01%	F10	R	
1752H	05971	414	0	30	Analog Input 1, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1753H	05972	414	1	30	Analog Input 2, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1754H	05973	414	2	30	Analog Input 3, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1755H	05974	414	3	30	Analog Input 4, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1756H	05975	414	4	30	Analog Input 5, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1757H	05976	414	5	30	Analog Input 6, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1758H	05977	414	6	30	Analog Input 7, Module 4	+327.67% / -327.68%	0.01%	F10	R	
1759H	05978	414	7	30	Analog Input 8, Module 4	+327.67% / -327.68%	0.01%	F10	R	
	Limit Combination Block									
175AH	05979	415	0-15	1	Limit States, Combinations, 1-16			F34	R	
175BH	05980	415	16-31	1	Limit States, Combinations, 17-32			F34	R	
	Relay Logic Block									
175CH-175FH	05981-05984	416	0	50	Relay Logic block Timestamp	12/31/9999 12:00:00 AM	10 msec	F3	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1760H	5985	417	0-15	1	Relay Logic States, Input 1, Relays 1-16			F34	R	
1761H	5986	418	0-15	1	Relay Logic States, Input 2, Relays 1-16			F34	R	
1762H	5987	419	0-15	1	Relay Logic States, Input 3, Relays 1-16			F34	R	
1763H	5988	420	0-15	1	Relay Logic States, Input 4, Relays 1-16			F34	R	
1764H	5989	421	0-15	1	Relay Logic States, Input 5, Relays 1-16			F34	R	
1765H	5990	422	0-15	1	Relay Logic States, Input 6, Relays 1-16			F34	R	
1766H	5991	423	0-15	1	Relay Logic States, Input 7, Relays 1-16			F34	R	
1767H	5992	424	0-15	1	Relay Logic States, Input 8, Relays 1-16			F34	R	
1768H	5993	425	0-15	1	Relay Logic States, Gate A, Relays 1-16			F34	R	
1769H	5994	426	0-15	1	Relay Logic States, Gate B, Relays 1-16			F34	R	
176AH	5995	427	0-15	1	Relay Logic States, Gate C, Relays 1-16			F34	R	
176BH	5996	428	0-15	1	Relay Logic States, Gate D, Relays 1-16			F34	R	
176CH	5997	429	0-15	1	Relay Logic States, Gate E, Relays 1-16			F34	R	
176DH	5998	430	0-15	1	Relay Logic States, Gate F, Relays 1-16			F34	R	
176EH	5999	431	0-15	1	Relay Logic States, Gate G, Relays 1-169			F34	R	
176FH	6000	432	0-1	30	Delay Timer, Relay 1/Relay 2			F35	R	
1770H	6001	432	2-3	30	Delay Timer, Relay 3/Relay 4			F35	R	
1771H	6002	432	4-5	30	Delay Timer, Relay 5/Relay 6			F35	R	
1772H	6003	432	6-7	30	Delay Timer, Relay 7/Relay 8			F35	R	
1773H	6004	432	8-9	30	Delay Timer, Relay 9/Relay 10			F35	R	
1774H	6005	432	10-11	30	Delay Timer, Relay 11/Relay 12			F35	R	
1775H	6006	432	12-13	30	Delay Timer, Relay 13/Relay 14			F35	R	
1776H	6007	432	14-15	30	Delay Timer, Relay 15/Relay 16			F35	R	
1777H	6008	433	0-15	1	Desired Relay States, Relays 1-16			F36	R	
1778H	6009	434	0-15	1	Relays Pending Updates, Relays 1-16			F37	R	
1779H	6010	435	0-15	1	Shadowed Relay States, Relays 1-16			F38	R	
177AH	6011	436	0-15	10	Confirmed Polled Relay States, Relays 1-16			F39	R	
177BH	6012	437	0-15	1	Valid Flags for Confirmed Relay States, Relays 1-16			F40	R	
177CH	6013	438	0-15	1	Locked Relays, Relays 1-16			F41	R	
177DH	6014	439	0-15	1	Locked Relays States, Relays 1-16			F42	R	
	Reset Time Block									
177EH-1781H	06015-06018	440	0	50	Reset Time Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1782H-1785H	06019-06022	440	1	50	Reset Maximum Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1786H-1789H	06023-06026	440	2	50	Reset Minimum Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
178AH-178DH	06027-06030	440	3	50	Reset Energy Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
178EH-1791H	06031-06034	440	4	50	Reset Current Month TOU Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
1792H-1795H	06035-06038	440	5	50	Reset Pulse Accumulations/Aggregations Timestamps	12/31/9999 23:59:59.99	10 msec	F3	R	1

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Miscellaneous Flags									
1796H	06039	441	0-15	1	b8:Programmable User Threshold					
1797H-17CFH	06040-06096	442	0	50	Reserved	12/31/9999 23:59:59.99	10 msec	F3		
	KYZ Output Accumulation Block									
17D0H-17D3H	06097-06100	447	0	50	KYZ Output Accumulation Block Timestamp	12/31/9999 23:59:59.99		F3		
17D4H-17D5H	06101-06102	448	0	20	KYZ Output Accumulation, Relay 1/Pulse 1 LED	4,294,967,295 / 0		F18	R	
17D6H-17D7H	06103-06104	448	1	20	KYZ Output Accumulation, Relay 2/Pulse 2 LED	4,294,967,295 / 0		F18	R	
17D8H-17D9H	06105-06106	448	2	20	KYZ Output Accumulation, Relay 3	4,294,967,295 / 0		F18	R	
17DAH-17DBH	06107-06108	448	3	20	KYZ Output Accumulation, Relay 4	4,294,967,295 / 0		F18	R	
17DCH-17DDH	06109-06110	448	4	20	Reserved	4,294,967,295 / 0		F18	R	
	Input Option Board Data Statusr Block									
17DEH	06111	449	0-1	1	MSB first Bit 15 – 1st Option board (Slot 3) status valid Bit 14 – 2nd Option board (Slot 4) status valid			F44	R	
17DFH	06112	450	0-15	1	Reserved			F45	R	
17E0H	06113				Reserved					
	Flicker Status Block									
17E1H-17E4H	06114-06117	451	0	50	Flicker Status Block Timestamp	12/31/9999 23:59:59.99		F3		
17E5H-17E8H	06118-06121	452	0	50	Flicker Start Time	12/31/9999 23:59:59.99		F3		
17E9H-17ECH	06122-06125	452	1	50	Flicker End Time	12/31/9999 23:59:59.99		F3		
17EDH	06126	453	0	30	Flicker Status - value = 0100 means available or running, and value = 0000 means not available or stopped.				R	
	Instantaneous Flicker Block									
17EEH-17F1H	06127-06130	454	0	50	Instantaneous Flicker Block Time	12/31/9999 23:59:59.99		F3		
17F2H-17F3H	06131-06132	455	0	30	Instantaneous Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
17F4H-17F5H	06133-06134	455	1	30	Instantaneous Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
17F6H-17F7H	06135-06136	455	2	30	Instantaneous Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
	Short Term Flicker Block									
17F8H-17FBH	06137-06140	456	0	50	Short Term Flicker Block Time	12/31/9999 23:59:59.99		F3		
17FCH-17FDH	06141-06142	457	0	30	Short Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
17FEH-17FFH	06143-06144	457	1	30	Short Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
1800H-1801H	06145-06146	457	2	30	Short Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
1802H-1803H	06147-06148	458	0	30	Maximum Short Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
1804H-1805H	06149-06150	458	1	30	Maximum Short Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
1806H-1807H	06151-06152	458	2	30	Maximum Short Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1808H-1809H	06153-06154	459	0	30	Minimum Short Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
180AH-180BH	06155-06156	459	1	30	Minimum Short Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
180CH-180DH	06157-06158	459	2	30	Minimum Short Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
180EH-1811H	06159-06162	460	0	50	Short Term Flicker Interval End Timestamp	12/31/9999 23:59:59.99		F3		
1812H-1815H	06163-06166	461	0	50	Maximum Short Term Flicker VAN Timestamp	12/31/9999 23:59:59.99		F3		
1816H-1819H	06167-06170	461	1	50	Maximum Short Term Flicker VBN Timestamp	12/31/9999 23:59:59.99		F3		
181AH-181DH	06171-06174	461	2	50	Maximum Short Term Flicker VCN Timestamp	12/31/9999 23:59:59.99		F3		
181EH-1821H	06175-06178	462	0	50	Minimum Short Term Flicker VAN Timestamp	12/31/9999 23:59:59.99		F3		
1822H-1825H	06179-06182	462	1	50	Minimum Short Term Flicker VBN Timestamp	12/31/9999 23:59:59.99		F3		
1826H-1829H	06183-06186	462	2	50	Minimum Short Term Flicker VCN Timestamp	12/31/9999 23:59:59.99		F3		
Long Term Flicker Block										
182AH-182DH	06187-06190	463	0	50	Long Term Flicker Block Time	12/31/9999 23:59:59.99		F3		
182EH-182FH	06191-06192	464	0	30	Long Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
1830H-1831H	06193-06194	464	1	30	Long Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
1832H-1833H	06195-06196	464	2	30	Long Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
1834H-1835H	06197-06198	465	0	30	Maximum Long Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
1836H-1837H	06199-06200	465	1	30	Maximum Long Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
1838H-1839H	06201-06202	465	2	30	Maximum Long Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
183AH-183BH	06203-06204	466	0	30	Minimum Long Term Flicker V_{AN}	+32767 / 0	1/ 65536	F7	R	
183CH-183DH	06205-06206	466	1	30	Minimum Long Term Flicker V_{BN}	+32767 / 0	1/ 65536	F7	R	
183EH-183FH	06207-06208	466	2	30	Minimum Long Term Flicker V_{CN}	+32767 / 0	1/ 65536	F7	R	
1840H-1843H	06209-06212	467	0	50	Long Term Flicker Interval End Timestamp	12/31/9999 23:59:59.99		F3		
1844H-1847H	06213-06216	468	0	50	Maximum Long Term Flicker VAN Timestamp	12/31/9999 23:59:59.99		F3		
1848H-184BH	06217-06220	468	1	50	Maximum Long Term Flicker VBN Timestamp	12/31/9999 23:59:59.99		F3		
184CH-184FH	06221-06224	468	2	50	Maximum Long Term Flicker VCN Timestamp	12/31/9999 23:59:59.99		F3		
1850H-1853H	06225-06228	469	0	50	Minimum Long Term Flicker VAN Timestamp	12/31/9999 23:59:59.99		F3		
1854H-1857H	06229-06232	469	1	50	Minimum Long Term Flicker VBN Timestamp	12/31/9999 23:59:59.99		F3		
1858H-185BH	06233-06236	469	2	50	Minimum Long Term Flicker VCN Timestamp	12/31/9999 23:59:59.99		F3		
Additional Energy Block										
185CH-185FH	06237-06240	470	0	50	Additional Energy Block Time	12/31/9999 23:59:59.99		F3		
1860H-1863H	06241-06244	471	0		Quadrant 1 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F11	R	
1864H-1867H	06245-06248	471	1		Quadrant 4 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F11	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1868H-186BH	06249-06252	471	2		Quadrant 2 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F11	R	
186CH-186FH	06253-06256	471	3		Quadrant 3 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F11	R	
1870H-1873H	06257-06260	472	0		Quadrant 1 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F11	R	
1874H-1877H	06261-06264	472	1		Quadrant 1 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F11	R	
1878H-187BH	06265-06268	472	2		Quadrant 4 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F11	R	
187CH-187FH	06269-06272	472	3		Quadrant 4 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F11	R	
1880H-1883H	06273-06276	472	4		Quadrant 2 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F11	R	
1884H-1887H	06277-06280	472	5		Quadrant 2 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F11	R	
1888H-188BH	06281-06284	472	6		Quadrant 3 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F11	R	
188CH-188FH	06285-06288	472	7		Quadrant 3 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F11	R	
1890H-1893H	06289-06292	473	0		Quadrant 1 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F19	R	
1894H-1897H	06293-06296	473	1		Quadrant 4 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F19	R	
1898H-189BH	06297-06300	473	2		Quadrant 2 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F19	R	
189CH-189FH	06301-06304	473	3		Quadrant 3 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F19	R	
18A0H-18A3H	06305-06308	474	0		Total VAhour (Quadrants 1+2+3+4), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F19	R	
18A4H-18A7H	06309-06312	474	1		Positive VARhour (Quadrants 1+2), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F19	R	
18A8H-18ABH	06313-06316	474	2		Negative VARhour (Quadrants 3+4), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F19	R	
18ACH-18AFH	06317-06320	475	0	20	Quadrant 1 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
18B0H-18B3H	06321-06324	475	1	20	Quadrant 4 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
18B4H-18B7H	06325-06328	475	2	20	Quadrant 2 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
18B8H-18BBH	06329-06332	475	3	20	Quadrant 3 Watthour, Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
18BCH-18BFH	06333-06336	476	0	20	Quadrant 1 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
18C0H-18C3H	06337-06340	476	1	20	Quadrant 1 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
18C4H-18C7H	06341-06344	476	2	20	Quadrant 4 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
18C8H-18CBH	06345-06348	476	3	20	Quadrant 4 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
18CCH-18CFH	06349-06352	476	4	20	Quadrant 2 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
18D0H-18D3H	06353-06356	476	5	20	Quadrant 2 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
18D4H-18D7H	06357-06360	476	6	20	Quadrant 3 VAhour, Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
18D8H-18DBH	06361-06364	476	7	20	Quadrant 3 VARhour, Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
18DCH-18DFH	06365-06368	477	0	20	Quadrant 1 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
18E0H-18E3H	06369-06372	477	1	20	Quadrant 4 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
18E4H-18E7H	06373-06376	477	2	20	Quadrant 2 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
18E8H-18EBH	06377-06380	477	3	20	Quadrant 3 Watthour, Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
18ECH-18EFH	06381-06384	478	0	20	Total VAhour (Quadrants 1+2+3+4), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
18F0H-18F3H	06385-06388	478	1	20	Positive VARhour (Quadrants 1+2), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	
18F4H-18F7H	06389-06392	478	2	20	Negative VARhour (Quadrants 3+4), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Energy and Pulses in the Interval									
18F8H-18FBH	06393-06396	479	0	50	Energy and Pulses in the Interval Block Timestamp	12/31/9999 23:59:59.99		F3		
18FCH	06397	480	0	30	Total VAhour (Quadrants 1+2+3+4) in the Interval, Secondary	65,535 / 0	1 VA_H	F57	R	
18FDH	06398	480	1	30	Positive VARhour (Quadrants 1+2) in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
18FEH	06399	480	2	30	Negative VARhour (Quadrants 3+4) in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
18FFH	06400	480	3	30	Positive Watthour (Quadrants 1+4) in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
1900H	06401	480	4	30	Negative Watthour (Quadrants 2+3) in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
1901H-1902H	06402-06403	481	0	30	Positive Watthour (Quadrants 1+4) in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
1903H-1904H	06404-06405	481	1	30	Quadrant 1 VAhour in the Interval, Primary	4,294,967,295 / 0	1 VA_H	F18	R	
1905H-1906H	06406-06407	481	2	30	Quadrant 1 VARhour in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
1907H-1908H	06408-06409	481	3	30	Quadrant 4 VAhour in the Interval, Primary	4,294,967,295 / 0	1 VA_H	F18	R	
1909H-190AH	06410-06411	481	4	30	Quadrant 4 VARhour in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
190BH-190CH	06412-06413	481	5	30	Negative Watthour (Quadrants 2+3) in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
190DH-190EH	06414-06415	481	6	30	Quadrant 2 VAhour in the Interval, Primary	4,294,967,295 / 0	1 VA_H	F18	R	
190FH-1910H	06416-06417	481	7	30	Quadrant 2 VARhour in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
1911H-1912H	06418-06419	481	8	30	Quadrant 3 VAhour in the Interval, Primary	4,294,967,295 / 0	1 VA_H	F18	R	
1913H-1914H	06420-06421	481	9	30	Quadrant 3 VARhour in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
1915H-1916H	06422-06423	482	0	30	I2t Phase A in the Interval, Primary	4,294,967,295 / 0	1 I^2t	F18	R	
1917H-1918H	06424-06425	482	1	30	I2t Phase B in the Interval, Primary	4,294,967,295 / 0	1 I^2t	F18	R	
1919H-191AH	06426-06427	482	2	30	I2t Phase C in the Interval, Primary	4,294,967,295 / 0	1 I^2t	F18	R	
191BH-191CH	06428-06429	482	3	30	V2t Phase A in the interval, Primary	4,294,967,295 / 0	1 V^2t	F18	R	
191DH-191EH	06430-06431	482	4	30	V2t Phase B in the Interval, Primary	4,294,967,295 / 0	1 V^2t	F18	R	
191FH-1920H	06432-06433	482	5	30	V2t Phase C in the Interval, Primary	4,294,967,295 / 0	1 V^2t	F18	R	
1921H-1922H	06434-06435	483	0	30	Pulse Accumulation, Internal Input 1 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1923H-1924H	09436-06437	483	1	30	Pulse Accumulation, Internal Input 2 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1925H-1926H	06438-06439	483	2	30	Pulse Accumulation, Internal Input 3 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1927H-1928H	06440-06441	483	3	30	Pulse Accumulation, Internal Input 4 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1929H-192AH	06442-06443	483	4	30	Pulse Accumulation, Internal Input 5 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
192BH-192CH	06444-06445	483	5	30	Pulse Accumulation, Internal Input 6 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
192DH-192EH	06446-06447	483	6	30	Pulse Accumulation, Internal Input 7 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
192FH-1930H	06448-06449	483	7	30	Pulse Accumulation, Internal Input 8 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1931H-1932H	06450-06451	484	0	30	Pulse Aggregation 1 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1933H-1934H	06452-06453	484	1	30	Pulse Aggregation 2 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1935H-1936H	06454-06455	484	2	30	Pulse Aggregation 3 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	
1937H-1938H	06456-06457	484	3	30	Pulse Aggregation 4 in the Interval, Scaled	4,294,967,295 / 0	1 Unit	F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1939H	06458	485	0	30	Quadrant 1 Watthour in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
193AH	06459	485	1	30	Quadrant 4 Watthour in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
193BH	06460	485	2	30	Quadrant 2 Watthour in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
193CH	06461	485	3	30	Quadrant 3 Watthour in the Interval, Secondary	65,535 / 0	1 W_H	F57	R	
193DH	06462	486	0	30	Quadrant 1 VAhour in the Interval, Secondary	65,535 / 0	1 VA_H	F57	R	
193EH	06463	486	1	30	Quadrant 1 VARhour in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
193FH	06464	486	2	30	Quadrant 4 VAhour in the Interval, Secondary	65,535 / 0	1 VA_H	F57	R	
1940H	06465	486	3	30	Quadrant 4 VARhour in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
1941H	06466	486	4	30	Quadrant 2 VAhour in the Interval, Secondary	65,535 / 0	1 VA_H	F57	R	
1942H	06467	486	5	30	Quadrant 2 VARhour in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
1943H	06468	486	6	30	Quadrant 3 VAhour in the Interval, Secondary	65,535 / 0	1 VA_H	F57	R	
1944H	06469	486	7	30	Quadrant 3 VARhour in the Interval, Secondary	65,535 / 0	1 VAR_H	F57	R	
1945H-1946H	06470-06471	487	0	30	Quadrant 1 Watthour in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
1947H-1948H	06472-06473	487	1	30	Quadrant 4 Watthour in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
1949H-194AH	06474-06475	487	2	30	Quadrant 2 Watthour in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
194BH-194CH	06476-06477	487	3	30	Quadrant 3 Watthour in the Interval, Primary	4,294,967,295 / 0	1 W_H	F18	R	
194DH-194EH	06478-06479	488	0	30	Total VAhour (Quadrants 1+2+3+4) in the Interval, Primary	4,294,967,295 / 0	1 VA_H	F18	R	
194FH-1950H	06480-06481	488	1	30	Positive VARhour (Quadrants 1+2) in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
1951H-1952H	06482-06483	488	2	30	Negative VARhour (Quadrants 3+4) in the Interval, Primary	4,294,967,295 / 0	1 VAR_H	F18	R	
1953H	06484	489	0	30	KYZ Pulse Output in the Interval, Relay 1 - Pulse 1	65,535 / 0	1 pulse	F57	R	
1954H	06485	489	1	30	KYZ Pulse Output in the Interval, Relay 2 - Pulse 2	65,535 / 0	1 pulse	F57	R	
1955H	06486	489	2	30	KYZ Pulse Output in the Interval, Relay 3	65,535 / 0	1 pulse	F57	R	
1956H	06487	489	3	30	KYZ Pulse Output in the Interval, Relay 4	65,535 / 0	1 pulse	F57	R	
1957H	06488	489	4	30	Reserved	65,535 / 0	1 pulse	F57	R	
	Flicker Countdown Block									
1958H	06489	490	0	30	Short Term Flicker Countdown	65,535 / 0	1 second	F56	R	
1959H	06490	490	1	30	Long Term Flicker Countdown	65,535 / 0	1 second	F56	R	
	Cumulative Demand Block									
195AH-195DH	06491-06494	491	0	50	Cumulative Demand Block Timestamp	12/31/9999 23:59:59.99		F3	R	
195EH-195FH	06495-06496	492	0	30	Positive Watt (Quadrants 1+4) Cumulative Demand	4,294,967,295 / 0		F18	R	
1960H-1961H	06497-06498	492	1	30	Negative Watt (Quadrants 2+3) Cumulative Demand	4,294,967,295 / 0		F18	R	
1962H-1963H	06499-06500	493	0	30	Positive Watt (Quadrants 1+4) Continuous Cumulative Demand	4,294,967,295 / 0		F18	R	
1964H-1965H	06501-06502	493	1	30	Negative Watt (Quadrants 2+3) Continuous Cumulative Demand	4,294,967,295 / 0		F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Time of Use Active Cumulative Demand									
1966H-1967H	06503-06504	494	0	30	TOU Active Reg0 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1968H-1969H	06505-06506	494	1	30	TOU Active Reg0 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
196AH-196BH	06507-06508	494	2	30	TOU Active Reg1 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
196CH-196DH	06509-06510	494	3	30	TOU Active Reg1 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
196EH-196FH	06511-06512	494	4	30	TOU Active Reg2 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1970H-1971H	06513-06514	494	5	30	TOU Active Reg2 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1972H-1973H	06515-06516	494	6	30	TOU Active Reg3 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1974H-1975H	06517-06518	494	7	30	TOU Active Reg3 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1976H-1977H	06519-06520	494	8	30	TOU Active Reg4 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1978H-1979H	06521-06522	494	9	30	TOU Active Reg4 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
197AH-197BH	06523-06524	494	10	30	TOU Active Reg5 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
197CH-197DH	06525-06526	494	11	30	TOU Active Reg5 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
197EH-197FH	06527-06528	494	12	30	TOU Active Reg6 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1980H-1981H	06529-06530	494	13	30	TOU Active Reg6 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1982H-1983H	06531-06532	494	14	30	TOU Active Reg7 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1984H-1985H	06533-06534	494	15	30	TOU Active Reg7 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1986H-1987H	06535-06536	494	16	30	TOU Active Total Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1988H-1989H	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									
198AH-198BH	06539-06540	495	0	30	TOU Current Month Reg0 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
198CH-198DH	06541-06542	495	1	30	TOU Current Month Reg0 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
198EH-198FH	06543-06544	495	2	30	TOU Current Month Reg1 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1990H-1991H	06545-06546	495	3	30	TOU Current Month Reg1 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1992H-1993H	06547-06548	495	4	30	TOU Current Month Reg2 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1994H-1995H	06549-06550	495	5	30	TOU Current Month Reg2 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
1996H-1997H	06551-06552	495	6	30	TOU Current Month Reg3 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
1998H-1999H	06553-06554	495	7	30	TOU Current Month Reg3 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
199AH-199BH	06555-06556	495	8	30	TOU Current Month Reg4 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
199CH-199DH	06557-06558	495	9	30	TOU Current Month Reg4 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
199EH-199FH	06559-06560	495	10	30	TOU Current Month Reg5 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19A0H-19A1H	06561-06562	495	11	30	TOU Current Month Reg5 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19A2H-19A3H	06563-06564	495	12	30	TOU Current Month Reg6 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19A4H-19A5H	06565-06566	495	13	30	TOU Current Month Reg6 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19A6H-19A7H	06567-06568	495	14	30	TOU Current Month Reg7 Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19A8H-19A9H	06569-06570	495	15	30	TOU Current Month Reg7 Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
19AAH-19ABH	06571-06572	495	16	30	TOU Current Month Total Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19ACH-19ADH	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									
19AEH-19AFH	06575-06576	496	0	30	TOU Active Reg0 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19B0H-19B1H	06577-06578	496	1	30	TOU Active Reg0 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19B2H-19B3H	06579-06580	496	2	30	TOU Active Reg1 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19B4H-19B5H	06581-06582	496	3	30	TOU Active Reg1 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19B6H-19B7H	06583-06584	496	4	30	TOU Active Reg2 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19B6H019B7H-19B8H-19B9H	06585-06586	496	5	30	TOU Active Reg2 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19BAH-19BBH	06587-06588	496	6	30	TOU Active Reg3 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19BCH-19BDH	06589-06590	496	7	30	TOU Active Reg3 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19BEH-19BFH	06591-06592	496	8	30	TOU Active Reg4 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19C0H-19C1H	06593-06594	496	9	30	TOU Active Reg4 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19C2H-19C3H	06595-06596	496	10	30	TOU Active Reg5 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19C4H-19C5H	06597-06598	496	11	30	TOU Active Reg5 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19C6H-19C7H	06599-06600	496	12	30	TOU Active Reg6 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19C8H-19C9H	06601-06602	496	13	30	TOU Active Reg6 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19CAH-19CBH	06603-06604	496	14	30	TOU Active Reg7 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19CCH-19CDH	06605-06606	496	15	30	TOU Active Reg7 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
19CEH-19CFH	06607-06608	496	16	30	TOU Active Total Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19D0H-19D1H	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									
19D2H-19D3H	06611-06612	497	0	30	TOU Current Month Reg0 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19D4H-19D5H	06613-06614	497	1	30	TOU Current Month Reg0 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19D6H-19D7H	06615-06616	497	2	30	TOU Current Month Reg1 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19D8H-19D9H	06617-06618	497	3	30	TOU Current Month Reg1 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19DAH-19DBH	06619-06620	497	4	30	TOU Current Month Reg2 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19DCH-19DDH	06621-06622	497	5	30	TOU Current Month Reg2 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19DEH019DFH	06623-06624	497	6	30	TOU Current Month Reg3 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19E0H-19E1H	06625-06626	497	7	30	TOU Current Month Reg3 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19E2H-19E3H	06627-06628	497	8	30	TOU Current Month Reg4 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19E4H-19E5H	06629-06630	497	9	30	TOU Current Month Reg4 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19E6H-19E7H	06631-06632	497	10	30	TOU Current Month Reg5 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19E8H-19E9H	06633-06634	497	11	30	TOU Current Month Reg5 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19EAH-19EBH	06635-06636	497	12	30	TOU Current Month Reg6 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19ECH-19EDH	06637-06638	497	13	30	TOU Current Month Reg6 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
19EEH-19EFH	06639-06640	497	14	30	TOU Current Month Reg7 Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19F0H-19F1H	06641-06642	497	15	30	TOU Current Month Reg7 Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
19F2H-19F3H	06643-06644	497	16	30	TOU Current Month Total Continuous Cumulative Demand Q1 + Q4 Watt	4,294,967,295 / 0		F18	R	
19F4H-19F5H	06645-06646	497	17	30	TOU Current Month Total Continuous Cumulative Demand Q2 + Q3 Watt	4,294,967,295 / 0		F18	R	
					Uncompensated and Q Block					
1A08H-1A0DH	06665-06670	500	0-2	30	Uncompensated One second Phase A-C VA	+32767 VA / 0 VA	1/65536 VA sec	F7		
1A0EH-1A0FH	06671-06672	501	0	30	Uncompensated One second VA	+32767 VA / 0 VA	1/65536 VA sec	F7		
1A10H-1A15H	06673-06678	502	0-2	30	Uncompensated One second Phase A-C VAR	+32767 VAR / - 32768 VAR	1/65536 VAR sec	F7		
1A16H-1A17H	06679-06680	503	0	30	Uncompensated One second VAR	+32767 VAR / - 32768 VAR	1/65536 VAR sec	F7		
1A18H-1A1DH	06681-06686	504	0-2	30	Uncompensated One second Phase A-C W	+32767 W / - 32768 W	1/65536 W sec	F7		
1A1EH-1A1FH	06687-06688	505	0	30	Uncompensated One second W	+32767 W / - 32768 W	1/65536 W sec	F7		
1A20H-1A23H	06689-06692	506	0	20	Uncompensated VAh, secondary BCD	9,999,999,999,999,999 VAh / 0 VAh	1 VAh	F11		
1A24H-1A2BH	06693-06700	506	1-2	20	Uncompensated +/- VARh, secondary BCD	9,999,999,999,999,999 VARh / 0 VARh	1 VARh	F11		
1A2CH-1A33H	06701-06708	506	3-4	20	Uncompensated +/- Wh, seconary BCD	9,999,999,999,999,999 Wh / 0 Wh	1 Wh	F11		
1A34H-1A47H	06709-06728	507	0-4	20	Uncompensated Energy, secondary, binary	9,999,999,999,999,999 / 0	1	F12		
1A48H-1A5BH	06729-06748	508	0-4	20	Uncompensated Energy, primary BCD	9,999,999,999,999,999 / 0	1	F19		
1A5CH-1A6FH	06749-06768	509	0-4	20	Uncompensated Energy, primary binary	9,999,999,999,999,999 / 0	1	F20		
1A70H-1A74H	06769-06773	510	0-4	30	Uncompensated Energy in the Interval, secondary	65,535 / 0	1	F47		
1A75H-1A7EH	06774-06783	511	0-4	30	Uncompensated Energy in the Interval, primary	4,294,967,295 / 0	1	F18		
1A7FH-1A84H	06784-06789	512	0-2	30	One second Phase A-C Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1A85H-1A86H	06790-06791	513	0	30	One second Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1A87H-1A88H	06792-06793	514	0	30	Thermal Average Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1A89H-1A8CH	06794-06797	515	0-1	30	Maximum Thermal Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1A8DH-1A90H	06798-06801	516	0-1	30	Minimum Thermal Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1A91H-1A98H	06802-06809	517	0-1	50	Maximum Thermal Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
1A99H-1AA0H	06810-06817	518	0-1	50	Minimum Thermal Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
1AA1H-1AA8H	06818-06825	519	0-1	20	+/- Qh, secondary BCD	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F11		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1AA9H-1AB0H	06826-06833	520	0-1	20	+/- Qh, secondary binary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F12		
1AB1H-1AB8H	06834-06841	521	0-1	20	+/- Qh, primary BCD	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F19		
1AB9H-1AC0H	06842-06849	522	0-1	20	+/- Qh, primary binary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F20		
1AC1H-1AC2H	06850-06851	523	0-1	30	+/- Qh in the Interval, secondary	65,535 / 0	1	F47		
1AC3H-1AC6H	06852-06855	524	0-1	30	+/- Qh in the Interval, primary	4,294,967,295 / 0	1	F18		
1AC7H-1AC8H	06856-06857	525	0	30	Block Window Average Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1AC9H-1ACCH	06858-06861	526	0-1	30	Maximum Block Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1ACDH-1AD0H	06862-06865	527	0-1	30	Minimum Block Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1AD1H-1AD8H	06866-06873	528	0-1	50	Maximum Block Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
1AD9H-1AE0H	06874-06881	529	0-1	50	Minimum Block Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
1AE1H-1AE2H	06882-06883	530	0	30	Rolling Window Average Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1AE3H-1AE6H	06884-06887	531	0-1	30	Maximum Rolling Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1AE7H-1AEAH	06888-06891	532	0-1	30	Minimum Rolling Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
1AEBH-1AF2H	06892-06899	533	0-1	50	Maximum Rolling Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
1AF3H-1AFAH	06900-06907	534	0-1	50	Minimum Rolling Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
	Scaled Energy Block									
1AFBH-1AFEH	06908-06911	535	0	50	Scaled Energy Block Timestamp	12/31/9999 23:59:59.99		F3		
1AFFH-1B00H	06912-06913	536	0	20	Total VAh (Quadrant 1+2+3+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B01H-1B02H	06914-06915	536	1	20	Positive VARh (Quadrant 1+2) Scaled Priamry	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B03H-1B04H	06916-06917	536	2	20	Negative VARh (Quadrant 3+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B05H-1B06H	06918-06919	537	0	20	Positive Wh (Quadrant 1+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B07H-1B08H	06920-06921	537	1	20	Quadrant 1 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B09H-1B0AH	06922-06923	537	2	20	Quadrant 1 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B0BH-1B0CH	06924-06925	537	3	20	Quadrant 4 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B0DH-1B0EH	06926-06927	537	4	20	Quadrant 4 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1B0FH-1B10H	06928-06929	537	5	20	Negative Wh (Quadrant 2+3) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B11H-1B12H	06930-06931	537	6	20	Quadrant 2 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B13H-1B14H	06932-06933	537	7	20	Quadrant 2 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B15H-1B16H	06934-06935	537	8	20	Quadrant 3 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B17H-1B18H	06936-06937	537	9	20	Quadrant 3 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B19H-1B1AH	06938-06939	538	0	20	I2t Phase A Scaled Priamry	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B1BH-1B1CH	06940-06941	538	1	20	I2t Phase B Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B1DH-1B1EH	06942-06943	538	2	20	I2t Phase C Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B1FH-1B20H	06944-06945	538	3	20	V2t Phase A Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B21H-1B22H	06946-06947	538	4	20	V2t Phase B Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B23H-1B24H	06948-06949	538	5	20	V2t Phase C Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B25H-1B26H	06950-06951	539	0	20	Quadrant 1 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B27H-1B28H	06952-06953	539	1	20	Quadrant 4 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B29H-1B2AH	06954-06955	539	2	20	Quadrant 2 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B2BH-1B2CH	06956-06957	539	3	20	Quadrant 3 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B2DH-1B2EH	06958-06959	450	0	20	Uncompensated Total VAh, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B2FH-1B32H	06960-06963	540	1-2	20	Uncompensated +/- VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
1B33H-1B36H	06964-06967	540	3-4	20	Uncompensated +/- Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1B37H-1B3AH	06968-06971	541	0-1	20	+/- Qh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B3BH-1B4EH	06972-06991	542	0	20	Reserved					
1B4FH-1B5EH	06992-07007	543	0-7	20	Pulse Accumulation Inputs 1-8, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B5FH-1B66H	07008-07015	544	0-3	20	Pulse Aggregations 1-4, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B67H-1B68H	07016-07017	545	0	20	TOU Frozen Reg0 Positive Wh (Quadrant 1+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B69H-1B6AH	07018-07019	545	1	20	TOU Frozen Reg0 Quadrant 1 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B6BH-1B6CH	07020-07021	545	2	20	TOU Frozen Reg0 Quadrant 1 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B6DH-1B6EH	07022-07023	545	3	20	TOU Frozen Reg0 Quadrant 4 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B6FH-1B70H	07024-07025	545	4	20	TOU Frozen Reg0 Quadrant 4 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B71H-1B72H	07026-07027	545	5	20	TOU Frozen Reg0 Negative Wh (Quadrant 2+3) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B73H-1B74H	07028-07029	545	6	20	TOU Frozen Reg0 Quadrant 2 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B75H-1B76H	07030-07031	545	7	20	TOU Frozen Reg0 Quadrant 2 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B77H-1B78H	07032-07033	545	8	20	TOU Frozen Reg0 Quadrant 3 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B79H-1B7AH	07034-07035	545	9	20	TOU Frozen Reg0 Quadrant 3 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B7BH-1B8EH	07036-07055	546	0-9	20	TOU Frozen Reg1 Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1B8FH-1C06H	07056-07175	547-552	0-9	20	TOU Frozen Reg2-Reg7 Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1C07H-1C1AH	07176-07195	553	0-9	20	TOU Frozen Total Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1C1BH-1CCEH	07196-07375	554-562	0-9	20	TOU Prior Month Reg0-Reg7 & Total Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1CCFH-1D82H	07376-07555	563-571	0-9	20	TOU Active Reg0-Reg7 & Total Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1D83H-1E36H	07556-07735	572-580	0-9	20	TOU Current Month Reg0-Reg7 & Total Energy Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E37H-1E3BH	07736-07740	581	0-9	30	TOU Frozen Scaled Energy Settings			F65		
1E3CH-1E40H	07741-07745	582	0-9	30	TOU Prior Month Scaled Energy Settings			F65		
1E41H-1E42H	07746-07747	583	0	30	Total VAh (Quadrant 1+2+3+4) in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E43H-1E44H	07748-07749	583	1	30	Positive VARh (Quadrant 1+2) in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E45H-1E46H	07750-07751	583	2	30	Negative VARh (Quadrant 3+4) in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E47H-1E48H	07752-07753	584	0	30	Positive Wh (Quadrant 1+4) in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E49H-1E4AH	07754-07755	584	1	30	Quadrant 1 VAh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E4BH-1E4CH	07756-07757	584	2	30	Quadrant 1 VARh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E4DH-1E4EH	07758-07759	584	3	30	Quadrant 4 VAh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E4FH-1E50H	07760-07761	584	4	30	Quadrant 4 VARh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E51H-1E52H	07762-07763	584	5	30	Negative Wh (Quadrant 2+3) in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E53H-1E54H	07764-07765	584	6	30	Quadrant 2 VAh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E55H-1E56H	07766-07767	584	7	30	Quadrant 2 VARh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E57H-1E58H	07768-07769	584	8	30	Quadrant 3 VAh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E59H-1E5AH	07770-07771	584	9	30	Quadrant 3 VARh in the Interval, Sclaed Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E5BH-1E5CH	07772-07773	585	0	30	I2t Phase A in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E5DH-1E5EH	07774-07775	585	1	30	I2t Phase B in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E5FH-1E60H	07776-07777	585	2	30	I2t Phase C in the Interval, Sclaed Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1E61H-1E62H	07778-07779	585	3	30	V2t Phase A in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E63H-1E64H	07780-07781	585	4	30	V2t Phase B in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E65H-1E66H	07782-07783	585	5	30	V2t Phase C in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E67H-1E68H	07784-07785	586	0	30	Quadrant 1 Wh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E69H-1E6AH	07786-07787	586	1	30	Quadrant 4 Wh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E6BH-1E6CH	07788-07789	586	2	30	Quadrant 2 Wh in the Interval, Sclaed Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E6DH-1E6EH	07790-07791	586	3	30	Quadrant 3 Wh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E6FH-1E70H	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^{6} - 10^{-7}	F64		
1E71H-1E74H	07794-07797	587	1-2	30	Uncompensated +/- VARh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E75H-1E78H	07798-07801	587	3-4	30	Uncompensated +/- Wh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E79H-1E7CH	07802-07805	588	0-1	30	+/- Qh in the Interval, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E7DH-1E8CH	07806-07821	589	0-7	30	Pulse Accumulation Inputs 1-8 in the Interval, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
1E8DH-1E94H	07822-07829	590	0-3	30	Pulse Aggregations 1-4 in the Interval, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
	Total Average Power Factor Block									
1E95H-1E98H	07830-07833	591	0	50	Total Average Power Factor Block Timestamp	12/31/9999 23:59:59.99		F3	R	
1E99H	07834	592	0	30	Total Average Power Factor Q14	1.000 / 0	0.001 PF	F8	R	
1E9AH	07835	592	1	30	Total Average Power Factor Q23	1.000 / 0	0.001 PF	F8	R	
1E9BH	07836	593	0	30	Maximum Total Average Power Factor Q14	1.000 / 0	0.001 PF	F8	R	
1E9CH	07837	593	1	30	Maximum Total Average Power Factor Q23	1.000 / 0	0.001 PF	F8	R	
1E9DH	07838	594	0	30	Minimum Total Average Power Factor Q14	1.000 / 0	0.001 PF	F8	R	
1E9EH	07839	594	1	30	Minimum Total Average Power Factor Q23	1.000 / 0	0.001 PF	F8	R	
1E9FH-1EA2H	07840-07843	595	0	50	Maximum Total Average Power Factor Q14 Timestamp	12/31/9999 23:59:59.99		F3	R	
1EA3H-1EA6H	07844-07847	595	1	50	Maximum Total Average Power Factor Q23 Timestamp	12/31/9999 23:59:59.99		F3	R	
1EA7H-1EAAH	07848-07851	596	0	50	Minimum Total Average Power Factor Q14 Timestamp	12/31/9999 23:59:59.99		F3	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
1EABH-1EAEH	07852-07855	596	1	50	Minimum Total Average Power Factor Q23 Timestamp	12/31/9999 23:59:59.99		F3	R	
1EAFH-1EB2H	07856-07859	597	0	50	Total Average Power Factor Reset Timestamp	12/31/9999 23:59:59.99		F3	R	
	Reset Active TOU Timestamp									
1EB3H-1EB6H	07860-07863	598	0	50	Reset Active TOU Timestamp	12/31/9999 23:59:59.99		F3	R	
	Negative Maximum Pulse Aggregation Average Block									
1EB7H-1EBAH	07864-07867	599	0	30	Negative Maximum Block Window Average Aggregation 1	0 /- 9,223,372,036,854,776,808	1 Unit	F62	R	
1EBBH-1EC6H	07868-07879	599	1-3	30	Negative Maximum Block Window Average Aggregation 2-4	0 /- 9,223,372,036,854,776,808	1 Unit	F62	R	
1EC7H-1ECAH	07880-07883	600	0	50	Negative Maximum Block Window Average Aggregation 1 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
1ECBH-1ED6H	07884-07895	600	1-3	50	Negative Maximum Block Window Average Aggregation 2-4 Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
	Additional Total Average Power Factor Block									
1ED7H-1EDAH	07896-07899	601	0	20	Initial Wh Q14 (Primary, Binary)	9,999,999,999,999,999 Wh / 0 Wh	1 Wh	F20	R	
1EDBH-1EDEH	07900-07903	601	1	20	Initial WH Q23 (Primary, Binary)	9,999,999,999,999,999 Wh / 0 Wh	1 Wh	F20	R	
1EDFH-1EE2H	07904-07907	601	2	20	Initial VAh Q14 (Primary, Binary)	9,999,999,999,999,999 VAh / 0 VAh	1 VAh	F20	R	
1EE3H-1EE6H	07908-07911	601	3	20	Initial VAh Q23 (Primary, Binary)	9,999,999,999,999,999 VAh / 0 VAh	1 VAh	F20	R	
1EE7H-1EEAH	07912-07915	602	0	20	Accumlated Wh Q14 (Primary, Binary)	9,999,999,999,999,999 Wh / 0 Wh	1 Wh	F20	R	
1EEBH-1EEEH	07916-07919	602	1	20	Accumlated Wh Q23 (Primary, Binary)	9,999,999,999,999,999 Wh / 0 Wh	1 Wh	F20	R	
1EEFH-1EF2H	07920-07923	602	2	20	Accumulated VAh Q14 (Primary, Binary)	9,999,999,999,999,999 VAh / 0 VAh	1 VAh	F20	R	
1EF3H-1EF6H	07924-07927	602	3	20	Accumulated VAh Q23, (Primary, Binary)	9,999,999,999,999,999 VAh / 0 VAh	1 VAh	F20	R	
	Scratchpad Block									
2000H-207FH	08193-08320				Scratchpad Registers					
	Master Device Data Block									
2100H-21FFH	08449-08704									
	Power Quality Test (EN-50160/IEC61000-4-30) Dynamic Readings Block									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2200H-2203H	08705-08708	603	0		Dynamic Readings Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
2204H-2205H	08709-08710	604	0		Sym Comp Voltage Magnitude 3 Sec - zero sequence	+32767 / -32768	1/65536 V	F7	R	
2206H-2207H	08711-08712	604	1		Sym Comp Voltage Magnitude 3 Sec - positive sequence	+32767 / -32768	1/65536 V	F7	R	
2208H-2209H	08713-08714	604	2		Sym Comp Voltage Magnitude 3 Sec - negative sequence	+32767 / -32768	1/65536 V	F7	R	
220AH	08715	605	0		Sym Comp Voltage Phase 3 Sec - zero sequence	+327.67 / -327.68	0.01 degree	F9	R	
220BH	08716	605	1		Sym Comp Voltage Phase 3 Sec - positive sequence	+327.67 / -327.68	0.01 degree	F9	R	
220CH	08717	605	2		Sym Comp Voltage Phase 3 Sec - negative sequence	+327.67 / -327.68	0.01 degree	F9	R	
220DH-220EH	08718-08719	606	0		10 sec Ave Freq	+32767Hz / 0Hz	1/65536Hz	F7	R	
220FH-2210H	08720-08721	607	0		10 min Ave RMS Van/ab	+32767 Vsec / 0 Vsec	1/65536 Vsec	F7	R	
2211H-2212H	08722-08723	607	1		10 min Ave RMS Vbn/bc	+32767 Vsec / 0 Vsec	1/65536 Vsec	F7	R	
2213H-2214H	08724-08725	607	2		10 min Ave RMS Vcn/ca	+32767 Vsec / 0 Vsec	1/65536 Vsec	F7	R	
2215H-2216H	08726-08727	608	0		Sym Comp Voltage Magnitude 10 Min - zero sequence	+32767 / -32768	1/65536 V	F7	R	
2217H-2218H	08728-08729	608	1		Sym Comp Voltage Magnitude 10 Min - positive sequence	+32767 / -32768	1/65536 V	F7	R	
2219H-221AH	08730-08731	608	2		Sym Comp Voltage Magnitude 10 Min - negative sequence	+32767 / -32768	1/65536 V	F7	R	
221BH	08732	609	0		Sym Comp 10 Min negative sequence ratio (Neg/Pos, PN or PP)	+327.67% / 0%	0.01%	F10	R	
221CH	08733	610	0		Status (OK 1/ Error 0) / reserved				R	
Power Quality Test (EN-50160/IEC61000-4-30) Harmonic Data Block										
221DH-2220H	08734-08737	611	0		Harmonic Data Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
2221H	08738	612	0		10 min Ave Van/ab Harmonic %, 2nd order	+327.67% / -327.68%	0.01%	F10	R	
2222H	08739	612	1		10 min Ave Van/ab Harmonic %, 3rd order	+327.67% / -327.68%	0.01%	F10	R	
2223H	08740	612	2		10 min Ave Van/ab Harmonic %, 4th order	+327.67% / -327.68%	0.01%	F10	R	
2224H	08741	612	3		10 min Ave Van/ab Harmonic %, 5th order	+327.67% / -327.68%	0.01%	F10	R	
2225H	08742	612	4		10 min Ave Van/ab Harmonic %, 6th order	+327.67% / -327.68%	0.01%	F10	R	
2226H	08743	612	5		10 min Ave Van/ab Harmonic %, 7th order	+327.67% / -327.68%	0.01%	F10	R	
2227H	08744	612	6		10 min Ave Van/ab Harmonic %, 8th order	+327.67% / -327.68%	0.01%	F10	R	
2228H	08745	612	7		10 min Ave Van/ab Harmonic %, 9th order	+327.67% / -327.68%	0.01%	F10	R	
2229H	08746	612	8		10 min Ave Van/ab Harmonic %, 10th order	+327.67% / -327.68%	0.01%	F10	R	
222AH	08747	612	9		10 min Ave Van/ab Harmonic %, 11th order	+327.67% / -327.68%	0.01%	F10	R	
222BH	08748	612	10		10 min Ave Van/ab Harmonic %, 12th order	+327.67% / -327.68%	0.01%	F10	R	
222CH	08749	612	11		10 min Ave Van/ab Harmonic %, 13th order	+327.67% / -327.68%	0.01%	F10	R	
222DH	08750	612	12		10 min Ave Van/ab Harmonic %, 14th order	+327.67% / -327.68%	0.01%	F10	R	
222EH	08751	612	13		10 min Ave Van/ab Harmonic %, 15th order	+327.67% / -327.68%	0.01%	F10	R	
222FH	08752	612	14		10 min Ave Van/ab Harmonic %, 16th order	+327.67% / -327.68%	0.01%	F10	R	
2230H	08753	612	15		10 min Ave Van/ab Harmonic %, 17th order	+327.67% / -327.68%	0.01%	F10	R	
2231H	08754	612	16		10 min Ave Van/ab Harmonic %, 18th order	+327.67% / -327.68%	0.01%	F10	R	
2232H	08755	612	17		10 min Ave Van/ab Harmonic %, 19th order	+327.67% / -327.68%	0.01%	F10	R	
2233H	08756	612	18		10 min Ave Van/ab Harmonic %, 20th order	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2234H	08757	612	19		10 min Ave Van/ab Harmonic %, 21st order	+327.67% / -327.68%	0.01%	F10	R	
2235H	08758	612	20		10 min Ave Van/ab Harmonic %, 22nd order	+327.67% / -327.68%	0.01%	F10	R	
2236H	08759	612	21		10 min Ave Van/ab Harmonic %, 23th order	+327.67% / -327.68%	0.01%	F10	R	
2237H	08760	612	22		10 min Ave Van/ab Harmonic %, 24th order	+327.67% / -327.68%	0.01%	F10	R	
2238H	08761	612	23		10 min Ave Van/ab Harmonic %, 25th order	+327.67% / -327.68%	0.01%	F10	R	
2239H	08762	613	0		10 min Ave Vbn/bc Harmonic %, 2nd order	+327.67% / -327.68%	0.01%	F10	R	
223AH	08763	613	1		10 min Ave Vbn/bc Harmonic %, 3rd order	+327.67% / -327.68%	0.01%	F10	R	
223BH	08764	613	2		10 min Ave Vbn/bc Harmonic %, 4th order	+327.67% / -327.68%	0.01%	F10	R	
223CH	08765	613	3		10 min Ave Vbn/bc Harmonic %, 5th order	+327.67% / -327.68%	0.01%	F10	R	
223DH	08766	613	4		10 min Ave Vbn/bc Harmonic %, 6th order	+327.67% / -327.68%	0.01%	F10	R	
223EH	08767	613	5		10 min Ave Vbn/bc Harmonic %, 7th order	+327.67% / -327.68%	0.01%	F10	R	
223FH	08768	613	6		10 min Ave Vbn/bc Harmonic %, 8th order	+327.67% / -327.68%	0.01%	F10	R	
2240H	08769	613	7		10 min Ave Vbn/bc Harmonic %, 9th order	+327.67% / -327.68%	0.01%	F10	R	
2241H	08770	613	8		10 min Ave Vbn/bc Harmonic %, 10th order	+327.67% / -327.68%	0.01%	F10	R	
2242H	08771	613	9		10 min Ave Vbn/bc Harmonic %, 11th order	+327.67% / -327.68%	0.01%	F10	R	
2243H	08772	613	10		10 min Ave Vbn/bc Harmonic %, 12th order	+327.67% / -327.68%	0.01%	F10	R	
2244H	08773	613	11		10 min Ave Vbn/bc Harmonic %, 13th order	+327.67% / -327.68%	0.01%	F10	R	
2245H	08774	613	12		10 min Ave Vbn/bc Harmonic %, 14th order	+327.67% / -327.68%	0.01%	F10	R	
2246H	08775	613	13		10 min Ave Vbn/bc Harmonic %, 15th order	+327.67% / -327.68%	0.01%	F10	R	
2247H	08776	613	14		10 min Ave Vbn/bc Harmonic %, 16th order	+327.67% / -327.68%	0.01%	F10	R	
2248H	08777	613	15		10 min Ave Vbn/bc Harmonic %, 17th order	+327.67% / -327.68%	0.01%	F10	R	
2249H	08778	613	16		10 min Ave Vbn/bc Harmonic %, 18th order	+327.67% / -327.68%	0.01%	F10	R	
224AH	08779	613	17		10 min Ave Vbn/bc Harmonic %, 19th order	+327.67% / -327.68%	0.01%	F10	R	
224BH	08780	613	18		10 min Ave Vbn/bc Harmonic %, 20th order	+327.67% / -327.68%	0.01%	F10	R	
224CH	08781	613	19		10 min Ave Vbn/bc Harmonic %, 21st order	+327.67% / -327.68%	0.01%	F10	R	
224DH	08782	613	20		10 min Ave Vbn/bc Harmonic %, 22nd order	+327.67% / -327.68%	0.01%	F10	R	
224EH	08783	613	21		10 min Ave Vbn/bc Harmonic %, 23th order	+327.67% / -327.68%	0.01%	F10	R	
224FH	08784	613	22		10 min Ave Vbn/bc Harmonic %, 24th order	+327.67% / -327.68%	0.01%	F10	R	
2250H	08785	613	23		10 min Ave Vbn/bc Harmonic %, 25th order	+327.67% / -327.68%	0.01%	F10	R	
2251H	08786	614	0		10 min Ave Vcn/ca Harmonic %, 2nd order	+327.67% / -327.68%	0.01%	F10	R	
2252H	08787	614	1		10 min Ave Vcn/ca Harmonic %, 3rd order	+327.67% / -327.68%	0.01%	F10	R	
2253H	08788	614	2		10 min Ave Vcn/ca Harmonic %, 4th order	+327.67% / -327.68%	0.01%	F10	R	
2254H	08789	614	3		10 min Ave Vcn/ca Harmonic %, 5th order	+327.67% / -327.68%	0.01%	F10	R	
2255H	08790	614	4		10 min Ave Vcn/ca Harmonic %, 6th order	+327.67% / -327.68%	0.01%	F10	R	
2256H	08791	614	5		10 min Ave Vcn/ca Harmonic %, 7th order	+327.67% / -327.68%	0.01%	F10	R	
2257H	08792	614	6		10 min Ave Vcn/ca Harmonic %, 8th order	+327.67% / -327.68%	0.01%	F10	R	
2258H	08793	614	7		10 min Ave Vcn/ca Harmonic %, 9th order	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2259H	08794	614	8		10 min Ave Vcn/ca Harmonic %, 10th order	+327.67% / -327.68%	0.01%	F10	R	
225AH	08795	614	9		10 min Ave Vcn/ca Harmonic %, 11th order	+327.67% / -327.68%	0.01%	F10	R	
225BH	08796	614	10		10 min Ave Vcn/ca Harmonic %, 12th order	+327.67% / -327.68%	0.01%	F10	R	
225CH	08797	614	11		10 min Ave Vcn/ca Harmonic %, 13th order	+327.67% / -327.68%	0.01%	F10	R	
225DH	08798	614	12		10 min Ave Vcn/ca Harmonic %, 14th order	+327.67% / -327.68%	0.01%	F10	R	
225EH	08799	614	13		10 min Ave Vcn/ca Harmonic %, 15th order	+327.67% / -327.68%	0.01%	F10	R	
225FH	08800	614	14		10 min Ave Vcn/ca Harmonic %, 16th order	+327.67% / -327.68%	0.01%	F10	R	
2260H	08801	614	15		10 min Ave Vcn/ca Harmonic %, 17th order	+327.67% / -327.68%	0.01%	F10	R	
2261H	08802	614	16		10 min Ave Vcn/ca Harmonic %, 18th order	+327.67% / -327.68%	0.01%	F10	R	
2262H	08803	614	17		10 min Ave Vcn/ca Harmonic %, 19th order	+327.67% / -327.68%	0.01%	F10	R	
2263H	08804	614	18		10 min Ave Vcn/ca Harmonic %, 20th order	+327.67% / -327.68%	0.01%	F10	R	
2264H	08805	614	19		10 min Ave Vcn/ca Harmonic %, 21st order	+327.67% / -327.68%	0.01%	F10	R	
2265H	08806	614	20		10 min Ave Vcn/ca Harmonic %, 22nd order	+327.67% / -327.68%	0.01%	F10	R	
2266H	08807	614	21		10 min Ave Vcn/ca Harmonic %, 23th order	+327.67% / -327.68%	0.01%	F10	R	
2267H	08808	614	22		10 min Ave Vcn/ca Harmonic %, 24th order	+327.67% / -327.68%	0.01%	F10	R	
2268H	08809	614	23		10 min Ave Vcn/ca Harmonic %, 25th order	+327.67% / -327.68%	0.01%	F10	R	
2269H	08810	615	0		10 min Ave Van/ab THD %	+327.67% / -327.68%	0.01%	F10	R	
226AH	08811	615	1		10 min Ave Vbn/bc THD %	+327.67% / -327.68%	0.01%	F10	R	
226BH	08812	615	2		10 min Ave Vcn/ca THD %	+327.67% / -327.68%	0.01%	F10	R	
Power Quality Test (EN-50160/IEC61000-4-30) Current Week Test Block										
226CH-226FH	08813-08816	616	0		Current Week Test Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
2270H-2273H	08817-08820	616	1		Current Week Test Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	
2274H-2277H	08821-08824	616	2		Current Week Test End Time	12/31/9999 23:59:59.99	10 msec	F3	R	
2278H-2279H	08825-08826	617	0		Fast Voltage Fluctuation Count	4,294,967,295 / 0	1 unit	F53	R	
227AH	08827	618	0		Mains Frequency Count	65,535 / 0	1 unit	F51	R	
227BH	08828	618	1		10 min Ave Count	65,535 / 0	1 unit	F51	R	
227CH	08829	618	2		Flicker PLT Count	65,535 / 0	1 unit	F51	R	
227DH	08830	619	0		10 sec Ave Freq Bin0, Freq < 42.5(51.0) Hz	65,535 / 0	1 unit	F51	R	
227EH	08831	619	1		10 sec Ave Freq Bin1, 42.5(51.0) Hz <= Freq < 47(56.4) Hz	65,535 / 0	1 unit	F51	R	
227FH	08832	619	2		10 sec Ave Freq Bin2, 47(56.4) Hz <= Freq < 49(58.8) Hz	65,535 / 0	1 unit	F51	R	
2280H	08833	619	3		10 sec Ave Freq Bin3, 49(58.8) Hz <= Freq < 49.5(59.4) Hz	65,535 / 0	1 unit	F51	R	
2281H	08834	619	4		10 sec Ave Freq Bin4, 49.5(59.4) Hz <= Freq < 50(60.0) Hz	65,535 / 0	1 unit	F51	R	
2282H	08835	619	5		10 sec Ave Freq Bin5, 50(60.0) Hz <= Freq < 50.5(60.6) Hz	65,535 / 0	1 unit	F51	R	
2283H	08836	619	6		10 sec Ave Freq Bin6, 50.5(60.6) Hz <= Freq < 51(61.2) Hz	65,535 / 0	1 unit	F51	R	
2284H	08837	619	7		10 sec Ave Freq Bin7, 51(61.2) Hz <= Freq < 52(62.4) Hz	65,535 / 0	1 unit	F51	R	
2285H	08838	619	8		10 sec Ave Freq Bin8, 52(62.4) Hz <= Freq < 57.5(69.0) Hz	65,535 / 0	1 unit	F51	R	
2286H	08839	619	9		10 sec Ave Freq Bin9, 57.5(69.0) <= Freq	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2287H	08840	620	0		10 min Ave Van/ab RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
2288H	08841	620	1		10 min Ave Van/ab RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
2289H	08842	620	2		10 min Ave Van/ab RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
228AH	08843	620	3		10 min Ave Van/ab RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
228BH	08844	620	4		10 min Ave Van/ab RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
228CH	08845	621	0		10 min Ave Vbn/bc RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
228DH	08846	621	1		10 min Ave Vbn/bc RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
228EH	08847	621	2		10 min Ave Vbn/bc RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
228FH	08848	621	3		10 min Ave Vbn/bc RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
2290H	08849	621	4		10 min Ave Vbn/bc RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
2291H	08850	622	0		10 min Ave Vcn/ca RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
2292H	08851	622	1		10 min Ave Vcn/ca RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
2293H	08852	622	2		10 min Ave Vcn/ca RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
2294H	08853	622	3		10 min Ave Vcn/ca RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
2295H	08854	622	4		10 min Ave Vcn/ca RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
2296H-2297H	08855-08856	623	0		Fast Voltage Van/an Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
2298H-2299H	08857-08858	623	1		Fast Voltage Van/an Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
229AH-229BH	08859-08860	623	2		Fast Voltage Van/an Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
229CH-229DH	08861-08862	623	3		Fast Voltage Van/an Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	
229EH-229FH	08863-08864	623	4		Fast Voltage Van/an Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
22A0H-22A1H	08865-08866	623	5		Fast Voltage Van/an Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
22A2H-22A3H	08867-08868	624	0		Fast Voltage Vbn/bc Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
22A4H-22A5H	08869-08870	624	1		Fast Voltage Vbn/bc Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
22A6H-22A7H	08871-08872	624	2		Fast Voltage Vbn/bc Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
22A8H-22A9H	08873-08874	624	3		Fast Voltage Vbn/bc Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	
22AAH-22ABH	08875-08876	624	4		Fast Voltage Vbn/bc Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
22ACH-22ADH	08877-08878	624	5		Fast Voltage Vbn/bc Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
22AEH-22AFH	08879-08880	625	0		Fast Voltage Vcn/ca Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
22B0H-22B1H	08881-08882	625	1		Fast Voltage Vcn/ca Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
22B2H-22B3H	08883-08884	625	2		Fast Voltage Vcn/ca Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
22B4H-22B5H	08885-08886	625	3		Fast Voltage Vcn/ca Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	
22B6H-22B7H	08887-08888	625	4		Fast Voltage Vcn/ca Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
22B8H-22B9H	08889-08890	625	5		Fast Voltage Vcn/ca Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
22BAH	08891	626	0		Flicker PLT Van/ab Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
22BBH	08892	626	1		Flicker PLT Van/ab Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	
22BCH	08893	626	2		Flicker PLT Vbn/bc Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
22BDH	08894	626	3		Flicker PLT Vbn/bc Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
22BEH	08895	626	4		Flicker PLT Vcn/ca Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
22BFH	08896	626	5		Flicker PLT Vcn/ca Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	
22C0H	08897	627	0		Fund. Sym. Comp. Bin0 (- Seq. Mag < 2% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
22C1H	08898	627	1		Fund. Sym. Comp. Bin1 (2% <= -Seq.Mag. < 3% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
22C2H	08899	627	2		Fund. Sym. Comp. Bin2 (-Seq. Mag. >= 3% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
22C3H	08900	628	0		10 min Ave Van/ab 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
22C4H	08901	628	1		10 min Ave Van/ab 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	
22C5H	08902	628	2		10 min Ave Van/ab 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
22C6H	08903	628	3		10 min Ave Van/ab 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
22C7H	08904	628	4		10 min Ave Van/ab 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22C8H	08905	628	5		10 min Ave Van/ab 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22C9H	08906	628	6		10 min Ave Van/ab 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22CAH	08907	628	7		10 min Ave Van/ab 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22CBH	08908	628	8		10 min Ave Van/ab 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22CCH	08909	628	9		10 min Ave Van/ab 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
22CDH	08910	628	10		10 min Ave Van/ab 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22CEH	08911	628	11		10 min Ave Van/ab 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
22CFH	08912	628	12		10 min Ave Van/ab 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D0H	08913	628	13		10 min Ave Van/ab 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D1H	08914	628	14		10 min Ave Van/ab 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D2H	08915	628	15		10 min Ave Van/ab 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
22D3H	08916	628	16		10 min Ave Van/ab 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D4H	08917	628	17		10 min Ave Van/ab 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22D5H	08918	628	18		10 min Ave Van/ab 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D6H	08919	628	19		10 min Ave Van/ab 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D7H	08920	628	20		10 min Ave Van/ab 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22D8H	08921	628	21		10 min Ave Van/ab 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22D9H	08922	628	22		10 min Ave Van/ab 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22DAH	08923	628	23		10 min Ave Van/ab 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22DBH	08924	629	0		10 min Ave Vbn/bc 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
22DCH	08925	629	1		10 min Ave Vbn/bc 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	
22DDH	08926	629	2		10 min Ave Vbn/bc 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
22DEH	08927	629	3		10 min Ave Vbn/bc 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
22DFH	08928	629	4		10 min Ave Vbn/bc 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E0H	08929	629	5		10 min Ave Vbn/bc 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22E1H	08930	629	6		10 min Ave Vbn/bc 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E2H	08931	629	7		10 min Ave Vbn/bc 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
22E3H	08932	629	8		10 min Ave Vbn/bc 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E4H	08933	629	9		10 min Ave Vbn/bc 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
22E5H	08934	629	10		10 min Ave Vbn/bc 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E6H	08935	629	11		10 min Ave Vbn/bc 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
22E7H	08936	629	12		10 min Ave Vbn/bc 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E8H	08937	629	13		10 min Ave Vbn/bc 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22E9H	08938	629	14		10 min Ave Vbn/bc 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22EAH	08939	629	15		10 min Ave Vbn/bc 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
22EBH	08940	629	16		10 min Ave Vbn/bc 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22ECH	08941	629	17		10 min Ave Vbn/bc 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22EDH	08942	629	18		10 min Ave Vbn/bc 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22EEH	08943	629	19		10 min Ave Vbn/bc 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22EFH	08944	629	20		10 min Ave Vbn/bc 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22F0H	08945	629	21		10 min Ave Vbn/bc 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22F1H	08946	629	22		10 min Ave Vbn/bc 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22F2H	08947	629	23		10 min Ave Vbn/bc 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22F3H	08948	630	0		10 min Ave Vcn/ca 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
22F4H	08949	630	1		10 min Ave Vcn/ca 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	
22F5H	08950	630	2		10 min Ave Vcn/ca 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
22F6H	08951	630	3		10 min Ave Vcn/ca 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
22F7H	08952	630	4		10 min Ave Vcn/ca 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22F8H	08953	630	5		10 min Ave Vcn/ca 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22F9H	08954	630	6		10 min Ave Vcn/ca 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22FAH	08955	630	7		10 min Ave Vcn/ca 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
22FBH	08956	630	8		10 min Ave Vcn/ca 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22FCH	08957	630	9		10 min Ave Vcn/ca 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
22FDH	08958	630	10		10 min Ave Vcn/ca 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
22FEH	08959	630	11		10 min Ave Vcn/ca 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
22FFH	08960	630	12		10 min Ave Vcn/ca 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2300H	08961	630	13		10 min Ave Vcn/ca 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2301H	08962	630	14		10 min Ave Vcn/ca 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2302H	08963	630	15		10 min Ave Vcn/ca 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
2303H	08964	630	16		10 min Ave Vcn/ca 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2304H	08965	630	17		10 min Ave Vcn/ca 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2305H	08966	630	18		10 min Ave Vcn/ca 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2306H	08967	630	19		10 min Ave Vcn/ca 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2307H	08968	630	20		10 min Ave Vcn/ca 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2308H	08969	630	21		10 min Ave Vcn/ca 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2309H	08970	630	22		10 min Ave Vcn/ca 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
230AH	08971	630	23		10 min Ave Vcn/ca 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
230BH	08972	631	0		10 min Ave Van/ab THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
230CH	08973	631	1		10 min Ave Vbn/bc THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
230DH	08974	631	2		10 min Ave Vcn/ca THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
230EH	08975	632	0		Freq % for Sync System bin (-1% < f < +1%)	65,535 / 0	1 unit	F51	R	
230FH	08976	632	1		Freq % for Sync System bin (-6% < f < +4%)	65,535 / 0	1 unit	F51	R	
2310H	08977	632	2		Freq % for No Sync System bin (-2% < f < +2%)	65,535 / 0	1 unit	F51	R	
2311H	08978	632	3		Freq % for No Sync System bin (-15% < f < +15%)	65,535 / 0	1 unit	F51	R	
2312H	08979	633	0		FVF % for Van/ab bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
2313H	08980	633	1		FVF % for Vbn/bc bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
2314H	08981	633	2		FVF % for Vcn/ca bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
2315H	08982	633	3		FVF % for Van/ab bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
2316H	08983	633	4		FVF % for Vbn/bc bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
2317H	08984	633	5		FVF % for Vcn/ca bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
2318H	08985	634	0		LSVF % for Van/ab bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
2319H	08986	634	1		LSVF % for Vbn/bc bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
231AH	08987	634	2		LSVF % for Vcn/ca bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
231BH	08988	634	3		LSVF % for Van/ab bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
231CH	08989	634	4		LSVF % for Vbn/bc bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
231DH	08990	634	5		LSVF % for Vcn/ca bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
231EH	08991	635	0,1		Status Byte 0 / Status Byte 1				R	
231FH	08992	635	2,3		Status Byte 2 / Status Byte 3				R	
2320H	08993	635	4,5		Status Byte 4 / Status Byte 5				R	
Power Quality Test (EN-50160/IEC61000-4-30) Previous Week Block										
2321H-2324H	08994-08997	636	0		Previous Week Test Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
2325H-2328H	08998-09001	636	1		Previous Week Test Start Time	12/31/9999 23:59:59.99	10 msec	F3	R	
2329H-232CH	09002-09005	636	2		Previous Week Test End Time	12/31/9999 23:59:59.99	10 msec	F3	R	
232DH-232EH	09006-09007	637	0		Fast Voltage Fluctuation Count	4,294,967,295 / 0	1 unit	F53	R	
232FH	09008	638	0		Mains Frequency Count	65,535 / 0	1 unit	F51	R	
2330H	09009	638	1		10 min Ave Count	65,535 / 0	1 unit	F51	R	
2331H	09010	638	2		Flicker PLT Count	65,535 / 0	1 unit	F51	R	
2332H	09011	639	0		10 sec Ave Freq Bin0, Freq < 42.5(51.0) Hz	65,535 / 0	1 unit	F51	R	
2333H	09012	639	1		10 sec Ave Freq Bin1, 42.5(51.0) Hz <= Freq < 47(56.4) Hz	65,535 / 0	1 unit	F51	R	
2334H	09013	639	2		10 sec Ave Freq Bin2, 47(56.4) Hz <= Freq < 49(58.8) Hz	65,535 / 0	1 unit	F51	R	
2335H	09014	639	3		10 sec Ave Freq Bin3, 49(58.8) Hz <= Freq < 49.5(59.4) Hz	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2336H	09015	639	4		10 sec Ave Freq Bin4, 49.5(59.4) Hz <= Freq < 50(60.0) Hz	65,535 / 0	1 unit	F51	R	
2337H	09016	639	5		10 sec Ave Freq Bin5, 50(60.0) Hz <= Freq < 50.5(60.6) Hz	65,535 / 0	1 unit	F51	R	
2338H	09017	639	6		10 sec Ave Freq Bin6, 50.5(60.6) Hz <= Freq < 51(61.2) Hz	65,535 / 0	1 unit	F51	R	
2339H	09018	639	7		10 sec Ave Freq Bin7, 51(61.2) Hz <= Freq < 52(62.4) Hz	65,535 / 0	1 unit	F51	R	
233AH	09019	639	8		10 sec Ave Freq Bin8, 52(62.4) Hz <= Freq < 57.5(69.0) Hz	65,535 / 0	1 unit	F51	R	
233BH	09020	639	9		10 sec Ave Freq Bin9, 57.5(69.0) <= Freq	65,535 / 0	1 unit	F51	R	
233CH	09021	640	0		10 min Ave Van/ab RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
233DH	09022	640	1		10 min Ave Van/ab RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
233EH	09023	640	2		10 min Ave Van/ab RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
233FH	09024	640	3		10 min Ave Van/ab RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
2340H	09025	640	4		10 min Ave Van/ab RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
2341H	09026	641	0		10 min Ave Vbn/bc RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
2342H	09027	641	1		10 min Ave Vbn/bc RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
2343H	09028	641	2		10 min Ave Vbn/bc RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
2344H	09029	641	3		10 min Ave Vbn/bc RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
2345H	09030	641	4		10 min Ave Vbn/bc RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
2346H	09031	642	0		10 minAve Vcn/ca RMS Bin0, V < 85%	65,535 / 0	1 unit	F51	R	
2347H	09032	642	1		10 minAve Vcn/ca RMS Bin1, 85% <= V < 90%	65,535 / 0	1 unit	F51	R	
2348H	09033	642	2		10 minAve Vcn/ca RMS Bin2, 90% <= V < 100%	65,535 / 0	1 unit	F51	R	
2349H	09034	642	3		10 minAve Vcn/ca RMS Bin3, 100% <= V < 110%	65,535 / 0	1 unit	F51	R	
234AH	09035	642	4		10 minAve Vcn/ca RMS Bin4, 110% <= V	65,535 / 0	1 unit	F51	R	
234BH-234CH	06036-09037	643	0		Fast Voltage Van/an Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
234DH-234EH	09038-09039	643	1		Fast Voltage Van/an Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
234FH-2350H	09040-09041	643	2		Fast Voltage Van/an Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
2351H-2352H	09042-09043	643	3		Fast Voltage Van/an Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	
2353H-2354H	09044-09045	643	4		Fast Voltage Van/an Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
2355H-2356H	09046-09047	643	5		Fast Voltage Van/an Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
2357H-2358H	09048-09049	644	0		Fast Voltage Vbn/bc Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
2359H-235AH	09050-09051	644	1		Fast Voltage Vbn/bc Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
235BH-235CH	09052-09053	644	2		Fast Voltage Vbn/bc Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
235DH-235EH	09054-09055	644	3		Fast Voltage Vbn/bc Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	
235FH-2360H	09056-09057	644	4		Fast Voltage Vbn/bc Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
2361H-2362H	09058-09059	644	5		Fast Voltage Vbn/bc Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
2363H-2364H	09060-09061	645	0		Fast Voltage Vcn/ca Bin0, V < 90 %	4,294,967,295 / 0	1 unit	F53	R	
2365H-2366H	09062-09063	645	1		Fast Voltage Vcn/ca Bin1, 90% <= V < 95 %	4,294,967,295 / 0	1 unit	F53	R	
2367H-2368H	09064-09065	645	2		Fast Voltage Vcn/ca Bin2, 95% <= V < 100 %	4,294,967,295 / 0	1 unit	F53	R	
2369H-236AH	09066-09067	645	3		Fast Voltage Vcn/ca Bin3, 100% <= V < 105 %	4,294,967,295 / 0	1 unit	F53	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
236BH-236CH	09068-09069	645	4		Fast Voltage Vcn/ca Bin4, 105% <= V < 110 %	4,294,967,295 / 0	1 unit	F53	R	
236DH-236EH	09070-09071	645	5		Fast Voltage Vcn/ca Bin5, 110% <= V	4,294,967,295 / 0	1 unit	F53	R	
236FH	09072	646	0		Flicker PLT Van/ab Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
2370H	09073	646	1		Flicker PLT Van/ab Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	
2371H	09074	646	2		Flicker PLT Vbn/bc Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
2372H	09075	646	3		Flicker PLT Vbn/bc Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	
2373H	09076	646	4		Flicker PLT Vcn/ca Bin0, PLT <1	65,535 / 0	1 unit	F51	R	
2374H	09077	646	5		Flicker PLT Vcn/ca Bin1, PLT >=1	65,535 / 0	1 unit	F51	R	
2375H	09078	647	0		Fund. Sym. Comp. Bin0 (- Seq. Mag < 2% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
2376H	09079	647	1		Fund. Sym. Comp. Bin1 (2% <= -Seq.Mag. < 3% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
2377H	09080	647	2		Fund. Sym. Comp. Bin2 (-Seq. Mag. >= 3% of +Seq. Mag.)	65,535 / 0	1 unit	F51	R	
2378H	09081	648	0		10 min Ave Van/ab 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
2379H	09082	648	1		10 min Ave Van/ab 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	
237AH	09083	648	2		10 min Ave Van/ab 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
237BH	09084	648	3		10 min Ave Van/ab 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
237CH	09085	648	4		10 min Ave Van/ab 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
237DH	09086	648	5		10 min Ave Van/ab 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
237EH	09087	648	6		10 min Ave Van/ab 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
237FH	09088	648	7		10 min Ave Van/ab 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2380H	09089	648	8		10 min Ave Van/ab 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2381H	09090	648	9		10 min Ave Van/ab 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
2382H	09091	648	10		10 min Ave Van/ab 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2383H	09092	648	11		10 min Ave Van/ab 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
2384H	09093	648	12		10 min Ave Van/ab 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2385H	09094	648	13		10 min Ave Van/ab 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2386H	09095	648	14		10 min Ave Van/ab 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2387H	09096	648	15		10 min Ave Van/ab 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
2388H	09097	648	16		10 min Ave Van/ab 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2389H	09098	648	17		10 min Ave Van/ab 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
238AH	09099	648	18		10 min Ave Van/ab 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
238BH	09100	648	19		10 min Ave Van/ab 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
238CH	09101	648	20		10 min Ave Van/ab 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
238DH	09102	648	21		10 min Ave Van/ab 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
238EH	09103	648	22		10 min Ave Van/ab 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
238FH	09104	648	23		10 min Ave Van/ab 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2390H	09105	649	0		10 min Ave Vbn/bc 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
2391H	09106	649	1		10 min Ave Vbn/bc 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2392H	09107	649	2		10 min Ave Vbn/bc 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
2393H	09108	649	3		10 min Ave Vbn/bc 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
2394H	09109	649	4		10 min Ave Vbn/bc 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2395H	09110	649	5		10 min Ave Vbn/bc 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2396H	09111	649	6		10 min Ave Vbn/bc 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2397H	09112	649	7		10 min Ave Vbn/bc 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
2398H	09113	649	8		10 min Ave Vbn/bc 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
2399H	09114	649	9		10 min Ave Vbn/bc 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
239AH	09115	649	10		10 min Ave Vbn/bc 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
239BH	09116	649	11		10 min Ave Vbn/bc 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
239CH	09117	649	12		10 min Ave Vbn/bc 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
239DH	09118	649	13		10 min Ave Vbn/bc 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
239EH	09119	649	14		10 min Ave Vbn/bc 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
239FH	09120	649	15		10 min Ave Vbn/bc 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
23A0H	09121	649	16		10 min Ave Vbn/bc 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23A1H	09122	649	17		10 min Ave Vbn/bc 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23A2H	09123	649	18		10 min Ave Vbn/bc 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23A3H	09124	649	19		10 min Ave Vbn/bc 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23A4H	09125	649	20		10 min Ave Vbn/bc 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23A5H	09126	649	21		10 min Ave Vbn/bc 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23A6H	09127	649	22		10 min Ave Vbn/bc 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23A7H	09128	649	23		10 min Ave Vbn/bc 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23A8H	09129	650	0		10 min Ave Vcn/ca 2nd Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
23A9H	09130	650	1		10 min Ave Vcn/ca 3nd Harm bin, >= 5.0%	65,535 / 0	1 unit	F51	R	
23AAH	09131	650	2		10 min Ave Vcn/ca 4th Harm bin, >= 1.0%	65,535 / 0	1 unit	F51	R	
23ABH	09132	650	3		10 min Ave Vcn/ca 5th Harm bin, >= 6.0%	65,535 / 0	1 unit	F51	R	
23ACH	09133	650	4		10 min Ave Vcn/ca 6th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23ADH	09134	650	5		10 min Ave Vcn/ca 7th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23AEH	09135	650	6		10 min Ave Vcn/ca 8th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23AFH	09136	650	7		10 min Ave Vcn/ca 9th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23B0H	09137	650	8		10 min Ave Vcn/ca 10th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23B1H	09138	650	9		10 min Ave Vcn/ca 11th Harm bin, >= 3.5%	65,535 / 0	1 unit	F51	R	
23B2H	09139	650	10		10 min Ave Vcn/ca 12th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23B3H	09140	650	11		10 min Ave Vcn/ca 13th Harm bin, >= 3.0%	65,535 / 0	1 unit	F51	R	
23B4H	09141	650	12		10 min Ave Vcn/ca 14th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23B5H	09142	650	13		10 min Ave Vcn/ca 15th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23B6H	09143	650	14		10 min Ave Vcn/ca 16th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
23B7H	09144	650	15		10 min Ave Vcn/ca 17th Harm bin, >= 2.0%	65,535 / 0	1 unit	F51	R	
23B8H	09145	650	16		10 min Ave Vcn/ca 18th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23B9H	09146	650	17		10 min Ave Vcn/ca 19th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23BAH	09147	650	18		10 min Ave Vcn/ca 20th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23BBH	09148	650	19		10 min Ave Vcn/ca 21st Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23BCH	09149	650	20		10 min Ave Vcn/ca 22nd Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23BDH	09150	650	21		10 min Ave Vcn/ca 23rd Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23BEH	09151	650	22		10 min Ave Vcn/ca 24th Harm bin, >= 0.5%	65,535 / 0	1 unit	F51	R	
23BFH	09152	650	23		10 min Ave Vcn/ca 25th Harm bin, >= 1.5%	65,535 / 0	1 unit	F51	R	
23C0H	09153	651	0		10 min Ave Van/ab THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
23C1H	09154	651	1		10 min Ave Vbn/bc THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
23C2H	09155	651	2		10 min Ave Vcn/ca THD % bin, > 8%	65,535 / 0	1 unit	F51	R	
23C3H	09156	652	0		Freq % for Sync System bin (-1% < f < +1%)	65,535 / 0	1 unit	F51	R	
23C4H	09157	652	1		Freq % for Sync System bin (-6% < f < +4%)	65,535 / 0	1 unit	F51	R	
23C5H	09158	652	2		Freq % for No Sync System bin (-2% < f < +2%)	65,535 / 0	1 unit	F51	R	
23C6H	09159	652	3		Freq % for No Sync System bin (-15% < f < +15%)	65,535 / 0	1 unit	F51	R	
23C7H	09160	653	0		FVF % for Van/ab bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
23C8H	09161	653	1		FVF % for Vbn/bc bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
23C9H	09162	653	2		FVF % for Vcn/ca bins (-5% < fvf < +5%)	65,535 / 0	1 unit	F51	R	
23CAH	09163	653	3		FVF % for Van/ab bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
23CBH	09164	653	4		FVF % for Vbn/bc bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
23CCH	09165	653	5		FVF % for Vcn/ca bins (-10% < fvf < +10%)	65,535 / 0	1 unit	F51	R	
23CDH	09166	654	0		LSVF % for Van/ab bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23CEH	09167	654	1		LSVF % for Vbn/bc bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23CFH	09168	654	2		LSVF % for Vcn/ca bins (-10% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23D0H	09169	654	3		LSVF % for Van/ab bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23D1H	09170	654	4		LSVF % for Vbn/bc bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23D2H	09171	654	5		LSVF % for Vcn/ca bins (-15% < lsvf < +10%)	65,535 / 0	1 unit	F51	R	
23D3H	09172	655	0,1		Status Byte 0 / Status Byte 1				R	
23D4H	09173	655	2,3		Status Byte 2 / Status Byte 3				R	
23D5H	09174	655	4,5		Status Byte 4 / Status Byte 5				R	
Total Demand Distortion (TDD)										
23D6H	09175	656	0		TDD Phase A-N / Phase A-B Voltage	+327.67% / -327.68%	0.01%	F10	R	
23D7H	09176	657	0		TDD Phase B-N / Phase B-C Voltage	+327.67% / -327.68%	0.01%	F10	R	
23D8H	09177	658	0		TDD Phase C-N / Phase C-A Voltage	+327.67% / -327.68%	0.01%	F10	R	
23D9H	09178	659	0		TDD Phaes A Current	+327.67% / -327.68%	0.01%	F10	R	
23DAH	09179	660	0		TDD Phaes B Current	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
23DBH	09180	661	0		TDD Phase C Current	+327.67% / -327.68%	0.01%	F10	R	
23DCH-23DEH	09181-09183	662	0-2		Maximum TDD Voltage	+327.67% / -327.68%	0.01%	F10	R	
23DFH-23E1H	09184-09186	663	0-2		Maximum TDD Current	+327.67% / -327.68%	0.01%	F10	R	
23E2H-23E4H	09187-09189	664	0-2		Minimum TDD Voltage	+327.67% / -327.68%	0.01%	F10	R	
23E5H-23E7H	09190-09192	665	0-2		Minimum TDD Current	+327.67% / -327.68%	0.01%	F10	R	
23E8H-23FFH	09193-09216	666	0-5		Maximum TDD Timestamps	12/31/9999 23:59:59.99	10 msec	F3	R	1
2400H-2417H	09217-09240	667	0-5		Minimum TDD Timestamps	12/31/9999 23:59:59.99	10 msec	F3	R	1
Power Quality Test (EN-50160/IEC61000-4-30) Extended Block										
2A00H-2A01H	10753-10754				Rapid Voltage Change Count +/-4% Van/ab Bin 0	-2147483648 / +2147483647	1	F53		
2A02H-2A03H	10755-10756				Rapid Voltage Change Count +/-4% Vbn/bc Bin 1	-2147483648 / +2147483647	1	F53		
2A04H-2A05H	10757-10758				Rapid Voltage Change Count +/-4% Vcn/ca Bin 2	-2147483648 / +2147483647	1	F53		
2A06H-2A07H	10759-10760				Rapid Voltage Change Count Between +/-4% and +/-6% Van/ab Bin 0	-2147483648 / +2147483647	1	F53		
2A08H-2A09H	10761-10762				Rapid Voltage Change Count Between +/-4% and +/-6% Vbn/bc Bin 1	-2147483648 / +2147483647	1	F53		
2A0AH-2A0BH	10763-10764				Rapid Voltage Change Count Between +/-4% and +/-6% Vcn/ca Bin 2	-2147483648 / +2147483647	1	F53		
2A0CH-2A0DH	10765-10766				Supply Voltage Unbalance, Bin 0, 0%<=n<=2%	-2147483648 / +2147483647	1	F53		
2A0EH-2A0FH	10767-10768				Supply Voltage Unbalance, Bin 1, 2%<n<=3%	-2147483648 / +2147483647	1	F53		
2A10H-2A11H	10769-10770				Supply Voltage Unbalance, Bin 2, 3%<n	-2147483648 / +2147483647	1	F53		
2A12H-2A13H	10771-10772				3sec Mains Signaling Voltage, Van/Vab, Bin 0, <=Threshold	-2147483648 / +2147483647	1	F53		
2A14H-2A15H	10773-10774				3sec Mains Signaling Voltage, Van/Vab, Bin 1, >Threshold	-2147483648 / +2147483647	1	F53		
2A16H-2A17H	10775-10776				3sec Mains Signaling Voltage, Vbn/Vbc, Bin 0, <=Threshold	-2147483648 / +2147483647	1	F53		
2A18H-2A19H	10777-10778				3sec Mains Signaling Voltage, Vbn/Vbc, Bin 1, >Threshold	-2147483648 / +2147483647	1	F53		
2A1AH-2A1BH	10779-10780				3sec Mains Signaling Voltage, Vcn/Vca, Bin 0, <=Threshold	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2A1CH-2A1DH	10781-10782				3sec Mains Signaling Voltage, Vcn/Vca, Bin 1, >Threshold	-2147483648 / +2147483647	1	F53		
2A1EH-2A1FH	10783-10784				Dips and Interruptions, Van/Vab, Bin 0, >=85% and <90%, <=1sec	-2147483648 / +2147483647	1	F53		
2A20H-2A21H	10785-10786				Dips and Interruptions, Van/Vab, Bin 1, >=70% and <85%, <=1sec	-2147483648 / +2147483647	1	F53		
2A22H-2A23H	10787-10788				Dips and Interruptions, Van/Vab, Bin 2, >=60% and <70%, <=1sec	-2147483648 / +2147483647	1	F53		
2A24H-2A25H	10789-10790				Dips and Interruptions, Van/Vab, Bin 3 >=50% and <60%, <=1sec	-2147483648 / +2147483647	1	F53		
2A26H-2A27H	10791-10792				Dips and Interruptions, Van/Vab, Bin 4, >=40% and <50%, <=1sec	-2147483648 / +2147483647	1	F53		
2A28H-2A29H	10793-10794				Dips and Interruptions, Van/Vab, Bin 5, >=30% and <40%, <=1sec	-2147483648 / +2147483647	1	F53		
2A2AH-2A2BH	10795-10796				Dips and Interruptions, Van/Vab, Bin 6, >=20% and <30%, <=1sec	-2147483648 / +2147483647	1	F53		
2A2CH-2A2DH	10797-10798				Dips and Interruptions, Van/Vab, Bin 7, >=15% and <20%, <=1sec	-2147483648 / +2147483647	1	F53		
2A2EH-2A2FH	10799-10800				Dips and Interruptions, Van/Vab, Bin 8, >=10% and <15%, <=1sec	-2147483648 / +2147483647	1	F53		
2A30H-2A31H	10801-10802				Dips and Interruptions, Van/Vab, Bin 9, >=1% and <10%, <=1sec	-2147483648 / +2147483647	1	F53		
2A32H-2A33H	10803-10804				Dips and Interruptions, Van/Vab, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A34H-2A35H	10805-10806				Dips and Interruptions, Van/Vab, Bin 0, >=85% and <90%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A36H-2A37H	10807-10808				Dips and Interruptions, Van/Vab, Bin 1, >=70% and <85%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A38H-2A39H	10809-10810				Dips and Interruptions, Van/Vab, Bin 2, >=60% and <70%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A3AH-2A3BH	10811-10812				Dips and Interruptions, Van/Vab, Bin 3, >=50% and <60%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A3CH-2A3DH	10813-10814				Dips and Interruptions, Van/Vab, Bin 4, >=40% and <50%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A3EH-2A3FH	10815-10816				Dips and Interruptions, Van/Vab, Bin 5, >=30% and <40%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2A40H-2A41H	10817-10818				Dips and Interruptions, Van/Vab, Bin 6, >=20% and <30%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A42H-2A43H	10819-10820				Dips and Interruptions, Van/Vab, Bin 7, >=15% and <20%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A44H-2A45H	10821-10822				Dips and Interruptions, Van/Vab, Bin 8, >=10% and <15%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A46H-2A47H	10823-10824				Dips and Interruptions, Van/Vab, Bin 9, >=1% and <10%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A48H-2A49H	10825-10826				Dips and Interruptions, Van/Vab, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A4AH-2A4BH	10827-10828				Dips and Interruptions, Van/Vab, Bin 0, >=85% and <=90%, >180sec	-2147483648 / +2147483647	1	F53		
2A4CH-2A4DH	10829-10830				Dips and Interruptions, Van/Vab, Bin 1, >=70% and <85%, >180sec	-2147483648 / +2147483647	1	F53		
2A4EH-2A4FH	10831-10832				Dips and Interruptions, Van/Vab, Bin 2, >=60% and <70%, >180sec	-2147483648 / +2147483647	1	F53		
2A50H-2A51H	10833-10834				Dips and Interruptions, Van/Vab, Bin 3, >=50% and <60%, >180sec	-2147483648 / +2147483647	1	F53		
2A52H-2A53H	10835-10836				Dips and Interruptions, Van/Vab, Bin 4, >=40% and <50%, >180sec	-2147483648 / +2147483647	1	F53		
2A54H-2A55H	10837-10838				Dips and Interruptions, Van/Vab, Bin 5, >=30% and <40%, >180sec	-2147483648 / +2147483647	1	F53		
2A56H-2A57H	10839-10840				Dips and Interruptions, Van/Vab, Bin 6, >=20% and <30%, >180sec	-2147483648 / +2147483647	1	F53		
2A58H-2A58H	10841-10842				Dips and Interruptions, Van/Vab, Bin 7, >=15% and <20%, >180sec	-2147483648 / +2147483647	1	F53		
2A5AH-2A5BH	10843-10844				Dips and Interruptions, Van/Vab, Bin 8, >=10% and <15%, >180sec	-2147483648 / +2147483647	1	F53		
2A5CH-2A5DH	10845-10846				Dips and Interruptions, Van/Vab, Bin 9, >=1% and <10%, >180sec	-2147483648 / +2147483647	1	F53		
2A5EH-2A5FH	10847-10848				Dips and Interruptions, Van/Vab, Bin 10,<1%, >180sec	-2147483648 / +2147483647	1	F53		
2A60H-2A61H	10849-10850				Dips and Interruptions, Vbn/Vbc, Bin 0, >=85% and <90%, <=1sec	-2147483648 / +2147483647	1	F53		
2A62H-2A63H	10851-10852				Dips and Interruptions, Vbn/Vbc, Bin 1, >=70% and <85%, <=1sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2A64H-2A65H	10853-10854				Dips and Interruptions, Vbn/Vbc, Bin 2, >=60% and <70%, <=1sec	-2147483648 / +2147483647	1	F53		
2A66H-2A67H	10855-10856				Dips and Interruptions, Vbn/Vbc, Bin 3 >=50% and <60%, <=1sec	-2147483648 / +2147483647	1	F53		
2A68H-2A69H	10857-10858				Dips and Interruptions, Vbn/Vbc, Bin 4, >=40% and <50%, <=1sec	-2147483648 / +2147483647	1	F53		
2A6AH-2A6BH	10859-10860				Dips and Interruptions, Vbn/Vbc, Bin 5, >=30% and <40%, <=1sec	-2147483648 / +2147483647	1	F53		
2A6CH-2A6DH	10861-10862				Dips and Interruptions, Vbn/Vbc, Bin 6, >=20% and <30%, <=1sec	-2147483648 / +2147483647	1	F53		
2A6EH-2A6FH	10863-10864				Dips and Interruptions, Vbn/Vbc, Bin 7, >=15% and <20%, <=1sec	-2147483648 / +2147483647	1	F53		
2A70H-2A71H	10865-10866				Dips and Interruptions, Vbn/Vbc, Bin 8, >=10% and <15%, <=1sec	-2147483648 / +2147483647	1	F53		
2A72H-2A73H	10867-10868				Dips and Interruptions, Vbn/Vbc, Bin 9, >=1% and <10%, <=1sec	-2147483648 / +2147483647	1	F53		
2A74H-2A75H	10869-10870				Dips and Interruptions, Vbn/Vbc, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A76H-2A77H	10871-10872				Dips and Interruptions, Vbn/Vbc, Bin 0, >=85% and <90%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A78H-2A79H	10873-10874				Dips and Interruptions, Vbn/Vbc, Bin 1, >=70% and <85%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A7AH-2A7BH	10875-10876				Dips and Interruptions, Vbn/Vbc, Bin 2, >=60% and <70%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A7CH-2A7DH	10877-10878				Dips and Interruptions, Vbn/Vbc, Bin 3, >=50% and <60%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A7EH-2A7FH	10879-10880				Dips and Interruptions, Vbn/Vbc, Bin 4, >=40% and <50%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A80H-2A81H	10881-10882				Dips and Interruptions, Vbn/Vbc, Bin 5, >=30% and <40%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A82H-2A83H	10883-10884				Dips and Interruptions, Vbn/Vbc, Bin 6, >=20% and <30%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A84H-2A85H	10885-10886				Dips and Interruptions, Vbn/Vbc, Bin 7, >=15% and <20%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A86H-2A87H	10887-10888				Dips and Interruptions, Vbn/Vbc, Bin 8, >=10% and <15%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2A88H-2A89H	10889-10890				Dips and Interruptions, Vbn/Vbc, Bin 9, >=1% and <10%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A8AH-2A8BH	10891-10892				Dips and Interruptions, Vbn/Vbc, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2A8CH-2A8DH	10893-10894				Dips and Interruptions, Vbn/Vbc, Bin 0, >=85% and <=90%, >180sec	-2147483648 / +2147483647	1	F53		
2A8EH-2A8FH	10895-10896				Dips and Interruptions, Vbn/Vbc, Bin 1, >=70% and <85%, >180sec	-2147483648 / +2147483647	1	F53		
2A90H-2A91H	10897-10898				Dips and Interruptions, Vbn/Vbc, Bin 2, >=60% and <70%, >180sec	-2147483648 / +2147483647	1	F53		
2A92H-2A93H	10899-10900				Dips and Interruptions, Vbn/Vbc, Bin 3, >=50% and <60%, >180sec	-2147483648 / +2147483647	1	F53		
2A94H-2A95H	10901-10902				Dips and Interruptions, Vbn/Vbc, Bin 4, >=40% and <50%, >180sec	-2147483648 / +2147483647	1	F53		
2A96H-2A97H	10903-10904				Dips and Interruptions, Vbn/Vbc, Bin 5, >=30% and <40%, >180sec	-2147483648 / +2147483647	1	F53		
2A98H-2A99H	10905-10906				Dips and Interruptions, Vbn/Vbc, Bin 6, >=20% and <30%, >180sec	-2147483648 / +2147483647	1	F53		
2A9AH-2A9BH	10907-10908				Dips and Interruptions, Vbn/Vbc, Bin 7, >=15% and <20%, >180sec	-2147483648 / +2147483647	1	F53		
2A9CH-2A9DH	10909-10910				Dips and Interruptions, Vbn/Vbc, Bin 8, >=10% and <15%, >180sec	-2147483648 / +2147483647	1	F53		
2A9EH-2A9FH	10911-10912				Dips and Interruptions, Vbn/Vbc, Bin 9, >=1% and <10%, >180sec	-2147483648 / +2147483647	1	F53		
2AA0H-2AA1H	10913-10914				Dips and Interruptions, Vbn/Vbc, Bin 10,<1%, >180sec	-2147483648 / +2147483647	1	F53		
2AA2H-2AA3H	10915-10916				Dips and Interruptions, Vcn/Vca, Bin 0, >=85% and <90%, <=1sec	-2147483648 / +2147483647	1	F53		
2AA4H-2AA5H	10917-10918				Dips and Interruptions, Vcn/Vca, Bin 1, >=70% and <85%, <=1sec	-2147483648 / +2147483647	1	F53		
2AA6H-2AA7H	10919-10920				Dips and Interruptions, Vcn/Vca, Bin 2, >=60% and <70%, <=1sec	-2147483648 / +2147483647	1	F53		
2AA8H-2AA9H	10921-10922				Dips and Interruptions, Vcn/Vca, Bin 3 >=50% and <60%, <=1sec	-2147483648 / +2147483647	1	F53		
2AAAH-2AABH	10923-10924				Dips and Interruptions, Vcn/Vca, Bin 4, >=40% and <50%, <=1sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2AACH-2AADH	10925-10926				Dips and Interruptions, Vcn/Vca, Bin 5, >=30% and <40%, <=1sec	-2147483648 / +2147483647	1	F53		
2AAEH-2AAFH	10927-10928				Dips and Interruptions, Vcn/Vca, Bin 6, >=20% and <30%, <=1sec	-2147483648 / +2147483647	1	F53		
2AB0H-2AB1H	10929-10930				Dips and Interruptions, Vcn/Vca, Bin 7, >=15% and <20%, <=1sec	-2147483648 / +2147483647	1	F53		
2AB2H-2AB3H	10931-10932				Dips and Interruptions, Vcn/Vca, Bin 8, >=10% and <15%, <=1sec	-2147483648 / +2147483647	1	F53		
2AB4H-2AB5H	10933-10934				Dips and Interruptions, Vcn/Vca, Bin 9, >=1% and <10%, <=1sec	-2147483648 / +2147483647	1	F53		
2AB6H-2AB7H	10935-10936				Dips and Interruptions, Vcn/Vca, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AB8H-2AB9H	10937-10938				Dips and Interruptions, Vcn/Vca, Bin 0, >=85% and <90%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ABAH-2ABBH	10939-10940				Dips and Interruptions, Vcn/Vca, Bin 1, >=70% and <85%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ABCH-2ABDH	10941-10942				Dips and Interruptions, Vcn/Vca, Bin 2, >=60% and <70%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ABEH-2ABFH	10943-10944				Dips and Interruptions, Vcn/Vca, Bin 3, >=50% and <60%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AC0H-2AC1H	10945-10946				Dips and Interruptions, Vcn/Vca, Bin 4, >=40% and <50%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AC2H-2AC3H	10947-10948				Dips and Interruptions, Vcn/Vca, Bin 5, >=30% and <40%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AC4H-2AC5H	10949-10950				Dips and Interruptions, Vcn/Vca, Bin 6, >=20% and <30%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AC6H-2AC7H	10951-10952				Dips and Interruptions, Vcn/Vca, Bin 7, >=15% and <20%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2AC8H-2AC9H	10953-10954				Dips and Interruptions, Vcn/Vca, Bin 8, >=10% and <15%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ACAH-2ACBH	10955-10956				Dips and Interruptions, Vcn/Vca, Bin 9, >=1% and <10%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ACCH-2ACDH	10957-10958				Dips and Interruptions, Vcn/Vca, Bin 10, <1%, 1sec<=180sec	-2147483648 / +2147483647	1	F53		
2ACEH-2ACFH	10959-10960				Dips and Interruptions, Vcn/Vca, Bin 0, >=85% and <=90%, >180sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2AD0H-2AD1H	10961-10962				Dips and Interruptions, Vcn/Vca, Bin 1, >=70% and <85%, >180sec	-2147483648 / +2147483647	1	F53		
2AD2H-2AD3H	10963-10964				Dips and Interruptions, Vcn/Vca, Bin 2, >=60% and <70%, >180sec	-2147483648 / +2147483647	1	F53		
2AD04-2AD5H	10965-10966				Dips and Interruptions, Vcn/Vca, Bin 3, >=50% and <60%, >180sec	-2147483648 / +2147483647	1	F53		
2AD6H-2AD7H	10967-10968				Dips and Interruptions, Vcn/Vca, Bin 4, >=40% and <50%, >180sec	-2147483648 / +2147483647	1	F53		
2AD8H-2AD9H	10969-10970				Dips and Interruptions, Vcn/Vca, Bin 5, >=30% and <40%, >180sec	-2147483648 / +2147483647	1	F53		
2ADAH-2ADBH	10971-10972				Dips and Interruptions, Vcn/Vca, Bin 6, >=20% and <30%, >180sec	-2147483648 / +2147483647	1	F53		
2ADCH-2ADDH	10973-10974				Dips and Interruptions, Vcn/Vca, Bin 7, >=15% and <20%, >180sec	-2147483648 / +2147483647	1	F53		
2ADEH-2ADFH	10975-10976				Dips and Interruptions, Vcn/Vca, Bin 8, >=10% and <15%, >180sec	-2147483648 / +2147483647	1	F53		
2AE0H-2AE1H	10977-10978				Dips and Interruptions, Vcn/Vca, Bin 9, >=1% and <10%, >180sec	-2147483648 / +2147483647	1	F53		
2AE2H-2AE3H	10979-10980				Dips and Interruptions, Vcn/Vca, Bin 10,<1%, >180sec	-2147483648 / +2147483647	1	F53		
2AE4H-2AE5H	10981-10982				Overvoltage Vne, Bin 0, >set%, <=1sec	-2147483648 / +2147483647	1	F53		
2AE6H-2AE7H	10983-10984				Overvoltage Vne, Bin 1, >set%, 1sec<=5sec	-2147483648 / +2147483647	1	F53		
2AE8H-2AE9H	10985-10986				Overvoltage Vne, Bin 2, >set%, >5sec	-2147483648 / +2147483647	1	F53		
2AEAH-2AEBH	10987-10988				Overvoltage Vae, Bin 0, >set%, <=1sec	-2147483648 / +2147483647	1	F53		
2AECH-2AEDH	10989-10990				Overvoltage Vae, Bin 1, >set%, 1sec<=5sec	-2147483648 / +2147483647	1	F53		
2AEEH-2AEFH	10991-10992				Overvoltage Vae, Bin 2, >set%, >5sec	-2147483648 / +2147483647	1	F53		
2AF0H-2AF1H	10993-10994				Overvoltage Vbe, Bin 0, >set%, <=1sec	-2147483648 / +2147483647	1	F53		
2AF2H-2AF3H	10995-10996				Overvoltage Vbe, Bin 1, >set%, 1sec<=5sec	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2AF4H-2AF5H	10997-10998				Overvoltage Vbe, Bin 2, >set%, >5sec	-2147483648 / +2147483647	1	F53		
2AF6H-2AF7H	10999-11000				Overvoltage Vce, Bin 0, >set%, <=1sec	-2147483648 / +2147483647	1	F53		
2AF8H-2AF9H	11001-11002				Overvoltage Vce, Bin 1, >set%, 1sec<=5sec	-2147483648 / +2147483647	1	F53		
2AFAH-2AFBH	11003-11004				Overvoltage Vce, Bin 2, >set%, >5sec	-2147483648 / +2147483647	1	F53		
2AFCH-2AFDH	11005-11006				Total Voltage Unbalance Count	-2147483648 / +2147483647	1	F53		
2AFEH-2AFFH	11007-11008				Total THD/Harmonics Count	-2147483648 / +2147483647	1	F53		
2B00H-2B01H	11009-11010				Total Mains Signaling Voltage Count	-2147483648 / +2147483647	1	F53		
2B02H-2B03H	11011-11012				Rapid Voltage Change Beyond +/-10% Van/ab Bin 1	-2147483648 / +2147483647	1	F53		
2B04H-2B05H	11013-11014				Rapid Voltage Change Beyond +/-10% Vbn/bc Bin 2	-2147483648 / +2147483647	1	F53		
2B06H-2B07H	11015-11016				Rapid Voltage Change Beyond +/-10% Vcn/ca Bin 3	-2147483648 / +2147483647	1	F53		
2B08H-2B09H	11017-11018				Rapid Voltage Change Beyond +/-6% Van/ab Bin 1	-2147483648 / +2147483647	1	F53		
2B0AH-2B0BH	11019-11020				Rapid Voltage Change Beyond +/-6% Vbn/bc Bin 2	-2147483648 / +2147483647	1	F53		
2B0CH-2B0DH	11021-11022				Rapid Voltage Change Beyond +/-6% Vcn/ca Bin 3	-2147483648 / +2147483647	1	F53		
2B0EH-2B0FH	11023-11024				Freq Bin 0, Sync, -1%<=f<=+1%, Counts	-2147483648 / +2147483647	1	F53		
2B10H-2B11H	11025-11026				Freq Bin 1, Sync, -6%<=f<=+4%, Counts	-2147483648 / +2147483647	1	F53		
2B12H-2B13H	11027-11028				Freq Bin 2, Sync, -2%<=f<=+2%, Counts	-2147483648 / +2147483647	1	F53		
2B14H-2B15H	11029-11030				Freq Bin 3, Sync, -15%<=f<=+15%, Counts	-2147483648 / +2147483647	1	F53		
2B16H-2B17H	11031-11032				Rapid Voltage Change +/-5% Van/ab Bin 0, Counts	-2147483648 / +2147483647	1	F53		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2B18H-2B19H	11033-11034				Rapid Voltage Change +/-5% Vbn/bc Bin 1, Counts	-2147483648 / +2147483647	1	F53		
2B1AH-2B1BH	11035-11036				Rapid Voltage Change +/-5% Vcn/ca Bin 2, Counts	-2147483648 / +2147483647	1	F53		
2B1CH-2B1DH	11037-11038				Rapid Voltage Change Between +/-5% and +/-10% Van/ab Bin 0, Counts	-2147483648 / +2147483647	1	F53		
2B1EH-2B1FH	11039-11040				Rapid Voltage Change Between +/-5% and +/-10% Vbn/bc Bin 1, Counts	-2147483648 / +2147483647	1	F53		
2B20H-2B21H	11041-11042				Rapid Voltage Change Between +/-5% and +/-10% Vcn/ca Bin 2, Counts	-2147483648 / +2147483647	1	F53		
2B22H-2B23H	11043-11044				Supply Voltage Variation (10min Mean) +/-10% Van/ab Bin 0, Counts	-2147483648 / +2147483647	1	F53		
2B24H-2B25H	11045-11046				Supply Voltage Variation (10min Mean) +/-10% Vbn/bc Bin 1, Counts	-2147483648 / +2147483647	1	F53		
2B26H-2B27H	11047-11048				Supply Voltage Variation (10min Mean) +/-10% Vcn/ca Bin 2, Counts	-2147483648 / +2147483647	1	F53		
2B28H-2B29H	11049-11050				Supply Voltage Variation (10min Mean) +/-10% Van/ab Bin 0, Counts	-2147483648 / +2147483647	1	F53		
2B2AH-2B2BH	11051-11052				Supply Voltage Variation (10min Mean) +/-10% Vbn/bc Bin 1, Counts	-2147483648 / +2147483647	1	F53		
2B2CH-2B2DH	11053-11054				Supply Voltage Variation (10min Mean) +/-10% Vcn/ca Bin 2, Counts	-2147483648 / +2147483647	1	F53		
	Frozen Energy Block									
2C00H-2C03H	11265-11268	900	0		Frozen Energy Block Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
	Frozen Energy - Secondary Energy Readings									
2C04H-2C07H	11269-11272	901	0		VA hour (Quadrant 1+2+3+4), Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
2C08H-2C0BH	11273-11276	901	1		VAR hour (Quadrant 1+2), Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
2C0CH-2C0FH	11277-11280	901	2		VAR hour (Quadrant 2+3), Secondary	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F12	R	
2C10H-2C13H	11281-11284	901	3		Watt hour (Quadrant 1+4) , Secondary	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F12	R	
2C14H-2C17H	11285-11288	901	4		Watt hour (Quadrant 2+3), Secondary	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F12	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2C18H-2C1BH	11289-11292	901	5		VA hour (Quadrant 1), Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
2C1CH-2C1FH	11293-11296	901	6		VAR hour (Quadrant 1), Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
2C20H-2C23H	11297-11300	901	7		VA hour (Quadrant 4), Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
2C2CH-2C27H	11301-11304	901	8		VAR hour (Quadrant 4), Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
2C28H-2C2BH	11305-11308	901	9		VA hour (Quadrant 2), Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
2C2CH-2C2FH	11309-11312	901	10		VAR hour (Quadrant 2), Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
2C30H-2C33H	11313-11316	901	11		VA hour (Quadrant 3), Secondary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F12	R	
2C34H-2C37H	11317-11320	901	12		VAR hour (Quadrant 3), Secondary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F12	R	
2C38H-2C3BH	11321-11324	901	13		I^2t Phase A, Secondary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F12	R	
2C3CH-2C3FH	11325-11328	901	14		I^2t Phase B, Secondary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F12	R	
2C40H-2C43H	11329-11332	901	15		I^2t Phase C, Secondary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F12	R	
2C44H-2C47H	11333-11336	901	16		V^2t Phase A, Secondary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F12	R	
2C48H-2C4BH	11337-11340	901	17		V^2t Phase B, Secondary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F12	R	
2C4CH-2C4FH	11341-11344	901	18		V^2t Phase C, Secondary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F12	R	
2C50H-2C53H	11345-11348	901	19		Watt hour (Quadrant 1), Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
2C54H-2C57H	11349-11352	901	20		Watt hour (Quadrant 4), Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
2C58H-2C5BH	11353-11356	901	21		Watt hour (Quadrant 2), Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	
2C5CH-2C5FH	11357-11360	901	22		Watt hour (Quadrant 3), Secondary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F12	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2C60H-2C63H	11361-11364	901	23		VA hour (Quadrant 1+2+3+4), Uncompensated, Secondary	9,999,999,999,999,999 / 0	1	F12		
2C64H-2C67H	11365-11368	901	24		VAR hour (Quadrant 1+2), Uncompensated, Secondary	9,999,999,999,999,999 / 0	1	F12		
2C68H-2C6BH	11369-11372	901	25		VAR hour (Quadrant 3+4), Uncompensated , Secondary	9,999,999,999,999,999 / 0	1	F12		
2C6CH-2C6FH	11373-11376	901	26		Watt hour (Quadrant 1+4), Uncompensated, Secondary	9,999,999,999,999,999 / 0	1	F12		
2C70H-2C73H	11377-11380	901	27		Watt hour (Quadrant 2+3), Uncompensated , Secondary	9,999,999,999,999,999 / 0	1	F12		
2C74H-2C77H	11381-11384	901	28		Q hour, positive, Secondary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F12		
2C78H-2C7BH	11385-11388	901	29		Q hour, negative, Secondary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F12		
	Frozen Energy - Primary Energy Readings									
2C7CH-2C7FH	11389-11392	902	0		VA hour (Quadrant 1+2+3+4), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
2C80H-2C83H	11393-11396	902	1		VAR hour (Quadrant 1+2), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	
2C84H-2C87H	11397-11400	902	2		VAR hour (Quadrant 2+3), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	
2C88H-2C8BH	11401-11404	902	3		Watt hour (Quadrant 1+4) , Primary	+9,999,999,999,999,999 Wh / 0 Wh	1 W_H	F20	R	
2C8CH-2C8FH	11405-11408	902	4		VA hour (Quadrant 1), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 W_H	F20	R	
2C90H-2C93H	11409-11412	902	5		VAR hour (Quadrant 1), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VA_H	F20	R	
2C94H-2C97H	11413-11416	902	6		VA hour (Quadrant 4), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
2C98H-2C9BH	11417-11420	902	7		VAR hour (Quadrant 4), Primary	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F20	R	
2C9CH-2C9FH	11421-11424	902	8		Watt hour (Quadrant 2+3), Primary	0 Wh / -9,999,999,999,999,999 Wh	1 W_H	F20	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2CA0H-2CA3H	11425-11428	902	9		VA hour (Quadrant 2), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
2CA4H-2CA7H	11429-11432	902	10		VAR hour (Quadrant 2), Primary	+9,999,999,999,999,999 VARh / 0 VARh	1 VAR_H	F20	R	
2CA8H-2CABH	11433-11436	902	11		VA hour (Quadrant 3), Primary	+9,999,999,999,999,999 VAh / 0 VAh	1 VA_H	F20	R	
2CACH-2CAFH	11437-11440	902	12		VAR hour (Quadrant 3), Primary	0 VARh / -9,999,999,999,999,999 VARh	1 VAR_H	F20	R	
2CB0H-2CB3H	11441-11444	902	13		I2t Phase A, Primary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
2CB4H-2CB7H	11445-11448	902	14		I2t Phase B, Primary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
2CB8H-2CBBH	11449-11452	902	15		I2t Phase C, Primary	+9,999,999,999,999,999 I^2t / 0	1 I^2t	F20	R	
2CBCH-2CBFH	11453-11456	902	16		V2t Phase A, Primary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
2CC0H-2CC3H	11457-11460	902	17		V2t Phase B, Primary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
2CC4H-2CC7H	11461-11464	902	18		V2t Phase C, Primary	+9,999,999,999,999,999 V^2t / 0	1 V^2t	F20	R	
2CC8H-2CCBH	11465-11468	902	19		Watt hour (Quadrant 1), Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
2CCCH-2CCFH	11469-11472	902	20		Watt hour (Quadrant 4), Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
2CD0H-2CD3H	11473-11476	902	21		Watt hour (Quadrant 2), Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
2CD4H-2CD7H	11477-11480	902	22		Watt hour (Quadrant 3), Primary	+9,999,999,999,999,999 WH / 0 WH	1 W_H	F20	R	
2CD8H-2CDBH	11481-11484	902	23		VA hour (Quadrant 1+2+3+4), Uncompensated, Primary	9,999,999,999,999,999 / 0	1	F20		
2CDCH-2CDFH	11485-11488	902	24		VAR hour (Quadrant 1+2), Uncompensated, Primary	9,999,999,999,999,999 / 0	1	F20		
2CE0H-2CE3H	11489-11492	902	25		VAR hour (Quadrant 3+4), Uncompensated , Primary	9,999,999,999,999,999 / 0	1	F20		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2CE4H-2CE7H	11493-11496	902	26		Watt hour (Quadrant 1+4), Uncompensated, Primary	9,999,999,999,999,999 / 0	1	F20		
2CE8H-2CEBH	11497-11500	902	27		Watt hour (Quadrant 2+3), Uncompensated , Primary	9,999,999,999,999,999 / 0	1	F20		
2CECH-2CEFH	11501-11504	902	28		Q hour, positive, Primary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F20		
2CF0H-2CF3H	11515-11508	902	29		Q hour, negative, Primary	9,999,999,999,999,999 Qh / 0 Qh	1 Qh	F20		
Frozen Energy - Internal Input Pulse Accumulation Readings										
2CF4H-2CF7H	11509-11512	903	0		Pulse Accumulation Internal Input 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2CF8H-2CFBH	11513-11516	903	1		Pulse Accumulation Internal Input 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2CFCH-2CFFH	11517-11520	903	2		Pulse Accumulation Internal Input 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D00H-2D03H	11521-11524	903	3		Pulse Accumulation Internal Input 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D04H-2D07H	11525-11528	903	4		Pulse Accumulation Internal Input 5	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D08H-2D0BH	11529-11532	903	5		Pulse Accumulation Internal Input 6	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D0CH-2D0FH	11533-11536	903	6		Pulse Accumulation Internal Input 7	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D10H-2D13H	11537-11540	903	7		Pulse Accumulation Internal Input 8	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D14H-2D17H	11541-11544	903	8		Pulse Accumulation Aggregation 1	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2D18H-2D1BH	11545-11548	903	9		Pulse Accumulation Aggregation 2	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D1CH-2D1FH	11549-11552	903	10		Pulse Accumulation Aggregation 3	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
2D20H-2D23H	11553-11556	903	11		Pulse Accumulation Aggregation 4	+/- 9,223,372,036,854,776,808	1 Unit	F62	R	
	Frozen Energy - KYZ Output Accumulation Readings									
2D24H-2D25H	11557-11558	904	0		KYZ Output Accumulation, Relay 1 - Pulse 1	4,294,967,295 / 0		F18	R	
2D26H-2D27H	11559-11560	904	1		KYZ Output Accumulation, Relay 2 - Pulse 2	4,294,967,295 / 0		F18	R	
2D28H-2D29H	11561-11562	904	2		KYZ Output Accumulation, Relay 3	4,294,967,295 / 0		F18	R	
2D2AH-2D2BH	11563-11564	904	3		KYZ Output Accumulation, Relay 4	4,294,967,295 / 0		F18	R	
2D2CH-2D2DH	11565-11566	904	4		Reserved	4,294,967,295 / 0		F18	R	
	Frozen Energy - Scaled Energy Readings									
2D2EH-2D2FH	11567-11568	905	0		VA hour (Quadrant 1+2+3+4), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D30H-2D31H	11569-11570	905	1		VAR hour (Quadrant 1+2), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D32H-2D33H	11571-11572	905	2		VAR hour (Quadrant 2+3), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D34H-2D35H	11573-11574	905	3		Watt hour (Quadrant 1+4) , Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D36H-2D37H	11575-11576	905	4		VA hour (Quadrant 1), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D38H-2D39H	11577-11578	905	5		VAR hour (Quadrant 1), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D3AH-2D3BH	11579-11580	905	6		VA hour (Quadrant 4), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D3CH-2D3DH	11581-11582	905	7		VAR hour (Quadrant 4), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D3EH-2D3FH	11583-11584	905	8		Watt hour (Quadrant 2+3), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		
2D40H-2D41H	11585-11586	905	9		VA hour (Quadrant 2), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^6 - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2D42H-2D43H	11597-11588	905	10		VAR hour (Quadrant 2), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D44H-2D45H	11589-11590	905	11		VA hour (Quadrant 3), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D46H-2D47H	11591-11592	905	12		VAR hour (Quadrant 3), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D48H-2D49H	11593-11594	905	13		I2t Phase A, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D4AH-2D4BH	11595-11596	905	14		I2t Phase B, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D4CH-2D4DH	11597-11598	905	15		I2t Phase C, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D4EH-2D4FH	11599-11600	905	16		V2t Phase A, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D50H-2D51H	11601-11602	905	17		V2t Phase B, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D52H-2D53H	11603-11604	905	18		V2t Phase C, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D54H-2D55H	11605-11606	905	19		Watt hour (Quadrant 1), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D56H-2D57H	11607-11608	905	20		Watt hour (Quadrant 4), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D58H-2D59H	11609-11610	905	21		Watt hour (Quadrant 2), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D5AH-2D5BH	11611-11612	905	22		Watt hour (Quadrant 3), Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D5CH-2D5DH	11613-11614	905	23		VA hour (Quadrant 1+2+3+4), Uncompensated, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D5EH-2D5FH	11615-11616	905	24		VAR hour (Quadrant 1+2), Uncompensated, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D60H-2D61H	11617-11618	905	25		VAR hour (Quadrant 3+4), Uncompensated , Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D62H-2D63H	11619-11620	905	26		Watt hour (Quadrant 1+4), Uncompensated, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D64H-2D65H	11621-11622	905	27		Watt hour (Quadrant 2+3), Uncompensated , Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2D66H-2D67H	11623-11624	905	28		Q hour, positive, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D68H-2D69H	11625-11626	905	29		Q hour, negative, Scaled Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
	Frozen Energy - Scaled Internal Input Pulse Accumulation Readings									
2D6AH-2D6BH	11627-11628	906	0		Pulse Accumulation Inputs 1, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D6CH-2D6DH	11629-11630	906	1		Pulse Accumulation Inputs 2, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D6EH-2D6FH	11631-11632	906	2		Pulse Accumulation Inputs 3, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D70H-2D71H	11633-11634	906	3		Pulse Accumulation Inputs 4, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D72H-2D73H	11635-11636	906	4		Pulse Accumulation Inputs 5, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D74H-2D75H	11637-11638	906	5		Pulse Accumulation Inputs 6, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D76H-2D77H	11639-11640	906	6		Pulse Accumulation Inputs 7, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D78H-2D79H	11641-11642	906	7		Pulse Accumulation Inputs 8, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D7AH-2D7BH	11643-11644	906	8		Pulse Aggregations 1, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D7CH-2D7DH	11645-11646	906	9		Pulse Aggregations 2, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D7EH-2D7FH	11647-11648	906	10		Pulse Aggregations 3, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2D80H-2D81H	11649-11650	906	11		Pulse Aggregations 4, Scaled	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
	Previous Block Window Average Block									
2D82H-2D83H	11651-11652	907	0	30	Previous Maximum Block Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
2D84H-2D85H	11653-11654	907	1	30	Previous Maximum Block Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2D86H-2D87H	11655-11656	907	2	30	Previous Maximum Block Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D88H-2D89H	11657-11658	907	3	30	Previous Maximum Block Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2D8AH-2D8BH	11659-11660	907	4	30	Previous Maximum Block Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2D8CH-2D8DH	11661-11662	908	0	30	Previous Minimum Block Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
2D8EH-2D8FH	11663-11664	908	1	30	Previous Minimum Block Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2D90H-2D91H	11665-11666	908	2	30	Previous Minimum Block Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D92H-2D93H	11667-11668	908	3	30	Previous Minimum Block Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2D94H-2D95H	11669-11670	908	4	30	Previous Minimum Block Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2D96H-2D97H	11671-11672	909	0	30	Coin. Block Window Average VAR for Previous Maximum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D98H-2D99H	11673-11674	909	1	30	Coin. Block Window Average VAR for Previous Maximum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D9AH-2D9BH	11675-11676	909	2	30	Coin. Block Window Average VAR for Previous Minimum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D9CH-2D9DH	11677-11678	909	3	30	Coin. Block Window Average VAR for Previous Minimum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2D9EH-2DA1H	11679-11682	910	0	50	Previous Maximum Block Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DA2H-2DA5H	11683-11686	910	1	50	Previous Maximum Block Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DA6H-2DA9H	11687-11690	910	2	50	Previous Maximum Block Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DAAH-2DADH	11691-11694	910	3	50	Previous Maximum Block Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DAEH-2DB1H	11695-11698	910	4	50	Previous Maximum Block Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DB2H-2DB5H	11699-11702	911	0	50	Previous Minimum Block Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DB6H-2DB9H	11703-11706	911	1	50	Previous Minimum Block Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DBAH-2DBDH	11707-11710	911	2	50	Previous Minimum Block Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DBEH-2DC1H	11711-11714	911	3	50	Previous Minimum Block Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DC2H-2DC5H	11715-11718	911	4	50	Previous Minimum Block Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DC6H-2DC9H	11719-11722	912	0-1	30	Previous Maximum Block Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
2DCAH-2DCDH	11723-11726	913	0-1	30	Previous Minimum Thermal Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
2DCEH-2DD5H	11727-11734	914	0-1	50	Previous Maximum Thermal Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
2DD6H-2DDDH	11735-11742	915	0-1	50	Previous Minimum Thermal Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
					Previous Rolling Window/Predictive Rolling Window Block					
2DDEH-2DDFH	11743-11744	916	0	30	Previous Maximum Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
2DE0H-2DE1H	11745-11746	916	1	30	Previous Maximum Rolling Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2DE2H-2DE3H	11747-11748	916	2	30	Previous Maximum Rolling Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2DE4H-2DE5H	11749-11750	916	3	30	Previous Maximum Rolling Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2DE6H-2DE7H	11751-11752	916	4	30	Previous Maximum Rolling Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2DE8H-2DE9H	11753-11754	917	0	30	Previous Minimum Rolling Window Average VA	+32767 VA / 0 VA	1/ 65536 VA sec	F7	R	9
2DEAH-2DEBH	11755-11756	917	1	30	Previous Minimum Rolling Window Average Positive VAR	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2DECH-2DEDH	11757-11758	917	2	30	Previous Minimum Rolling Window Average Negative VAR	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2DEEH-2DEFH	11759-11760	917	3	30	Previous Minimum Rolling Window Average Positive Watt	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2DF0H-2DF1H	11761-11762	917	4	30	Previous Minimum Rolling Window Average Negative Watt	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2DF2H-2DF3H	11763-11764	918	0	30	Coin. Rolling Window Average VAR for Previous Maximum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2DF4H-2DF5H	11765-11766	918	1	30	Coin. Rolling Window Average VAR for Previous Maximum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2DF6H-2DF7H	11767-11768	918	2	30	Coin. Rolling Window Average VAR for Previous Minimum Positive Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2DF8H-2DF9H	11769-11770	918	3	30	Coin. Rolling Window Average VAR for Previous Minimum Negative Watt	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2DFAH-2DFDH	11771-11774	919	0	50	Previous Maximum Rolling Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2DFEH-2E01H	11775-11778	919	1	50	Previous Maximum Rolling Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E02H-2E05H	11779-11782	919	2	50	Previous Maximum Rolling Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E06H-2E09H	11783-11786	919	3	50	Previous Maximum Rolling Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E0AH-2E0DH	11787-11790	919	4	50	Previous Maximum Rolling Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E0EH-2E11H	11791-11794	920	0	50	Previous Minimum Rolling Window Average VA Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E12H-2E15H	11795-11798	920	1	50	Previous Minimum Rolling Window Average Positive VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E16H-2E19H	11799-11802	920	2	50	Previous Minimum Rolling Window Average Negative VAR Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E1AH-2E1DH	11803-11806	920	3	50	Previous Minimum Rolling Window Average Positive Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E1EH-2E21H	11807-11810	920	4	50	Previous Minimum Rolling Window Average Negative Watt Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
2E22H-2E25H	11811-11814	921	0-1	30	Previous Maximum Rolling Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
2E26H-2E29H	11815-11818	922	0-1	30	Previous Minimum Rolling Window Average +/- Q	+32767 Q / -32768 Q	1/65536 Q sec	F7		
2E2AH-2E31H	11819-11826	923	0-1	50	Previous Maximum Rolling Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2E32H-2E39H	11827-11834	924	0-1	50	Previous Minimum Rolling Window Average +/- Q Timestamps	12/31/9999 23:59:59.99		F3		
	Previous Scaled Energy Block									
2E3AH-2E3BH	11835-11836	925	0	20	Previous Total VAh (Quadrant 1+2+3+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E3CH-2E3DH	11837-11838	925	1	20	Previous Positive VARh (Quadrant 1+2) Scaled Priamry	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E3EH-2E3FH	11839-11840	925	2	20	Prevoius Negative VARh (Quadrant 3+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E40H-2E41H	11841-11842	926	0	20	Previous Positive Wh (Quadrant 1+4) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E42H-2E43H	11843-11844	926	1	20	Previous Quadrant 1 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E44H-2E45H	11845-11846	926	2	20	Previous Quadrant 1 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E46H-2E47H	11847-11848	926	3	20	Previous Quadrant 4 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E48H-2E49H	11849-11850	926	4	20	Previous Quadrant 4 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E4AH-2E4BH	11851-11852	926	5	20	Previous Negative Wh (Quadrant 2+3) Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E4CH-2E4DH	11853-11854	926	6	20	Previous Quadrant 2 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E4EH-2E4FH	11855-11856	926	7	20	Previous Quadrant 2 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E50H-2E51H	11857-11858	926	8	20	Previous Quadrant 3 VAh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E52H-2E53H	11859-11860	926	9	20	Previous Quadrant 3 VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E54H-2E55H	11861-11862	927	0	20	Prevoius I2t Phase A Scaled Priamry	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E56H-2E57H	11863-11864	927	1	20	Previous I2t Phase B Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E58H-2E59H	11865-11866	927	2	20	Previous I2t Phase C Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E5AH-2E5BH	11867-11868	927	3	20	Previous V2t Phase A Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2E5CH-2E5DH	11869-11870	927	4	20	Previous V2t Phase B Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E5EH-2E5FH	11871-11872	927	5	20	Previous V2t Phase C Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E60H-2E61H	11873-11874	928	0	20	Previous Quadrant 1 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E62H-2E63H	11875-11876	928	1	20	Previous Quadrant 4 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E64H-2E65H	11877-11878	928	2	20	Previous Quadrant 2 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E66H-2E67H	11879-11880	928	3	20	Prevoius Quadrant 3 Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E68H-2E69H	11881-11882	929	0	20	Prevoius Uncompensated Total VAh, Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E6AH-2E6DH	11883-11886	929	1-2	20	Previous Uncompensated +/- VARh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E6EH-2E71H	11887-11890	929	3-4	20	Previous Uncompensated +/- Wh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
2E72H-2E75H	11891-11894	930	0-1	20	Previous +/- Qh Scaled Primary	variable (9999 through 999999999 / 0)	variable 10^{6} - 10^{-7}	F64		
	One Second Three Phase Mean RMS Block									
2E76H-2E77H	11895-11896	931	0	30	One Second Three Phase Mean RMS Vpn	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	
2E78H-2E79H	11897-11898	932	0	30	One Second Three Phase Mean RMS Amp	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	
2E7AH-2E7BH	11899-11900	933	0	30	One Second Three Phase Mean RMS Vpp	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	
	Block Window Max/Min and 10 Minute Mean THD Block									
2E7CH-2E7FH	11901-11904	934	0	50	Block Window Max/Min and 10 Minute Mean THD Block Timestamp	12/31/9999 23:59:59.99		F3		
2E80H-2E83H	11905-11908	934	1	50	Block Window Max./Min Interval 1 Timestamp	12/31/9999 23:59:59.99		F3		
2E84H-2E87H	11909-11912	934	2	50	Block Window Max/Min Interval 2 Timestamp	12/31/9999 23:59:59.99		F3		
2E88H-2E8BH	11913-11916	934	3	50	Block Window Max Interval 1 Three Phase Mean RMS Vpn Timestamp	12/31/9999 23:59:59.99		F3		
2E8CH-2E8FH	11917-11920	934	4	50	Block Window Max Interval 1 Three Phase Mean RMS Amp Timestamp	12/31/9999 23:59:59.99		F3		
2E90H-2E93H	11921-11924	934	5	50	Block Window Max Interval 1 Three Phase Mean RMS Vpp Timestamp	12/31/9999 23:59:59.99		F3		
2E94H-2E97H	11925-11928	934	6	50	Block Window Max Interval 1 VAR Q1+2 Timestamp	12/31/9999 23:59:59.99		F3		
2E98H-2E9BH	11929-11932	934	7	50	Block Window Max Interval 1 VAR Q3+4 Timestamp	12/31/9999 23:59:59.99		F3		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2E9CH-2E9FH	11933-11936	934	8	50	Block Window Max Interval 1 W Q1+4 Timestamp	12/31/9999 23:59:59.99		F3		
2EA0H-2EA3H	11937-11940	934	9	50	Block Window Max Interval 1 W Q2+3 Timestamp	12/31/9999 23:59:59.99		F3		
2EA4H-2EA7H	11941-11944	934	10	50	Block Window Max Interval 2 Three Phase Mean RMS Vpn Timestamp	12/31/9999 23:59:59.99		F3		
2EA8H-2EABH	11945-11948	934	11	50	Block Window Max Interval 2 Three Phase Mean RMS Amp Timestamp	12/31/9999 23:59:59.99		F3		
2EACH-2EAFH	11949-11952	934	12	50	Block Window Max Interval 2 Three Phase Mean RMS Vpp Timestamp	12/31/9999 23:59:59.99		F3		
2EB0H-2EB3H	11953-11956	934	13	50	Block Window Max Interval 2 VAR Q1+2 Timestamp	12/31/9999 23:59:59.99		F3		
2EB4H-2EB7H	11957-11960	934	14	50	Block Window Max Interval 2 VAR Q3+4 Timestamp	12/31/9999 23:59:59.99		F3		
2EB8H-2EBBH	11961-11964	934	15	50	Block Window Max Interval 2 W Q1+4 Timestamp	12/31/9999 23:59:59.99		F3		
2EBCH-2EBFH	11965-11968	934	16	50	Block Window Max Interval 2 W Q2+3 Timestamp	12/31/9999 23:59:59.99		F3		
2EC0H-2EC3H	11969-11972	934	17	50	Block Window Min Interval 1 Three Phase Mean RMS Vpn Timestamp	12/31/9999 23:59:59.99		F3		
2EC4H-2EC7H	11973-11976	934	18	50	Block Window Min Interval 1 Three Phase Mean RMS Amp Timestamp	12/31/9999 23:59:59.99		F3		
2EC8H-2ECBH	11977-11980	934	19	50	Block Window Min Interval 1 Three Phase Mean RMS Vpp Timestamp	12/31/9999 23:59:59.99		F3		
2ECCH-2ECFH	11981-11984	934	20	50	Block Window Min Interval 1 VAR Q1+2 Timestamp	12/31/9999 23:59:59.99		F3		
2ED0H-2ED3H	11985-11988	934	21	50	Block Window Min Interval 1 VAR Q3+4 Timestamp	12/31/9999 23:59:59.99		F3		
2ED4H-2ED7H	11989-11992	934	22	50	Block Window Min Interval 1 W Q1+4 Timestamp	12/31/9999 23:59:59.99		F3		
2ED8H-2EDBH	11993-11996	934	23	50	Block Window Min Interval 1 W Q2+3 Timestamp	12/31/9999 23:59:59.99		F3		
2EDCH-2EDFH	11997-12000	934	24	50	Block Window Min Interval 2 Three Phase Mean RMS Vpn Timestamp	12/31/9999 23:59:59.99		F3		
2EE0H-2EE3H	12001-12004	934	25	50	Block Window Min Interval 2 Three Phase Mean RMS Amp Timestamp	12/31/9999 23:59:59.99		F3		
2EE4H-2EE7H	12005-12008	934	26	50	Block Window Min Interval 2 Three Phase Mean RMS Vpp Timestamp	12/31/9999 23:59:59.99		F3		
2EE8H-2EEBH	12009-12012	934	27	50	Block Window Min Interval 2 VAR Q1+2 Timestamp	12/31/9999 23:59:59.99		F3		
2EECH-2EEFH	12013-12016	934	28	50	Block Window Min Interval 2 VAR Q3+4 Timestamp	12/31/9999 23:59:59.99		F3		
2EF0H-2EF3H	12017-12020	934	29	50	Block Window Min Interval 2 W Q1+4 Timestamp	12/31/9999 23:59:59.99		F3		
2EF4H-2EF7H	12021-12024	934	30	50	Block Window Min Interval 2 W Q2+3 Timestamp	12/31/9999 23:59:59.99		F3		
2EF8H-2EFBH	12025-12028	934	31	50	10 Minute Mean THD Timestamp	12/31/9999 23:59:59.99		F3		
2EFCH	12029	935	0	30	10 Minute Mean THD Van/Vab	+327.67% / -327.68%	0.01%	F10	R	
2EFDH	12030	935	1	30	10 Minute Mean THD Vbn/Vbc	+327.67% / -327.68%	0.01%	F10	R	
2EFEH	12031	935	2	30	10 Minute Mean THD Vcn/Vca	+327.67% / -327.68%	0.01%	F10	R	
2EFFH	12032	936	0	30	10 Minute Mean THD Ia	+327.67% / -327.68%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2F00H	12033	936	1	30	10 Minute Mean THD Ib	+327.67% / -327.68%	0.01%	F10	R	
2F01H	12034	936	2	30	10 Minute Mean THD Ic	+327.67% / -327.68%	0.01%	F10	R	
2F02H-2F03H	12035-12036	937	0	30	Block Window Max Interval 1 Mean Vpn	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F04H-2F05H	12037-12038	938	0	30	Block Window Max Interval 1 Mean Amp	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
2F06H-2F07H	12039-12040	939	0	30	Block Window Max Interval 1 Mean Vpp	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F08H-2F09H	12041-12042	940	0	30	Block Window Max Interval 1 VAR Q1+2	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2F0AH-2F0BH	12043-12044	940	1	30	Block Window Max Interval 1 VAR Q3+4	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F0CH-2F0DH	12045-12046	940	2	30	Block Window Max Interval 1 W Q1+4	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2F0EH-2F0FH	12047-12048	940	3	30	Block Window Max Interval 1 W Q2+3	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2F10H-2F11H	12049-12050	941	0	30	Block Window Max Interval 2 Mean Vpn	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F12H-2F13H	12051-12052	942	0	30	Block Window Max Interval 2 Mean Amp	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
2F14H-2F15H	12053-12054	943	0	30	Block Window Max Interval 2 Mean Vpp	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F16H-2F17H	12055-12056	944	0	30	Block Window Max Interval 2 VAR Q1+2	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2F18H-2F19H	12057-12058	944	1	30	Block Window Max Interval 2 VAR Q3+4	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F1AH-2F1BH	12059-12060	944	2	30	Block Window Max Interval 2 W Q1+4	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2F1CH-2F1DH	12061-12062	944	3	30	Block Window Max Interval 2 W Q2+3	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2F1EH-2F1FH	12063-12064	945	0	30	Block Window Min Interval 1 Mean Vpn	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F20H-2F21H	12065-12066	946	0	30	Block Window Min Interval 1 Mean Amp	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
2F22H-2F23H	12067-12068	947	0	30	Block Window Min Interval 1 Mean Vpp	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F24H-2F25H	12069-12070	948	0	30	Block Window Min Interval 1 VAR Q1+2	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2F26H-2F27H	12071-12072	948	1	30	Block Window Min Interval 1 VAR Q3+4	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F28H-2F29H	12073-12074	948	2	30	Block Window Min Interval 1 W Q1+4	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2F2AH-2F2BH	12075-12076	948	3	30	Block Window Min Interval 1 W Q2+3	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2F2CH-2F2DH	12077-12078	949	0	30	Block Window Min Interval 2 Mean Vpn	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F2EH-2F2FH	12079-12080	950	0	30	Block Window Min Interval 2 Mean Amp	+ 32767 A / 0 A	1/ 65536 A sec	F7	R	6
2F30H-2F31H	12081-12082	951	0	30	Block Window Min Interval 2 Mean Vpp	+ 32767 V / 0 V	1/ 65536 V sec	F7	R	5
2F32H-2F33H	12083-12084	952	0	30	Block Window Min Interval 2 VAR Q1+2	+32767 VAR / 0 VAR	1/ 65536 VAR sec	F7	R	9
2F34H-2F35H	12085-12086	952	1	30	Block Window Min Interval 2 VAR Q3+4	0 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F36H-2F37H	12087-12088	952	2	30	Block Window Min Interval 2 W Q1+4	+32767 W /0 W	1/ 65536 W sec	F7	R	9
2F38H-2F39H	12089-12090	952	3	30	Block Window Min Interval 2 W Q2+3	0 W / -32768 W	1/ 65536 W sec	F7	R	9
2F3AH-2F3DH	12091-12094	953	0	50	Block Window Max Interval 1 Overall VAR Timestamp	12/31/9999 23:59:59.99		F3		
2F3EH-2F41H	12095-12098	953	1	50	Block Window Max Interval 1 Overall W Timestamp	12/31/9999 23:59:59.99		F3		
2F42H-2F45H	12099-12102	953	2	50	Block Window Max Interval 2 Overall VAR Timestamp	12/31/9999 23:59:59.99		F3		
2F46H-2F49H	12103-12106	953	3	50	Block Window Max Interval 2 Overall W Timestamp	12/31/9999 23:59:59.99		F3		
2F4AH-2F4DH	12107-12110	953	4	50	Block Window Min Interval 1 Overall VAR Timestamp	12/31/9999 23:59:59.99		F3		
2F4EH-2F51H	12111-12114	953	5	50	Block Window Min Interval 1 Overall W Timestamp	12/31/9999 23:59:59.99		F3		
2F52H-2F55H	12115-12118	953	6	50	Block Window Min Interval 2 Overall VAR Timestamp	12/31/9999 23:59:59.99		F3		

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
2F56H-2F59H	12119-12122	953	7	50	Block Window Min Interval 2 Overall W Timestamp	12/31/9999 23:59:59.99		F3		
2F5AH-2F5BH	12123-12124	954	0	30	Block Window Max Interval 1 Overall VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F5CH-2F5DH	12125-12126	954	1	30	Block Window Max Interval 1 Overall W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
2F5EH-2F5FH	12127-12128	954	2	30	Block Window Max Interval 2 Overall VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F60H-2F61H	12129-12130	954	3	30	Block Window Max Interval 2 Overall W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
2F62H-2F63H	12131-12132	954	4	30	Block Window Min Interval 1 Overall VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F64H-2F65H	12133-12134	954	5	30	Block Window Min Interval 1 Overall W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
2F66H-2F67H	12135-12136	954	6	30	Block Window Min Interval 2 Overall VAR	+32767 VAR / -32768 VAR	1/ 65536 VAR sec	F7	R	9
2F68H-2F69H	12137-12138	954	7	30	Block Window Min Interval 2 Overall W	+32767 W / -32768 W	1/ 65536 W sec	F7	R	9
	Customized Modbus Block									
3000H-37FFH	12289-14336				Customized Modbus Readings				R	
	Nexus Master Polling Data Block									
3800H-387FH	14337-14464	1216	0-127		Nexus master database	65535 / 0		F51	R	
3800H-387FH	14337-14464	1217	0-63		Nexus master database	4,294,967,295 / 0		F53	R	
3801H-387EH	14338-14463	1218	0-62		Nexus master database	4,294,967,295 / 0		F53	R	
3800H-387FH	14337-14464	1219	0-31		Nexus master database	18,446,744,073,709,551,615 / 0		F55	R	
3801H-387CH	14338-14461	1220	0-30		Nexus master database	18,446,744,073,709,551,615 / 0		F55	R	
3802H-387DH	14339-14462	1221	0-30		Nexus master database	18,446,744,073,709,551,615 / 0		F55	R	
3803H-387EH	14340-14463	1222	0-30		Nexus master database	18,446,744,073,709,551,615 / 0		F55	R	
3880H-3883H	14465-14468				Nexus master poll time	12/31/9999 23:59:59.99		F3	R	
3884H-388BH	14469-14476	1223	0-127		Nexus master data polling status	Bits, bit value 1=data valid		F51	R	2
388CH-390BH	14477-14604	1224	0-127		Nexus master data polling failed count	65535 / 0	1	F51	R	2
	Additional and Vpe Block									
3A00H-3A01H	14849-14850	1200	0		Tenth sec Phase A-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A02H-3A03H	14851-14852	1200	1		Tenth sec Phase B-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A04H-3A05H	14853-14854	1200	2		Tenth sec Phase C-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A06H-3A07H	14855-14856	1200	3		Tenth sec Phase N-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A08H-3A09H	14857-14858	1201	0		One sec Phase A-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A0AH-3A0BH	14859-14860	1201	1		One sec Phase B-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A0CH-3A0DH	14861-14862	1201	2		One sec Phase C-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A0EH-3A0FH	14863-14864	1201	3		One sec Phase N-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A10H-3A11H	14865-14866	1202	0		Thermal Average Phase A-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
3A12H-3A13H	14867-14868	1202	1		Thermal Average Phase B-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A14H-3A15H	14869-14870	1202	2		Thermal Average Phase C-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A16H-3A17H	14871-14872	1202	3		Thermal Average Phase N-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A18H-3A19H	14873-14874	1203	0		Maximum Thermal Average Phase A-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A1AH-3A1BH	14875-14876	1203	1		Maximum Thermal Average Phase B-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A1CH-3A1DH	14877-14878	1203	2		Maximum Thermal Average Phase C-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A1EH-3A1FH	14879-14880	1203	3		Maximum Thermal Average Phase N-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A20H-3A21H	14881-14882	1204	0		Minimum Thermal Average Phase A-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A22H-3A23H	14883-14884	1204	1		Minimum Thermal Average Phase B-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A24H-3A25H	14885-14886	1204	2		Minimum Thermal Average Phase C-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A26H-3A27H	14887-14888	1204	3		Minimum Thermal Average Phase N-E Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A28H-3A2BH	14889-14892	1205	0		Maximum Thermal Average Phase A-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A2CH-3A2FH	14893-14896	1205	1		Maximum Thermal Average Phase B-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A30H-3A33H	14897-14900	1205	2		Maximum Thermal Average Phase C-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A34H-3A37H	14901-14904	1205	3		Maximum Thermal Average Phase N-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A38H-3A3BH	14905-14908	1206	0		Minimum Thermal Average Phase A-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A3CH-3A3FH	14909-14912	1206	1		Minimum Thermal Average Phase B-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A40H-3A43H	14913-14916	1206	2		Minimum Thermal Average Phase C-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A44H-3A47H	14917-14920	1206	3		Minimum Thermal Average Phase N-E Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A48H-3A49H	14921-14922	1207	0		Tenth sec Calculated Neutral Current	+65536 A^2 / 0 A^2	1/65536 A^2 sec	F7	R	3, 6, 8
3A4AH-3A4BH	14923-14924	1208	0		Tenth sec residual Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A4CH-3A4DH	14925-14926	1209	0		One sec residual Voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A4EH-3A4FH	14927-14928	1210	0		Thermal average residual voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A50H-3A51H	14929-14930	1211	0		Maximum Thermal Average residual voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A52H-3A53H	14931-14932	1212	0		Minimum Thermal Average residual voltage	+32767 V / 0 V	1/ 65536 V sec	F7	R	4
3A54H-3A57H	14933-14936	1213	0		Maximum Thermal Average residual Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A58H-3A5BH	14937-14940	1214	0		Maximum Thermal Average residual Voltage Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
3A5CH-3A5DH	14941-14942	1215	0		One sec Aux Frequency					
	Block Window Max/Min Block, P-E									
3A5EH-3A5FH	14943-14944	1225	0		Block Window Max Interval 1 Voltage P-E	+32767 V / 0 V	1/ 65536 V sec	F7	R	
3A60H-3A61H	14945-14946	1225	1		Block Window Max Interval 2 Voltage P-E	+32767 V / 0 V	1/ 65536 V sec	F7	R	
3A62H-3A63H	14947-14948	1225	2		Block Window Min Interval 1 Voltage P-E	+32767 V / 0 V	1/ 65536 V sec	F7	R	
3A64H-3A65H	14949-14950	1225	3		Block Window Min Interval 2 Voltage P-E	+32767 V / 0 V	1/ 65536 V sec	F7	R	
3A66H-3A69H	14951-14954	1226	0		Block Window Max Interval 1 Voltage P-E Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
3A6AH-3A6DH	14955-14958	1226	1		Block Window Max Interval 2 Voltage P-E Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
3A6EH-3A71H	14959-14962	1226	2		Block Window Min Interval 1 Voltage P-E Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
3A72H-3A75H	14963-14966	1226	3		Block Window Min Interval 2 Voltage P-E Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Enhanced Factory Settings Block									
4000H-4007H	16385-16392				Hardware Options (16 bytes)				R	
4008H-400BH	16393-16396				Serial Numbers (8 bytes, binary numbers)				R	
400CH-400FH	16397-16400				Reserved				R	
4010H-4017H	16401-16408				OEM Model String				R	
4018H-403FH	16408-16448				Reserved				R	
4040H-5FFFH	16449-24576				Undefined				R	
	Enhanced Programmable Settings Block 2 (Range: 6000H-7FFFH)									
	Nexus 15xx Master RTU (Function Code 0x03 Only) Group Labels									
6000H-61FFH	24577-25088				Group Label[0] Group Label[1] ... Group Label[127]					
6200H-63FFH	25089-25600				Item Label[0] Item Label[1] ... Item Label[127]					
6400H-64FFH	25601-25856				Item Descriptor[0] Item Descriptor[1] ... Item Descriptor[127]					
6500H-65FFH	25857-26112				Item Limit[0] Setpoint 1 Item Limit[0] Setpoint 2 Item Limit[1] Setpoint 1 Item Limit[1] Setpoint 2 ... Item Limit[31] Setpoint 1 Item Limit[31] Setpoint 2					
6600H-67FFH	26111-26624				Undefined					
6800H-6FFFH	26625-28672				Reserved					
	Nexus 15xx Interval Log Settings Block									
7000H-707FH	28673-28800				Interval Log 3 Item[0]: Line, Pointer Interval Log 3 Item[1]: Line, Pointer ... Interval Log 3 Item[63]: Line, Pointer					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7080H-70FFH	28801-28928				Interval Log 4 Item[0]: Line, Pointer Interval Log 4 Item[1]: Line, Pointer ... Interval Log 4 Item[63]: Line, Pointer					
7100H-717FH	28929-29056				Interval Log 5 Item[0]: Line, Pointer Interval Log 5 Item[1]: Line, Pointer ... Interval Log 5 Item[63]: Line, Pointer					
7180H-71FFH	29057-29184				Interval Log 6 Item[0]: Line, Pointer Interval Log 6 Item[1]: Line, Pointer ... Interval Log 6 Item[63]: Line, Pointer					
7200H-727FH	29185-29312				Interval Log 7 Item[0]: Line, Pointer Interval Log 7 Item[1]: Line, Pointer ... Interval Log 7 Item[63]: Line, Pointer					
7280H-72FFH	29313-29440				Interval Log 8 Item[0]: Line, Pointer Interval Log 8 Item[1]: Line, Pointer ... Interval Log 8 Item[63]: Line, Pointer					
7300HH	29441				Interval Log 3 Interval					
7301HH	29442				Interval Log 4 Interval					
7302HH	29443				Interval Log 3 Record Size					
7303HH	29444				Interval Log 4 Record Size					
7304HH	29445				Interval Log 5 Interval					
7305HH	29446				Interval Log 6 Interval					
7306HH	29447				Interval Log 5 Record Size					
7307HH	29448				Interval Log 6 Record Size					
7308HH	29449				Interval Log 7 Interval					
7309HH	29450				Interval Log 8 Interval					
730AHH	29451				Interval Log 7 Record Size					
730BHH	29452				Interval Log 8 Record Size					
730CH-748BH	29453-29836				Reserved					
748CH-750BH	29837-29964				Event Triggered Log Item[0]: Line, Pointer Event Triggered Log Item[1]: Line, Pointer ... Event Triggered Log Item[63]: Line, Pointer					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
750CH-754BH	29965-30028				Reserved					
754CH	30029				MSB Byte[1]: Event Triggered Log Internal Input ID Byte[0]: Reserved					
754DH	30030				MSB Byte[1]: Reserved Byte[0]: Event Triggered Log Enabled					
754EH	30031				Event Triggered Log Recording Speed					
754FH	30032				Event Triggered Log Recoding Duration					
7550H	30033				Event Triggered Log Record Size					
7551H	30034				Event Triggered Log Multiple Sequence					
7552H-7553H	30035-30036				Reserved					
	Waveform Voltage Envolope Wave Shape Threshold									
7554H-756BH	3003730060				Reserved					
	Waveform Current Change of Rate Threshold									
756CH-756FH	30061-30064				Reserved					
	Waveform Capture Rules									
7570H-7571H	30065-30066				Waveform Capture Window Amount 0 = 1 capture 1 = 2 capture ... 65535 = 65536 capture >65535 = 1 capture					
7572H-7573H	30067-30068				Reserved					
7574H	30069				Waveform samples/cycles @60Hz 0 = 16 1 = 32 2 = 64 3 = 128 4 = 256 5 = 512 6 = 1024 >6= 1024					
7575H	30070				MSB Byte[1]: Waveform Pre Trigger (>=1 <=179) Byte[0]: Waveform Post Trigger (>=1 <=179					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7576H	30071				Waveform Digital Input Triggers (MSB) Byte[1]: Undefined Byte[0]: Bit [7] = Input 8 Bit [6] = Input 7 Bit [5] = Input 6 Bit [4] = Input 5 Bit [3] = Input 4 Bit [2] = Input 3 Bit [1] = Input 2 Bit [0]= Input 1					
7577H	30072				Reserved					
					Waveform Transient					
7578H	30073				Voltage A Threshold % of full scale	+6553.5% / -6553.5%	0.1%			
7579H	30074				Voltage B Threshold % of full scale	+6553.5% / -6553.5%	0.1%			
757AH	30075				Voltage C Threshold % of full scale	+6553.5% / -6553.5%	0.1%			
757BH	30076				Mode/Enable(MSB) Bit[15]-Bit[11]: Reserved Bit[10]: Transien Enable - Channel Vc Bit[9]: Transien Enable - Channel Vb Bit[8]: Transien Enable - Channel Va Bit[7]-Bit[2]: Reserved Bit[1]: Transient Mode: 0=PH-N, 1=PH-PH Bit[0]: Transient Mode: 0=Disabled, 1=Enabled					
					Waveform Transient Settings					
757CH	30077				Number Maximum of Channel					
757DH	30078				Channel 1 Number					
757EH	30079				Channel 2 Number					
757FH	30080				Channel 3 Number					
7580H	30081				Channel 4 Number					
7581H	30082				Channel 5 Number					
7582H	30083				Channel 6 Number					
7583H	30084				Channel 7 Number					
7584H	30085				Channel 8 Number					
7585H	30086				Channel 9 Number					
7586H	30087				Channel 10 Number					
7587H	30088				Channel 11 Number					
7588H	30089				Channel 12 Number					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7589H	30090				Channel 13 Number					
758AH	30091				Channel 14 Number					
758BH	30092				Channel 15 Number					
758CH	30093				Channel 16 Number					
758DH-758EH	30094-30095				Power Quality Enable					
758FH	30096				Transient Waveform Trigger (MSB) Bit[15]-Bit[6]: Reserved Bit[5]: Transient Waveform Trigger Enable - Channel Vca Bit[4]: Transient Waveform Trigger Enable - Channel Vbc Bit[3]: Transient Waveform Trigger Enable - Channel Vab Bit[2]: Transient Waveform Trigger Enable - Channel Vcn Bit[1]: Transient Waveform Trigger Enable - Channel Vbn Bit[0]: Transient Waveform Trigger Enable - Channel Van 0=Enable, 1=Disable					
	Log Configuration Settings									
7590H-7591H	30097-30098				Log Mode 0 = Maximum Number of 1Mbyte files allowed >0 Not defined					
7592H-7593H	30099-30100				System Events Log Size	4,294,967,295 / 0	1	F53	R/W	
7594H-7595H	30101-30102				Interval Log 1 Log Size	4,294,967,295 / 0	1	F53	R/W	
7596H-7597H	30103-30104				Interval Log 2 Log Size	4,294,967,295 / 0	1	F53	R/W	
7598H-7599H	30105-30106				Interval Log 3 Log Size	4,294,967,295 / 0	1	F53	R/W	
759AH-759BH	30107-30108				Interval Log 4 Log Size	4,294,967,295 / 0	1	F53	R/W	
759CH-759DH	30109-30110				Interval Log 5 Log Size	4,294,967,295 / 0	1	F53	R/W	
759EH-759FH	30111-30112				Interval Log 6 Log Size	4,294,967,295 / 0	1	F53	R/W	
75A0H-75A1H	30113-30114				Interval Log 7 Log Size	4,294,967,295 / 0	1	F53	R/W	
75A2H-75A3H	30115-30116				Interval Log 8 Log Size	4,294,967,295 / 0	1	F53	R/W	
75A4H-75A5H	30117-30118				Event Triggered Log Size	4,294,967,295 / 0	1	F53	R/W	
75A6H-75A7H	30119-30120				Sequence of Event (Limits) Log Size	4,294,967,295 / 0	1	F53	R/W	
75A8H-75A9H	30121-30122				Digital Input Log Size	4,294,967,295 / 0	1	F53	R/W	
75AAH-75ABH	30123-30124				Digital Output Log Size	4,294,967,295 / 0	1	F53	R/W	
75ACH-75ADH	30125-13126				Flicker Log Size	4,294,967,295 / 0	1	F53	R/W	
75AEH-75AFH	30127-30128				Waveform Log Size	4,294,967,295 / 0	1	F53	R/W	
75B0H-75B1H	30129-30130				Power Quality Log Size	4,294,967,295 / 0	1	F53	R/W	
75B2H-75B3H	30131-30132				Transients Log Size	4,294,967,295 / 0	1	F53	R/W	
75B4H-75FFH	30133-30208				Reserved					
	Network Card #2 Settings (Part 1 of 2)									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7600H-7601H	30209-30210				IP Address					
7602H-7603H	30211-30212				Subnet Mask					
7604H-7605H	30213-30214				Default Gateway					
7606H	30215				MSB Byte[1]: Port 2 Baud Rate Byte[0]: Gateway Delay					
7607H	30216				MSB Byte[1]: Mode Byte[0]: Mode 2					
7608H-760FH	30217-30224				Computer Name					
7610H-7611H	30225-30226				DNS Server 1 IP Address					
7612H-7613H	30227-30228				DNS Server 2 IP Address					
7614H-7615H	30229-30230				Server / Service Enable Bits					
7616H	30231				Email Port Number					
7617H	30232				FTP Port Number					
Network Card #2 Settings (Part 2 of 2)										
7618H-7621H	30233-30242				Reserved					
7622H	30243				Email Mode (MSB) Bit[15]: 0=authenicantion on; 1=authentication off Bit[14]~Bit[0] = Not defined					
7623H-7663H	30244-30308				Reserved					
Email Client Settings										
7664H-7683H	30309-30340				Email Server IP Address/name					
7684H-76A3H	30341-30372				Administrator Email Address					
76A4H-76C3H	30373-30404				Email Replay Address					
76C4H-76E3H	30405-30436				Email Subject Text					
76E4H-76F3H	30437-30452				Email username					
76F4H-7703H	30453-30468				Email Password					
FTP Client Settings										
7704H-7713H	30469-30484				Username					
7714H-7723H	30485-30500				Password					
7724H-7763H	30501-30567				Startup Path/Directory					
7764H-7783H	30565-30596				Server IP Address/Name					
GE Protocol (EGD)										
7784H-7785H	30597-30598				IP Address					
7786H	30599				Update Interval(1=100msec to 65000=6500 seconds)					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7787H	30600				MSB Byte[1]: Connection Type (0=broadsact, 1=multicast, 2=unicast) Byte[0]: Options (Bit[0]: 1=Use IP as Producer ID, 0=Use User Defined)					
7788H-7789H	30601-30602				User Producer ID					
778AH-778BH	30603-30604				Reserved					
					DNP LAN/WAN					
778CH-778DH	30605-30606				MSB Byte[3]: Mode(0=disabled, 1=standard settings, 2=user settings, 3>= disabled) Byte[2]: Bitmap (Bit[7]: TCP Enable, Bit[6]=UDP enable, Bit[5]: Validate Ports, Bit[4]: UDP Defined Port) Byte[1]: UDP Address Byte[0]: Validate IP					
778EH	30607				TCP Listen Port					
778FH	30608				UDP Listen Port					
7790H-7791H	30609-30610				Valid IP Address #1					
7792H-7793H	30611-30612				Valid IP Address #2					
7794H-7795H	30613-30614				Valid IP Address #3					
7796H-7797H	30615-30616				Valid IP Address #4					
7798H-7799H	30617-30618				Valid IP Subnet Mask #1					
779AH-779BH	30619-30620				Valid IP Subnet Mask #2					
779CH-779DH	30621-30622				Valid IP Subnet Mask #3					
779EH-779FH	30623-30624				Valid IP Subnet Mask #4					
77A0H-77A3H	30625-30628				Valid TCP Start Ports					
77A4H-77A7H	30629-30632				Valid TCP End Ports					
77A8H-77ABH	30633-30636				Valid UDP Start Ports					
77ACH-77AFH	30637-30640				Valid UDP End Ports					
77B0H-77B1H	30641-30642				Valid Multicast Group Address					
77B2H	30643				Valid UDP Respond Port					
77B3H	30644				Device Address					
77B4H-77FFH	30645-30720				Reserved					
					IEC 61000-4-30: Block Settings					
					Voltage Boundary Hysteresis					
7800H	30721				Phase A-N Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7801H	30722				Phase B-N Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7802H	30723				Phase C-N Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7803H	30724				Phase A-B Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7804H	30725				Phase B-C Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7805H	30726				Phase C-A Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7806H	30727				Phase X-N Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7807H	30728				Phase N-E Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7808H	30729				Phase A-E Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
7809H	30730				Phase B-E Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
780AH	30731				Phase C-E Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
780BH	30732				Phase X-E Voltage Sag Setpoint	0% / +65535%	0.01%	F10	R	
780CH	30733				Phase A-N Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
780DH	30734				Phase B-N Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
780EH	30735				Phase C-N Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
780FH	30736				Phase A-B Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7810H	30737				Phase B-C Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7811H	30738				Phase C-A Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7812H	30739				Phase X-N Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7813H	30740				Phase N-E Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7814H	30741				Phase A-E Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7815H	30742				Phase B-E Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7816H	30743				Phase C-E Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
7817H	30744				Phase X-E Voltage Swell Setpoint	0% / +65535%	0.01%	F10	R	
Current Boundary Hysteresis										
7818H	30745				Phase A Current Sag Setpoint	0% / +65535%	0.01%	F10	R	
7819H	30746				Phase B Current Sag Setpoint	0% / +65535%	0.01%	F10	R	
781AH	30747				Phase C Current Sag Setpoint	0% / +65535%	0.01%	F10	R	
781BH	30748				Phase X Current Sag Setpoint	0% / +65535%	0.01%	F10	R	
781CH	30749				Phase A Current Swell Setpoint	0% / +65535%	0.01%	F10	R	
781DH	30750				Phase B Current Swell Setpoint	0% / +65535%	0.01%	F10	R	
781EH	30751				Phase C Current Swell Setpoint	0% / +65535%	0.01%	F10	R	
781FH	30752				Phase X Current Swell Setpoint	0% / +65535%	0.01%	F10	R	
Voltage Boundary Interruptions										
7820H	30753				Phase A-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7821H	30754				Phase B-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7822H	30755				Phase C-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7823H	30756				Phase A-B Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7824H	30757				Phase B-C Voltage Setpoint	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7825H	30758				Phase C-A Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7826H	30759				Phase X-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7827H	30760				Phase N-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7828H	30761				Phase A-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7829H	30762				Phase B-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7829H	30763				Phase C-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
782BH	30764				Phase X-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
Voltage Boundary Interruptions Hysteresis										
782CH	30765				Phase A-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
782DH	30766				Phase B-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
782EH	30767				Phase C-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
782FH	30768				Phase A-B Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7830H	30769				Phase B-C Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7831H	30770				Phase C-A Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7832H	30771				Phase X-N Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7833H	30772				Phase N-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7834H	30773				Phase A-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7835H	30774				Phase B-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7836H	30775				Phase C-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
7837H	30776				Phase X-E Voltage Setpoint	0% / +65535%	0.01%	F10	R	
Voltage Nominal										
7838H	30777				Phase A-N Voltage	0% / +65535%	0.01%	F10	R	
7839H	30778				Phase B-N Voltage	0% / +65535%	0.01%	F10	R	
783AH	30779				Phase C-N Voltage	0% / +65535%	0.01%	F10	R	
783BH	30780				Phase A-B Voltage	0% / +65535%	0.01%	F10	R	
783CH	30781				Phase B-C Voltage	0% / +65535%	0.01%	F10	R	
783DH	30782				Phase C-A Voltage	0% / +65535%	0.01%	F10	R	
783EH-783FH	30783-30784				Reserved	0% / +65535%	0.01%	F10	R	
Reserved										
7840H	30785				Order #0	0% / +65535%	0.01%	F10	R	
7841H	30786				Order #1	0% / +65535%	0.01%	F10	R	
7842H	30787				Order #2	0% / +65535%	0.01%	F10	R	
7843H	30788				Order #3	0% / +65535%	0.01%	F10	R	
7844H	30789				Order #4	0% / +65535%	0.01%	F10	R	
7845H	30790				Order #5	0% / +65535%	0.01%	F10	R	
7846H	30791				Order #6	0% / +65535%	0.01%	F10	R	
7847H	30792				Order #7	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7848H	30793				Order #8	0% / +65535%	0.01%	F10	R	
7849H	30794				Order #9	0% / +65535%	0.01%	F10	R	
784AH	30795				Order #10	0% / +65535%	0.01%	F10	R	
784BH	30796				Order #11	0% / +65535%	0.01%	F10	R	
784CH	30797				Order #12	0% / +65535%	0.01%	F10	R	
784DH	30798				Order #13	0% / +65535%	0.01%	F10	R	
784EH	30799				Order #14	0% / +65535%	0.01%	F10	R	
784FH	30800				Order #15	0% / +65535%	0.01%	F10	R	
7850H	30801				Order #16	0% / +65535%	0.01%	F10	R	
7851H	30802				Order #17	0% / +65535%	0.01%	F10	R	
7852H	30803				Order #18	0% / +65535%	0.01%	F10	R	
7853H	30804				Order #19	0% / +65535%	0.01%	F10	R	
7854H	30805				Order #20	0% / +65535%	0.01%	F10	R	
7855H	30806				Order #21	0% / +65535%	0.01%	F10	R	
7856H	30807				Order #22	0% / +65535%	0.01%	F10	R	
7857H	30808				Order #23	0% / +65535%	0.01%	F10	R	
7858H	30809				Order #24	0% / +65535%	0.01%	F10	R	
7859H	30810				Order #25	0% / +65535%	0.01%	F10	R	
785AH	30811				Order #26	0% / +65535%	0.01%	F10	R	
785BH	30812				Order #27	0% / +65535%	0.01%	F10	R	
785CH	30813				Order #28	0% / +65535%	0.01%	F10	R	
785DH	30814				Order #29	0% / +65535%	0.01%	F10	R	
785EH	30815				Order #30	0% / +65535%	0.01%	F10	R	
785FH	30816				Order #31	0% / +65535%	0.01%	F10	R	
7860H	30817				Order #32	0% / +65535%	0.01%	F10	R	
7861H	30818				Order #33	0% / +65535%	0.01%	F10	R	
7862H	30819				Order #34	0% / +65535%	0.01%	F10	R	
7863H	30820				Order #35	0% / +65535%	0.01%	F10	R	
7864H	30821				Order #36	0% / +65535%	0.01%	F10	R	
7865H	30822				Order #37	0% / +65535%	0.01%	F10	R	
7866H	30823				Order #38	0% / +65535%	0.01%	F10	R	
7867H	30824				Order #39	0% / +65535%	0.01%	F10	R	
7868H	30825				Order #40	0% / +65535%	0.01%	F10	R	
7869H	30826				Order #41	0% / +65535%	0.01%	F10	R	
786AH	30827				Order #42	0% / +65535%	0.01%	F10	R	
786BH	30828				Order #43	0% / +65535%	0.01%	F10	R	
786CH	30829				Order #44	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
786DH	30830				Order #45	0% / +65535%	0.01%	F10	R	
786EH	30831				Order #46	0% / +65535%	0.01%	F10	R	
786FH	30832				Order #47	0% / +65535%	0.01%	F10	R	
7870H	30833				Order #48	0% / +65535%	0.01%	F10	R	
7871H	30834				Order #49	0% / +65535%	0.01%	F10	R	
7872H	30835				Order #50	0% / +65535%	0.01%	F10	R	
7873H	30836				Order #51	0% / +65535%	0.01%	F10	R	
Interharmonic Subgroup Magnitude Threshould										
7874H	30837				Order #0	0% / +65535%	0.01%	F10	R	
7875H	30838				Order #1	0% / +65535%	0.01%	F10	R	
7876H	30839				Order #2	0% / +65535%	0.01%	F10	R	
7877H	30840				Order #3	0% / +65535%	0.01%	F10	R	
7878H	30841				Order #4	0% / +65535%	0.01%	F10	R	
7879H	30842				Order #5	0% / +65535%	0.01%	F10	R	
787AH	30843				Order #6	0% / +65535%	0.01%	F10	R	
787BH	30844				Order #7	0% / +65535%	0.01%	F10	R	
787CH	30845				Order #8	0% / +65535%	0.01%	F10	R	
787DH	30846				Order #9	0% / +65535%	0.01%	F10	R	
787EH	30847				Order #10	0% / +65535%	0.01%	F10	R	
787FH	30848				Order #11	0% / +65535%	0.01%	F10	R	
7880H	30849				Order #12	0% / +65535%	0.01%	F10	R	
7881H	30850				Order #13	0% / +65535%	0.01%	F10	R	
7882H	30851				Order #14	0% / +65535%	0.01%	F10	R	
7883H	30852				Order #15	0% / +65535%	0.01%	F10	R	
7884H	30853				Order #16	0% / +65535%	0.01%	F10	R	
7885H	30854				Order #17	0% / +65535%	0.01%	F10	R	
7886H	30855				Order #18	0% / +65535%	0.01%	F10	R	
7887H	30856				Order #19	0% / +65535%	0.01%	F10	R	
7888H	30857				Order #20	0% / +65535%	0.01%	F10	R	
7889H	30858				Order #21	0% / +65535%	0.01%	F10	R	
788AH	30859				Order #22	0% / +65535%	0.01%	F10	R	
788BH	30860				Order #23	0% / +65535%	0.01%	F10	R	
788CH	30861				Order #24	0% / +65535%	0.01%	F10	R	
788DH	30862				Order #25	0% / +65535%	0.01%	F10	R	
788EH	30863				Order #26	0% / +65535%	0.01%	F10	R	
788FH	30864				Order #27	0% / +65535%	0.01%	F10	R	
7890H	30865				Order #28	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7891H	30866				Order #29	0% / +65535%	0.01%	F10	R	
7892H	30867				Order #30	0% / +65535%	0.01%	F10	R	
7893H	30868				Order #31	0% / +65535%	0.01%	F10	R	
7894H	30869				Order #32	0% / +65535%	0.01%	F10	R	
7895H	30870				Order #33	0% / +65535%	0.01%	F10	R	
7896H	30871				Order #34	0% / +65535%	0.01%	F10	R	
7897H	30872				Order #35	0% / +65535%	0.01%	F10	R	
7898H	30873				Order #36	0% / +65535%	0.01%	F10	R	
7899H	30874				Order #37	0% / +65535%	0.01%	F10	R	
789AH	30875				Order #38	0% / +65535%	0.01%	F10	R	
789BH	30876				Order #39	0% / +65535%	0.01%	F10	R	
789CH	30877				Order #40	0% / +65535%	0.01%	F10	R	
789DH	30878				Order #41	0% / +65535%	0.01%	F10	R	
789EH	30879				Order #42	0% / +65535%	0.01%	F10	R	
789FH	30880				Order #43	0% / +65535%	0.01%	F10	R	
78A0H	30881				Order #44	0% / +65535%	0.01%	F10	R	
78A1H	30882				Order #45	0% / +65535%	0.01%	F10	R	
78A2H	30883				Order #46	0% / +65535%	0.01%	F10	R	
78A3H	30884				Order #47	0% / +65535%	0.01%	F10	R	
78A4H	30885				Order #48	0% / +65535%	0.01%	F10	R	
78A5H	30886				Order #49	0% / +65535%	0.01%	F10	R	
78A6H	30887				Order #50	0% / +65535%	0.01%	F10	R	
78A7H	30888				Order #51	0% / +65535%	0.01%	F10	R	
Harmonic Group Magnitude Threshould										
78A8H	30889				Order #0	0% / +65535%	0.01%	F10	R	
78A9H	30890				Order #1	0% / +65535%	0.01%	F10	R	
78AAH	30891				Order #2	0% / +65535%	0.01%	F10	R	
78ABH	30892				Order #3	0% / +65535%	0.01%	F10	R	
78ACH	30893				Order #4	0% / +65535%	0.01%	F10	R	
78ADH	30894				Order #5	0% / +65535%	0.01%	F10	R	
78AEH	30895				Order #6	0% / +65535%	0.01%	F10	R	
78AFH	30896				Order #7	0% / +65535%	0.01%	F10	R	
78B0H	30897				Order #8	0% / +65535%	0.01%	F10	R	
78B1H	30898				Order #9	0% / +65535%	0.01%	F10	R	
78B2H	30899				Order #10	0% / +65535%	0.01%	F10	R	
78B3H	30900				Order #11	0% / +65535%	0.01%	F10	R	
78B4H	30901				Order #12	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
78B5H	30902				Order #13	0% / +65535%	0.01%	F10	R	
78B6H	30903				Order #14	0% / +65535%	0.01%	F10	R	
78B7H	30904				Order #15	0% / +65535%	0.01%	F10	R	
78B8H	30905				Order #16	0% / +65535%	0.01%	F10	R	
78B9H	30906				Order #17	0% / +65535%	0.01%	F10	R	
78BAH	30907				Order #18	0% / +65535%	0.01%	F10	R	
78BBH	30908				Order #19	0% / +65535%	0.01%	F10	R	
78BCH	30909				Order #20	0% / +65535%	0.01%	F10	R	
78BDH	30910				Order #21	0% / +65535%	0.01%	F10	R	
78BEH	30911				Order #22	0% / +65535%	0.01%	F10	R	
78BFH	30912				Order #23	0% / +65535%	0.01%	F10	R	
78C0H	30913				Order #24	0% / +65535%	0.01%	F10	R	
78C1H	30914				Order #25	0% / +65535%	0.01%	F10	R	
78C2H	30915				Order #26	0% / +65535%	0.01%	F10	R	
78C3H	30916				Order #27	0% / +65535%	0.01%	F10	R	
78C4H	30917				Order #28	0% / +65535%	0.01%	F10	R	
78C5H	30918				Order #29	0% / +65535%	0.01%	F10	R	
78C6H	30919				Order #30	0% / +65535%	0.01%	F10	R	
78C7H	30920				Order #31	0% / +65535%	0.01%	F10	R	
78C8H	30921				Order #32	0% / +65535%	0.01%	F10	R	
78C9H	30922				Order #33	0% / +65535%	0.01%	F10	R	
78CAH	30923				Order #34	0% / +65535%	0.01%	F10	R	
78CBH	30924				Order #35	0% / +65535%	0.01%	F10	R	
78CCH	30925				Order #36	0% / +65535%	0.01%	F10	R	
78CDH	30926				Order #37	0% / +65535%	0.01%	F10	R	
78CEH	30927				Order #38	0% / +65535%	0.01%	F10	R	
78CFH	30928				Order #39	0% / +65535%	0.01%	F10	R	
78D0H	30929				Order #40	0% / +65535%	0.01%	F10	R	
78D1H	30930				Order #41	0% / +65535%	0.01%	F10	R	
78D2H	30931				Order #42	0% / +65535%	0.01%	F10	R	
78D3H	30932				Order #43	0% / +65535%	0.01%	F10	R	
78D4H	30933				Order #44	0% / +65535%	0.01%	F10	R	
78D5H	30934				Order #45	0% / +65535%	0.01%	F10	R	
78D6H	30935				Order #46	0% / +65535%	0.01%	F10	R	
78D7H	30936				Order #47	0% / +65535%	0.01%	F10	R	
78D8H	30937				Order #48	0% / +65535%	0.01%	F10	R	
78D9H	30938				Order #49	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
78DAH	30939				Order #50	0% / +65535%	0.01%	F10	R	
78DBH	30940				Order #51	0% / +65535%	0.01%	F10	R	
Interharmonic Group Magnitude Threshould										
78DCH	30941				Order #0	0% / +65535%	0.01%	F10	R	
78DDH	30942				Order #1	0% / +65535%	0.01%	F10	R	
78DEH	30943				Order #2	0% / +65535%	0.01%	F10	R	
78DFH	30944				Order #3	0% / +65535%	0.01%	F10	R	
78E0H	30945				Order #4	0% / +65535%	0.01%	F10	R	
78E1H	30946				Order #5	0% / +65535%	0.01%	F10	R	
78E2H	30947				Order #6	0% / +65535%	0.01%	F10	R	
78E3H	30948				Order #7	0% / +65535%	0.01%	F10	R	
78E4H	30949				Order #8	0% / +65535%	0.01%	F10	R	
78E5H	30950				Order #9	0% / +65535%	0.01%	F10	R	
78E6H	30951				Order #10	0% / +65535%	0.01%	F10	R	
78E7H	30952				Order #11	0% / +65535%	0.01%	F10	R	
78E8H	30953				Order #12	0% / +65535%	0.01%	F10	R	
78E9H	30954				Order #13	0% / +65535%	0.01%	F10	R	
78EAH	30955				Order #14	0% / +65535%	0.01%	F10	R	
78EBH	30956				Order #15	0% / +65535%	0.01%	F10	R	
78ECH	30957				Order #16	0% / +65535%	0.01%	F10	R	
78EDH	30958				Order #17	0% / +65535%	0.01%	F10	R	
78EEH	30959				Order #18	0% / +65535%	0.01%	F10	R	
78EFH	30960				Order #19	0% / +65535%	0.01%	F10	R	
78F0H	30961				Order #20	0% / +65535%	0.01%	F10	R	
78F1H	30962				Order #21	0% / +65535%	0.01%	F10	R	
78F2H	30963				Order #22	0% / +65535%	0.01%	F10	R	
78F3H	30964				Order #23	0% / +65535%	0.01%	F10	R	
78F4H	30965				Order #24	0% / +65535%	0.01%	F10	R	
78F5H	30966				Order #25	0% / +65535%	0.01%	F10	R	
78F6H	30967				Order #26	0% / +65535%	0.01%	F10	R	
78F7H	30968				Order #27	0% / +65535%	0.01%	F10	R	
78F8H	30969				Order #28	0% / +65535%	0.01%	F10	R	
78F9H	30970				Order #29	0% / +65535%	0.01%	F10	R	
78FAH	30971				Order #30	0% / +65535%	0.01%	F10	R	
78FBH	30972				Order #31	0% / +65535%	0.01%	F10	R	
78FCH	30973				Order #32	0% / +65535%	0.01%	F10	R	
78FDH	30974				Order #33	0% / +65535%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
78FEH	30975				Order #34	0% / +65535%	0.01%	F10	R	
78FFH	30976				Order #35	0% / +65535%	0.01%	F10	R	
7900H	30977				Order #36	0% / +65535%	0.01%	F10	R	
7901H	30978				Order #37	0% / +65535%	0.01%	F10	R	
7902H	30979				Order #38	0% / +65535%	0.01%	F10	R	
7903H	30980				Order #39	0% / +65535%	0.01%	F10	R	
7904H	30981				Order #40	0% / +65535%	0.01%	F10	R	
7905H	30982				Order #41	0% / +65535%	0.01%	F10	R	
7906H	30983				Order #42	0% / +65535%	0.01%	F10	R	
7907H	30984				Order #43	0% / +65535%	0.01%	F10	R	
7908H	30985				Order #44	0% / +65535%	0.01%	F10	R	
7909H	30986				Order #45	0% / +65535%	0.01%	F10	R	
790AH	30987				Order #46	0% / +65535%	0.01%	F10	R	
790BH	30988				Order #47	0% / +65535%	0.01%	F10	R	
790CH	30989				Order #48	0% / +65535%	0.01%	F10	R	
790DH	30990				Order #49	0% / +65535%	0.01%	F10	R	
790EH	30991				Order #50	0% / +65535%	0.01%	F10	R	
790FH	30992				Order #51	0% / +65535%	0.01%	F10	R	
7910H	30993				Threshold Enable Channel #			F108	R	
7911H	30994				Mains Signalling Threshold	0% / +65535%	0.01%	F10	R	
7912H	30995				Mains Signalling Interharmonics Bin Start Number			F51		
7913H-791FH	30996-31008				Mains Signalling Interharmonics Bin Start Number			F51		
Overvoltage (Phase to Earth) Threshold										
7920H	31009				Phase N-E Voltage Setpoint	0.00 / +655.35	Volts		R	
7921H	31010				Phase A-E Voltage Setpoint	0.00 / +655.35	Volts		R	
7922H	31011				Phase B-E Voltage Setpoint	0.00 / +655.35	Volts		R	
7923H	31012				Phase C-E Voltage Setpoint	0.00 / +655.35	Volts		R	
7924H	31013				MSB Byte[1]: Allowed Long Interruption in a Year. Range from 0 to 100. Values>100 are equal to 100. Byte[0]: Rapid Voltage Change Data Source 0 = 10/12 Cycles Update RMS 1 = 1 Cycles Update RMS 2~255 = 10/12 Cycles Update RMS			F112	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
7925H	31014				MSB Byte[1]: Supply Voltage Unbalance Upper Limit. 0 = Less than or equal to 2% 1 = Less than or equal to 3% 2~255 = Less than or equal to 2% Byte[0]: Voltage Dip Concern Threshold Phase A see detail on modbus register below			F112	R	
7926H	31015				MSB Byte[1]: Voltage Dip Concern Threshold Phase B Byte[0]: Voltage Dip Concern Threshold Phase C 0 = Greater than or equal to 10% 1 = Greater than or equal to 15% 2 = Greater than or equal to 20% 3 = Greater than or equal to 30% 4 = Greater than or equal to 40% 5 = Greater than or equal to 50% 6 = Greater than or equal to 60% 7 = Greater than or equal to 70% 8 = Greater than or equal to 85% 9~255 = Greater than or equal to 85%			F112	R	
7927H	31016				MSB Byte[1]: First Day of Week 0 = Sunday 1 = Monday 2~255 = Sunday Byte[0]: Not Defined			F112	R	
7928H	31017				Sliding Reference Usr Sag/Swell Enable for Voltage			F77	R	
7929H	31018				Sliding Reference Usr Sag/Swell Enable for Current			F78	R	
	Interval Maximum/Minimum/Average									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
792AH	31019				MSB Byte[1]: Interval 0 = Interval from Interval log 3 1 = Interval from Interval log 4 2 = Interval from Interval log 5 3 = Interval from Interval log 6 4 = Interval from Interval log 7 5 = Interval from Interval log 8 byte[0]: Readings 0 = 1 cycle (DSP2 channel 142) 1 = 10/12 cycle (DSP2 channel 130) 2 = 3 seconds (DSP2 channel 131) 3 = 10 minute (DSP2 channel 131)			F112	R	
792BH-7FFF	31021-32768				Not Defined				R	
					Time of Use Calendar Header Block					
8800H-8803H	34817-34820				TOU Calendar Year 1 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8804H	34821				TOU Calendar Year 1 Calendar Year	9999	1 year	F21	R	
8805H-8808H	34822-34825				TOU Calendar Year 2 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8809H	34826				TOU Calendar Year 2 Calendar Year	9999	1 year	F21	R	
880AH-880DH	34827-34830				TOU Calendar Year 3 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
880EH	34831				TOU Calendar Year 3 Calendar Year	9999	1 year	F21	R	
880FH-8812H	34832-34835				TOU Calendar Year 4 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8813H	34836				TOU Calendar Year 4 Calendar Year	9999	1 year	F21	R	
8814H-8817H	34837-34840				TOU Calendar Year 5 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8818H	34841				TOU Calendar Year 5 Calendar Year	9999	1 year	F21	R	
8819H-CH	34842-34845				TOU Calendar Year 6 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
881DH	34846				TOU Calendar Year 6 Calendar Year	9999	1 year	F21	R	
881EH-8821H	34847-34850				TOU Calendar Year 7 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8822H	34851				TOU Calendar Year 7 Calendar Year	9999	1 year	F21	R	
8823H-8826H	34852-34855				TOU Calendar Year 8 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8827H	34856				TOU Calendar Year 8 Calendar Year	9999	1 year	F21	R	
8828H-882BH	34857-34860				TOU Calendar Year 9 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
882CH	34861				TOU Calendar Year 9 Calendar Year	9999	1 year	F21	R	
882DH-8830H	34862-34865				TOU Calendar Year 10 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8831H	34866				TOU Calendar Year 10 Calendar Year	9999	1 year	F21	R	
8832H-8835H	34867-34870				TOU Calendar Year 11 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8836H	34871				TOU Calendar Year 11 Calendar Year	9999	1 year	F21	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8837H-883AH	34872-34875				TOU Calendar Year 12 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
883BH	34876				TOU Calendar Year 12 Calendar Year	9999	1 year	F21	R	
883CH-883FH	34877-34880				TOU Calendar Year 13 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8840H	34881				TOU Calendar Year 13 Calendar Year	9999	1 year	F21	R	
8841H-8844H	34882-34885				TOU Calendar Year 14 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8845H	34886				TOU Calendar Year 14 Calendar Year	9999	1 year	F21	R	
8846H-8849H	34887-34890				TOU Calendar Year 15 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
884AH	34891				TOU Calendar Year 15 Calendar Year	9999	1 year	F21	R	
884BH-884EH	34892-34895				TOU Calendar Year 16 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
884FH	34896				TOU Calendar Year 16 Calendar Year	9999	1 year	F21	R	
8850H-8853H	34897-34900				TOU Calendar Year 17 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8854H	34901				TOU Calendar Year 17 Calendar Year	9999	1 year	F21	R	
8855H-8858H	34902-34905				TOU Calendar Year 18 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8859H	34906				TOU Calendar Year 18 Calendar Year	9999	1 year	F21	R	
885AH-885DH	34907-34910				TOU Calendar Year 19 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
885EH	34911				TOU Calendar Year 19 Calendar Year	9999	1 year	F21	R	
885FH-8862H	34912-34915				TOU Calendar Year 20 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
8863H	34916				TOU Calendar Year 20 Calendar Year	9999	1 year	F21	R	
8864H	34917				TOU Calendar Year Selection			F31	R/W	
8865H	34918				TOU Calendar Header Status / Year Selection Status			F32	R	
	Time of Use Calendar Block									
	Time of Use Calendar Window 1									
8866H-8869H	34919-34922				TOU Calendar Year 1 Modification Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	1
886AH	34923				TOU Calendar Year 1 Calendar Year	9999	1 year	F21	R	
886BH	34924				TOU Calendar Year 1 Jan 1 / Jan 2 Profile	15-15 / 0-0		F22	R	
886CH	34925				TOU Calendar Year 1 Jan 3 / Jan 4 Profile	15-15 / 0-0		F22	R	
886DH	34926				TOU Calendar Year 1 Jan 5 / Jan 6 Profile	15-15 / 0-0		F22	R	
886EH	34927				TOU Calendar Year 1 Jan 7 / Jan 8 Profile	15-15 / 0-0		F22	R	
886FH	34928				TOU Calendar Year 1 Jan 9 / Jan 10 Profile	15-15 / 0-0		F22	R	
8870H	34929				TOU Calendar Year 1 Jan 11 / Jan 12 Profile	15-15 / 0-0		F22	R	
8871H	34930				TOU Calendar Year 1 Jan 13 / Jan 14 Profile	15-15 / 0-0		F22	R	
8872H	34931				TOU Calendar Year 1 Jan 15 / Jan 16 Profile	15-15 / 0-0		F22	R	
8873H	34932				TOU Calendar Year 1 Jan 17 / Jan 18 Profile	15-15 / 0-0		F22	R	
8874H	34933				TOU Calendar Year 1 Jan 19 / Jan 20 Profile	15-15 / 0-0		F22	R	
8875H	34934				TOU Calendar Year 1 Jan 21 / Jan 22 Profile	15-15 / 0-0		F22	R	
8876H	34935				TOU Calendar Year 1 Jan 23 / Jan 24 Profile	15-15 / 0-0		F22	R	
8877H	34936				TOU Calendar Year 1 Jan 25 / Jan 26 Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8878H	34937				TOU Calendar Year 1 Jan 27 / Jan 28 Profile	15-15 / 0-0		F22	R	
8879H	34938				TOU Calendar Year 1 Jan 29 / Jan 30 Profile	15-15 / 0-0		F22	R	
887AH	34939				TOU Calendar Year 1 Jan 31 / Feb 1 Profile	15-15 / 0-0		F22	R	
887BH	34940				TOU Calendar Year 1 Feb 2 / Feb 3 Profile	15-15 / 0-0		F22	R	
887CH	34941				TOU Calendar Year 1 Feb 4 / Feb 5 Profile	15-15 / 0-0		F22	R	
887DH	34942				TOU Calendar Year 1 Feb 6 / Feb 7 Profile	15-15 / 0-0		F22	R	
887EH	34943				TOU Calendar Year 1 Feb 8 / Feb 9 Profile	15-15 / 0-0		F22	R	
887FH	34944				TOU Calendar Year 1 Feb 10 / Feb 11 Profile	15-15 / 0-0		F22	R	
8880H	34945				TOU Calendar Year 1 Feb 12 / Feb 13 Profile	15-15 / 0-0		F22	R	
8881H	34946				TOU Calendar Year 1 Feb 14 / Feb 15 Profile	15-15 / 0-0		F22	R	
8882H	34947				TOU Calendar Year 1 Feb 16 / Feb 17 Profile	15-15 / 0-0		F22	R	
8883H	34948				TOU Calendar Year 1 Feb 18 / Feb 19 Profile	15-15 / 0-0		F22	R	
8884H	34949				TOU Calendar Year 1 Feb 20 / Feb 21 Profile	15-15 / 0-0		F22	R	
8885H	34950				TOU Calendar Year 1 Feb 22 / Feb 23 Profile	15-15 / 0-0		F22	R	
8886H	34951				TOU Calendar Year 1 Feb 24 / Feb 25 Profile	15-15 / 0-0		F22	R	
8887H	34952				TOU Calendar Year 1 Feb 26 / Feb 27 Profile	15-15 / 0-0		F22	R	
8888H	34953				TOU Calendar Year 1 Feb 28 / Mar 1 (Feb 28) Profile	15-15 / 0-0		F22	R	
8889H	34954				TOU Calendar Year 1 Mar 2 (Mar 1) / Mar 3 (Mar 2) Profile	15-15 / 0-0		F22	R	
888AH	34955				TOU Calendar Year 1 Mar 4 (Mar 3) / Mar 5 (Mar 4) Profile	15-15 / 0-0		F22	R	
888BH	34956				TOU Calendar Year 1 Mar 6 (Mar 5) / Mar 7 (Mar 6) Profile	15-15 / 0-0		F22	R	
888CH	34957				TOU Calendar Year 1 Mar 8 (Mar 7) / Mar 9 (Mar 8) Profile	15-15 / 0-0		F22	R	
888DH	34958				TOU Calendar Year 1 Mar 10 (Mar 9) / Mar 11 (Mar 10) Profile	15-15 / 0-0		F22	R	
888EH	34959				TOU Calendar Year 1 Mar 13 (Mar 11) / Mar 13 (Mar 12) Profile	15-15 / 0-0		F22	R	
888FH	34960				TOU Calendar Year 1 Mar 14 (Mar 13) / Mar 15 (Mar 14) Profile	15-15 / 0-0		F22	R	
8890H	34961				TOU Calendar Year 1 Mar 16 (Mar 15) / Mar 17 (Mar 16) Profile	15-15 / 0-0		F22	R	
8891H	34962				TOU Calendar Year 1 Mar 18 (Mar 17) / Mar 19 (Mar 18) Profile	15-15 / 0-0		F22	R	
8892H	34963				TOU Calendar Year 1 Mar 20 (Mar 19) / Mar 21 (Mar 20) Profile	15-15 / 0-0		F22	R	
8893H	34964				TOU Calendar Year 1 Mar 22 (Mar 21) / Mar 23 (Mar 22) Profile	15-15 / 0-0		F22	R	
8894H	34965				TOU Calendar Year 1 Mar 24 (Mar 23) / Mar 25 (Mar 24) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8895H	34966				TOU Calendar Year 1 Mar 26 (Mar 25) / Mar 27 (Mar 26) Profile	15-15 / 0-0		F22	R	
8896H	34967				TOU Calendar Year 1 Mar 28 (Mar 27) / Mar 29 (Mar 28) Profile	15-15 / 0-0		F22	R	
8897H	34968				TOU Calendar Year 1 Mar 30 (Mar 29) / Mar 31 (Mar 30) Profile	15-15 / 0-0		F22	R	
8898H	34969				TOU Calendar Year 1 Apr 1 (Mar 31) / Apr 2 (Apr 1) Profile	15-15 / 0-0		F22	R	
8899H	34970				TOU Calendar Year 1 Apr 3 (Apr 2) / Apr 4 (Apr 3) Profile	15-15 / 0-0		F22	R	
889AH	34971				TOU Calendar Year 1 Apr 5 (Apr 4) / Apr 6 (Apr 5) Profile	15-15 / 0-0		F22	R	
889BH	34972				TOU Calendar Year 1 Apr 7 (Apr 6) / Apr 8 (Apr 7) Profile	15-15 / 0-0		F22	R	
889CH	34973				TOU Calendar Year 1 Apr 9 (Apr 8) / Apr 10 (Apr 9) Profile	15-15 / 0-0		F22	R	
889DH	34974				TOU Calendar Year 1 Apr 11 (Apr 10) / Apr 12 (Apr 11) Profile	15-15 / 0-0		F22	R	
889EH	34975				TOU Calendar Year 1 Apr 13 (Apr 12) / Apr 14 (Apr 13) Profile	15-15 / 0-0		F22	R	
889FH	34976				TOU Calendar Year 1 Apr 15 (Apr 14) / Apr 16 (Apr 15) Profile	15-15 / 0-0		F22	R	
88A0H	34977				TOU Calendar Year 1 Apr 17 (Apr 16) / Apr 18 (Apr 17) Profile	15-15 / 0-0		F22	R	
88A1H	34978				TOU Calendar Year 1 Apr 19 (Apr 18) / Apr 20 (Apr 19) Profile	15-15 / 0-0		F22	R	
88A2H	34979				TOU Calendar Year 1 Apr 21 (Apr 20) / Apr 22 (Apr 21) Profile	15-15 / 0-0		F22	R	
88A3H	34980				TOU Calendar Year 1 Apr 23 (Apr 22) / Apr 24 (Apr 23) Profile	15-15 / 0-0		F22	R	
88A4H	34981				TOU Calendar Year 1 Apr 25 (Apr 24) / Apr 26 (Apr 25) Profile	15-15 / 0-0		F22	R	
88A5H	34982				TOU Calendar Year 1 Apr 27 (Apr 26) / Apr 28 (Apr 27) Profile	15-15 / 0-0		F22	R	
88A6H	34983				TOU Calendar Year 1 Apr 29 (Apr 28) / Apr 30 (Apr 29) Profile	15-15 / 0-0		F22	R	
88A7H	34984				TOU Calendar Year 1 May 1 (Apr 30) / May 2 (May 1) Profile	15-15 / 0-0		F22	R	
88A8H	34985				TOU Calendar Year 1 May 3 (May 2) / May 4 (May 3) Profile	15-15 / 0-0		F22	R	
88A9H	34986				TOU Calendar Year 1 May 5 (May 4) / May 6 (May 5) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
88AAH	34987				TOU Calendar Year 1 May 7 (May 6) / May 8 (May 7) Profile	15-15 / 0-0		F22	R	
88ABH	34988				TOU Calendar Year 1 May 9 (May 8) / May 10 (May 9) Profile	15-15 / 0-0		F22	R	
88ACH	34989				TOU Calendar Year 1 May 11 (May 10) / May 12 (May 11) Profile	15-15 / 0-0		F22	R	
88ADH	34990				TOU Calendar Year 1 May 13 (May 12) / May 14 (May 13) Profile	15-15 / 0-0		F22	R	
88AEH	34991				TOU Calendar Year 1 May 15 (May 14) / May 16 (May 15) Profile	15-15 / 0-0		F22	R	
88AFH	34992				TOU Calendar Year 1 May 17 (May 16) / May 18 (May 17) Profile	15-15 / 0-0		F22	R	
88B0H	34993				TOU Calendar Year 1 May 19 (May 18) / May 20 (May 19) Profile	15-15 / 0-0		F22	R	
88B1H	34994				TOU Calendar Year 1 May 21 (May 20) / May 22 (May 21) Profile	15-15 / 0-0		F22	R	
88B2H	34995				TOU Calendar Year 1 May 23 (May 22) / May 24 (May 23) Profile	15-15 / 0-0		F22	R	
88B3H	34996				TOU Calendar Year 1 May 25 (May 24) / May 26 (May 25) Profile	15-15 / 0-0		F22	R	
88B4H	34997				TOU Calendar Year 1 May 27 (May 26) / May 28 (May 27) Profile	15-15 / 0-0		F22	R	
88B5H	34998				TOU Calendar Year 1 May 29 (May 28) / May 30 (May 29) Profile	15-15 / 0-0		F22	R	
88B6H	34999				TOU Calendar Year 1 May 31 (May 30) / Jun 1 (May 31) Profile	15-15 / 0-0		F22	R	
88B7H	35000				TOU Calendar Year 1 Jun 2 (Jun 1) / Jun 3 (Jun 2) Profile	15-15 / 0-0		F22	R	
88B8H	35001				TOU Calendar Year 1 Jun 4 (Jun 3) / Jun 5 (Jun 4) Profile	15-15 / 0-0		F22	R	
88B9H	35002				TOU Calendar Year 1 Jun 6 (Jun 5) / Jun 7 (Jun 6) Profile	15-15 / 0-0		F22	R	
88BAH	35003				TOU Calendar Year 1 Jun 8 (Jun 7) / Jun 9 (Jun 8) Profile	15-15 / 0-0		F22	R	
88BBH	35004				TOU Calendar Year 1 Jun 10 (Jun 9) / Jun 11 (Jun 10) Profile	15-15 / 0-0		F22	R	
88BCH	35005				TOU Calendar Year 1 Jun 13 (Jun 11) / Jun 13 (Jun 12) Profile	15-15 / 0-0		F22	R	
88BDH	35006				TOU Calendar Year 1 Jun 14 (Jun 13) / Jun 15 (Jun 14) Profile	15-15 / 0-0		F22	R	
88BEH	35007				TOU Calendar Year 1 Jun 16 (Jun 15) / Jun 17 (Jun 16) Profile	15-15 / 0-0		F22	R	
88BFH	35008				TOU Calendar Year 1 Jun 18 (Jun 17) / Jun 19 (Jun 18) Profile	15-15 / 0-0		F22	R	
88C0H	35009				TOU Calendar Year 1 Jun 20 (Jun 19) / Jun 21 (Jun 20) Profile	15-15 / 0-0		F22	R	
88C1H	35010				TOU Calendar Year 1 Jun 22 (Jun 21) / Jun 23 (Jun 22) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
88C2H	35011				TOU Calendar Year 1 Jun 24 (Jun 23) / Jun 25 (Jun 24) Profile	15-15 / 0-0		F22	R	
88C3H	35012				TOU Calendar Year 1 Jun 26 (Jun 25) / Jun 27 (Jun 26) Profile	15-15 / 0-0		F22	R	
88C4H	35013				TOU Calendar Year 1 Jun 28 (Jun 27) / Jun 29 (Jun 28) Profile	15-15 / 0-0		F22	R	
88C5H	35014				TOU Calendar Year 1 Jun 30 (Jun 29) / Jul 1 (Jun 30) Profile	15-15 / 0-0		F22	R	
88C6H	35015				TOU Calendar Year 1 Jul 2 (Jul 1) / Jul 3 (Jul 2) Profile	15-15 / 0-0		F22	R	
88C7H	35016				TOU Calendar Year 1 Jul 4 (Jul 3) / Jul 5 (Jul 4) Profile	15-15 / 0-0		F22	R	
88C8H	35017				TOU Calendar Year 1 Jul 6 (Jul 5) / Jul 7 (Jul 6) Profile	15-15 / 0-0		F22	R	
88C9H	35018				TOU Calendar Year 1 Jul 8 (Jul 7) / Jul 9 (Jul 8) Profile	15-15 / 0-0		F22	R	
88CAH	35019				TOU Calendar Year 1 Jul 10 (Jul 9) / Jul 11 (Jul 10) Profile	15-15 / 0-0		F22	R	
88CBH	35020				TOU Calendar Year 1 Jul 13 (Jul 11) / Jul 13 (Jul 12) Profile	15-15 / 0-0		F22	R	
88CCH	35021				TOU Calendar Year 1 Jul 14 (Jul 13) / Jul 15 (Jul 14) Profile	15-15 / 0-0		F22	R	
88CDH	35022				TOU Calendar Year 1 Jul 16 (Jul 15) / Jul 17 (Jul 16) Profile	15-15 / 0-0		F22	R	
88CEH	35023				TOU Calendar Year 1 Jul 18 (Jul 17) / Jul 19 (Jul 18) Profile	15-15 / 0-0		F22	R	
88CFH	35024				TOU Calendar Year 1 Jul 20 (Jul 19) / Jul 21 (Jul 20) Profile	15-15 / 0-0		F22	R	
88D0H	35025				TOU Calendar Year 1 Jul 22 (Jul 21) / Jul 23 (Jul 22) Profile	15-15 / 0-0		F22	R	
88D1H	35026				TOU Calendar Year 1 Jul 24 (Jul 23) / Jul 25 (Jul 24) Profile	15-15 / 0-0		F22	R	
88D2H	35027				TOU Calendar Year 1 Jul 26 (Jul 25) / Jul 27 (Jul 26) Profile	15-15 / 0-0		F22	R	
88D3H	35028				TOU Calendar Year 1 Jul 28 (Jul 27) / Jul 29 (Jul 28) Profile	15-15 / 0-0		F22	R	
88D4H	35029				TOU Calendar Year 1 Jul 30 (Jul 29) / Jul 31 (Jul 30) Profile	15-15 / 0-0		F22	R	
88D5H	35030				TOU Calendar Year 1 Aug 1 (Jul 31) / Aug 2 (Aug 1) Profile	15-15 / 0-0		F22	R	
88D6H	35031				TOU Calendar Year 1 Aug 3 (Aug 2) / Aug 4 (Aug 3) Profile	15-15 / 0-0		F22	R	
88D7H	35032				TOU Calendar Year 1 Aug 5 (Aug 4) / Aug 6 (Aug 5) Profile	15-15 / 0-0		F22	R	
88D8H	35033				TOU Calendar Year 1 Aug 7 (Aug 6) / Aug 8 (Aug 7) Profile	15-15 / 0-0		F22	R	
88D9H	35034				TOU Calendar Year 1 Aug 9 (Aug 8) / Aug 10 (Aug 9) Profile	15-15 / 0-0		F22	R	
88DAH	35035				TOU Calendar Year 1 Aug 11 (Aug 10) / Aug 12 (Aug 11) Profile	15-15 / 0-0		F22	R	
88DBH	35036				TOU Calendar Year 1 Aug 13 (Aug 12) / Aug 14 (Aug 13) Profile	15-15 / 0-0		F22	R	
88DCH	35037				TOU Calendar Year 1 Aug 15 (Aug 14) / Aug 16 (Aug 15) Profile	15-15 / 0-0		F22	R	
88DDH	35038				TOU Calendar Year 1 Aug 17 (Aug 16) / Aug 18 (Aug 17) Profile	15-15 / 0-0		F22	R	
88DEH	35039				TOU Calendar Year 1 Aug 19 (Aug 18) / Aug 20 (Aug 19) Profile	15-15 / 0-0		F22	R	
88DFH	35040				TOU Calendar Year 1 Aug 21 (Aug 20) / Aug 22 (Aug 21) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
88E0H	35041				TOU Calendar Year 1 Aug 23 (Aug 22) / Aug 24 (Aug 23) Profile	15-15 / 0-0		F22	R	
88E1H	35042				TOU Calendar Year 1 Aug 25 (Aug 24) / Aug 26 (Aug 25) Profile	15-15 / 0-0		F22	R	
88E2H	35043				TOU Calendar Year 1 Aug 27 (Aug 26) / Aug 28 (Aug 27) Profile	15-15 / 0-0		F22	R	
88E3H	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									
88E4H	35045				TOU Calendar Year 1 Aug 31 (Aug 30) / Sep 1 (Aug 31) Profile	15-15 / 0-0		F22	R	
88E5H	35046				TOU Calendar Year 1 Sep 2 (Sep 1) / Sep 3 (Sep 2) Profile	15-15 / 0-0		F22	R	
88E6H	35047				TOU Calendar Year 1 Sep 4 (Sep 3) / Sep 5 (Sep 4) Profile	15-15 / 0-0		F22	R	
88E7H	35048				TOU Calendar Year 1 Sep 6 (Sep 5) / Sep 7 (Sep 6) Profile	15-15 / 0-0		F22	R	
88E8H	35049				TOU Calendar Year 1 Sep 8 (Sep 7) / Sep 9 (Sep 8) Profile	15-15 / 0-0		F22	R	
88E9H	35050				TOU Calendar Year 1 Sep 10 (Sep 9) / Sep 11 (Sep 10) Profile	15-15 / 0-0		F22	R	
88EAH	35051				TOU Calendar Year 1 Sep 13 (Sep 11) / Sep 13 (Sep 12) Profile	15-15 / 0-0		F22	R	
88EBH	35052				TOU Calendar Year 1 Sep 14 (Sep 13) / Sep 15 (Sep 14) Profile	15-15 / 0-0		F22	R	
88ECH	35053				TOU Calendar Year 1 Sep 16 (Sep 15) / Sep 17 (Sep 16) Profile	15-15 / 0-0		F22	R	
88EDH	35054				TOU Calendar Year 1 Sep 18 (Sep 17) / Sep 19 (Sep 18) Profile	15-15 / 0-0		F22	R	
88EEH	35055				TOU Calendar Year 1 Sep 20 (Sep 19) / Sep 21 (Sep 20) Profile	15-15 / 0-0		F22	R	
88EFH	35056				TOU Calendar Year 1 Sep 22 (Sep 21) / Sep 23 (Sep 22) Profile	15-15 / 0-0		F22	R	
88F0H	35057				TOU Calendar Year 1 Sep 24 (Sep 23) / Sep 25 (Sep 24) Profile	15-15 / 0-0		F22	R	
88F1H	35058				TOU Calendar Year 1 Sep 26 (Sep 25) / Sep 27 (Sep 26) Profile	15-15 / 0-0		F22	R	
88F2H	35059				TOU Calendar Year 1 Sep 28 (Sep 27) / Sep 29 (Sep 28) Profile	15-15 / 0-0		F22	R	
88F3H	35060				TOU Calendar Year 1 Sep 30 (Sep 29) / Oct 1 (Sep 30) Profile	15-15 / 0-0		F22	R	
88F4H	35061				TOU Calendar Year 1 Oct 2 (Oct 1) / Oct 3 (Oct 2) Profile	15-15 / 0-0		F22	R	
88F5H	35062				TOU Calendar Year 1 Oct 4 (Oct 3) / Oct 5 (Oct 4) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
88F6H	35063				TOU Calendar Year 1 Oct 6 (Oct 5) / Oct 7 (Oct 6) Profile	15-15 / 0-0		F22	R	
88F7H	35064				TOU Calendar Year 1 Oct 8 (Oct 7) / Oct 9 (Oct 8) Profile	15-15 / 0-0		F22	R	
88F8H	35065				TOU Calendar Year 1 Oct 10 (Oct 9) / Oct 11 (Oct 10) Profile	15-15 / 0-0		F22	R	
88F9H	35066				TOU Calendar Year 1 Oct 13 (Oct 11) / Oct 13 (Oct 12) Profile	15-15 / 0-0		F22	R	
88FAH	35067				TOU Calendar Year 1 Oct 14 (Oct 13) / Oct 15 (Oct 14) Profile	15-15 / 0-0		F22	R	
88FBH	35068				TOU Calendar Year 1 Oct 16 (Oct 15) / Oct 17 (Oct 16) Profile	15-15 / 0-0		F22	R	
88FCH	35069				TOU Calendar Year 1 Oct 18 (Oct 17) / Oct 19 (Oct 18) Profile	15-15 / 0-0		F22	R	
88FDH	35070				TOU Calendar Year 1 Oct 20 (Oct 19) / Oct 21 (Oct 20) Profile	15-15 / 0-0		F22	R	
88FEH	35071				TOU Calendar Year 1 Oct 22 (Oct 21) / Oct 23 (Oct 22) Profile	15-15 / 0-0		F22	R	
88FFH	35072				TOU Calendar Year 1 Oct 24 (Oct 23) / Oct 25 (Oct 24) Profile	15-15 / 0-0		F22	R	
8900H	35073				TOU Calendar Year 1 Oct 26 (Oct 25) / Oct 27 (Oct 26) Profile	15-15 / 0-0		F22	R	
8901H	35074				TOU Calendar Year 1 Oct 28 (Oct 27) / Oct 29 (Oct 28) Profile	15-15 / 0-0		F22	R	
8902H	35075				TOU Calendar Year 1 Oct 30 (Oct 29) / Oct 31 (Oct 30) Profile	15-15 / 0-0		F22	R	
8903H	35076				TOU Calendar Year 1 Nov 1 (Oct 31) / Nov 2 (Nov 1) Profile	15-15 / 0-0		F22	R	
8904H	35077				TOU Calendar Year 1 Nov 3 (Nov 2) / Nov 4 (Nov 3) Profile	15-15 / 0-0		F22	R	
8905H	35078				TOU Calendar Year 1 Nov 5 (Nov 4) / Nov 6 (Nov 5) Profile	15-15 / 0-0		F22	R	
8906H	35079				TOU Calendar Year 1 Nov 7 (Nov 6) / Nov 8 (Nov 7) Profile	15-15 / 0-0		F22	R	
8907H	35080				TOU Calendar Year 1 Nov 9 (Nov 8) / Nov 10 (Nov 9) Profile	15-15 / 0-0		F22	R	
8908H	35081				TOU Calendar Year 1 Nov 11 (Nov 10) / Nov 12 (Nov 11) Profile	15-15 / 0-0		F22	R	
8909H	35082				TOU Calendar Year 1 Nov 13 (Nov 12) / Nov 14 (Nov 13) Profile	15-15 / 0-0		F22	R	
890AH	35083				TOU Calendar Year 1 Nov 15 (Nov 14) / Nov 16 (Nov 15) Profile	15-15 / 0-0		F22	R	
890BH	35084				TOU Calendar Year 1 Nov 17 (Nov 16) / Nov 18 (Nov 17) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
890CH	35085				TOU Calendar Year 1 Nov 19 (Nov 18) / Nov 20 (Nov 19) Profile	15-15 / 0-0		F22	R	
890DH	35086				TOU Calendar Year 1 Nov 21 (Nov 20) / Nov 22 (Nov 21) Profile	15-15 / 0-0		F22	R	
890EH	35087				TOU Calendar Year 1 Nov 23 (Nov 22) / Nov 24 (Nov 23) Profile	15-15 / 0-0		F22	R	
890FH	35088				TOU Calendar Year 1 Nov 25 (Nov 24) / Nov 26 (Nov 25) Profile	15-15 / 0-0		F22	R	
8910H	35089				TOU Calendar Year 1 Nov 27 (Nov 26) / Nov 28 (Nov 27) Profile	15-15 / 0-0		F22	R	
8911H	35090				TOU Calendar Year 1 Nov 29 (Nov 28) / Nov 30 (Nov 29) Profile	15-15 / 0-0		F22	R	
8912H	35091				TOU Calendar Year 1 Dec 1 (Nov 31) / Dec 2 (Dec 1) Profile	15-15 / 0-0		F22	R	
8913H	35092				TOU Calendar Year 1 Dec 3 (Dec 2) / Dec 4 (Dec 3) Profile	15-15 / 0-0		F22	R	
8914H	35093				TOU Calendar Year 1 Dec 5 (Dec 4) / Dec 6 (Dec 5) Profile	15-15 / 0-0		F22	R	
8915H	35094				TOU Calendar Year 1 Dec 7 (Dec 6) / Dec 8 (Dec 7) Profile	15-15 / 0-0		F22	R	
8916H	35095				TOU Calendar Year 1 Dec 9 (Dec 8) / Dec 10 (Dec 9) Profile	15-15 / 0-0		F22	R	
8917H	35096				TOU Calendar Year 1 Dec 11 (Dec 10) / Dec 12 (Dec 11) Profile	15-15 / 0-0		F22	R	
8918H	35097				TOU Calendar Year 1 Dec 13 (Dec 12) / Dec 14 (Dec 13) Profile	15-15 / 0-0		F22	R	
8919H	35098				TOU Calendar Year 1 Dec 15 (Dec 14) / Dec 16 (Dec 15) Profile	15-15 / 0-0		F22	R	
891AH	35099				TOU Calendar Year 1 Dec 17 (Dec 16) / Dec 18 (Dec 17) Profile	15-15 / 0-0		F22	R	
891BH	35100				TOU Calendar Year 1 Dec 19 (Dec 18) / Dec 20 (Dec 19) Profile	15-15 / 0-0		F22	R	
891CH	35101				TOU Calendar Year 1 Dec 21 (Dec 20) / Dec 22 (Dec 21) Profile	15-15 / 0-0		F22	R	
891DH	35102				TOU Calendar Year 1 Dec 23 (Dec 22) / Dec 24 (Dec 23) Profile	15-15 / 0-0		F22	R	
891EH	35103				TOU Calendar Year 1 Dec 25 (Dec 24) / Dec 26 (Dec 25) Profile	15-15 / 0-0		F22	R	
891FH	35104				TOU Calendar Year 1 Dec 27 (Dec 26) / Dec 28 (Dec 27) Profile	15-15 / 0-0		F22	R	
8920H	35105				TOU Calendar Year 1 Dec 29 (Dec 28) / Dec 30 (Dec 29) Profile	15-15 / 0-0		F22	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8921H	35106				TOU Calendar Year 1 Dec 31 (Dec 30) / (Dec 31) Profile	15-15 / 0-0		F22	R	
8922H	35107				TOU Calendar Year 1 Profile 1 Status			F23	R	
8923H	35108				TOU Calendar Year 1 Profile 1 Register for 00:00, 00:15, 00:30 & 00:45	7-7-7-7 / 0-0-0-0		F24	R	
8924H	35109				TOU Calendar Year 1 Profile 1 Register for 01:00, 01:15, 01:30 & 01:45	7-7-7-7 / 0-0-0-0		F24	R	
8925H	35110				TOU Calendar Year 1 Profile 1 Register for 02:00, 02:15, 02:30 & 02:45	7-7-7-7 / 0-0-0-0		F24	R	
8926H	35111				TOU Calendar Year 1 Profile 1 Register for 03:00, 03:15, 03:30 & 03:45	7-7-7-7 / 0-0-0-0		F24	R	
8927H	35112				TOU Calendar Year 1 Profile 1 Register for 04:00, 04:15, 04:30 & 04:45	7-7-7-7 / 0-0-0-0		F24	R	
8928H	35113				TOU Calendar Year 1 Profile 1 Register for 05:00, 05:15, 05:30 & 05:45	7-7-7-7 / 0-0-0-0		F24	R	
8929H	35114				TOU Calendar Year 1 Profile 1 Register for 06:00, 06:15, 06:30 & 06:45	7-7-7-7 / 0-0-0-0		F24	R	
892AH	35115				TOU Calendar Year 1 Profile 1 Register for 07:00, 07:15, 07:30 & 07:45	7-7-7-7 / 0-0-0-0		F24	R	
892BH	35116				TOU Calendar Year 1 Profile 1 Register for 08:00, 08:15, 08:30 & 08:45	7-7-7-7 / 0-0-0-0		F24	R	
892CH	35117				TOU Calendar Year 1 Profile 1 Register for 09:00, 09:15, 09:30 & 09:45	7-7-7-7 / 0-0-0-0		F24	R	
892DH	35118				TOU Calendar Year 1 Profile 1 Register for 10:00, 10:15, 10:30 & 10:45	7-7-7-7 / 0-0-0-0		F24	R	
892EH	35119				TOU Calendar Year 1 Profile 1 Register for 11:00, 11:15, 11:30 & 11:45	7-7-7-7 / 0-0-0-0		F24	R	
892FH	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	
8930H	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	
8931H	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	
8932H	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	
8933H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8934H	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	
8935H	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	
8936H	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	
8937H	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	
8938H	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	
8939H	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	
893AH	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	
893BH	35132				TOU Calendar Year 1 Profile 2 Status			F23	R	
893CH	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	
893DH	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	
893EH	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	
893FH	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	
8940H	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	
8941H	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	
8942H	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	
8943H	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	
8944H	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	
8945H	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	
8946H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8947H	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	
8948H	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	
8949H	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	
894AH	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	
894BH	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	
894CH	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	
894DH	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	
894EH	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	
894FH	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	
8950H	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	
8951H	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	
8952H	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	
8953H	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	
8954H	35157				TOU Calendar Year 1 Profile 3 Status			F23	R	
8955H	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	
8956H	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	
8957H	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	
8958H	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	
8959H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
895AH	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	
895BH	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	
895CH	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	
895DH	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	
895EH	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	
895FH	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	
8960H	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	
8961H	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					
8962H	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	
8963H	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	
8964H	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	
8965H	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	
8966H	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	
8967H	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	
8968H	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	
8969H	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	
896AH	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	
896BH	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
896CH	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	
896DH	35182				TOU Calendar Year 1 Profile 4 Status			F23	R	
896EH	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	
896FH	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	
8970H	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	
8971H	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	
8972H	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	
8973H	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	
8974H	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	
8975H	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	
8976H	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	
8977H	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	
8978H	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	
8979H	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	
897AH	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	
897BH	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	
897CH	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	
897DH	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	
897EH	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
897FH	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	
8980H	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	
8981H	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	
8982H	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	
8983H	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	
8984H	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	
8985H	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	
8986H	35207				TOU Calendar Year 1 Profile 5 Status			F23	R	
8987H	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	
8988H	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	
8989H	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	
898AH	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	
898BH	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	
898CH	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	
898DH	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	
898EH	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	
898FH	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	
8990H	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	
8991H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8992H	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	
8993H	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	
8994H	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	
8995H	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	
8996H	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	
8997H	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	
8998H	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	
8999H	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	
899AH	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	
899BH	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	
899CH	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	
899DH	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	
899EH	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	
899FH	35232				TOU Calendar Year 1 Profile 6 Status			F23	R	
89A0H	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	
89A1H	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	
89A2H	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	
89A3H	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	
89A4H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
89A5H	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	
89A6H	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	
89A7H	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	
89A8H	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	
89A9H	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	
89AAH	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	
89ABH	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	
89ACH	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	
89ADH	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	
89AEH	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	
89AFH	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	
89B0H	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	
89B1H	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	
89B2H	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	
89B3H	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	
89B4H	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	
89B5H	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	
89B6H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
89B7H	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	
89B8H	35257				TOU Calendar Year 1 Profile 7 Status			F23	R	
89B9H	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	
89BAH	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	
89BBH	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	
89BCH	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	
89BDH	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	
89BEH	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	
89BFH	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	
89C0H	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	
89C1H	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	
89C2H	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	
89C3H	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	
89C4H	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	
89C5H	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	
89C6H	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	
89C7H	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	
89C8H	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	
89C9H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
89CAH	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	
89CBH	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	
89CCH	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	
89CDH	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	
89CEH	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	
89CFH	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	
89D0H	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	
89D1H	35282				TOU Calendar Year 1 Profile 8 Status			F23	R	
89D2H	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	
89D3H	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	
89D4H	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	
89D5H	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	
89D6H	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	
89D7H	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	
89D8H	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	
89D9H	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	
89DAH	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	
89DBH	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	
89DCH	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
89DDH	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	
89DEH	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	
89DFH	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					
89E0H	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	
89E1H	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	
89E2H	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	
89E3H	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	
89E4H	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	
89E5H	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	
89E6H	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	
89E7H	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	
89E8H	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	
89E9H	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	
89EAH	35307				TOU Calendar Year 1 Profile 9 Status			F23	R	
89EBH	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	
89ECH	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	
89EDH	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	
89EEH	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
89EFH	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	
89F0H	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	
89F1H	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	
89F2H	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	
89F3H	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	
89F4H	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	
89F5H	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	
89F6H	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	
89F7H	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	
89F8H	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	
89F9H	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	
89FAH	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	
89FBH	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	
89FCH	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	
89FDH	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	
89FEH	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	
89FFH	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	
8A00H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A01H	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	
8A02H	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	
8A03H	35332				TOU Calendar Year 1 Profile 10 Status			F23	R	
8A04H	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	
8A05H	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	
8A06H	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	
8A07H	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	
8A08H	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	
8A09H	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	
8A0AH	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	
8A0BH	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	
8A0CH	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	
8A0DH	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	
8A0EH	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	
8A0FH	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	
8A10H	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	
8A11H	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	
8A12H	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	
8A13H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A14H	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	
8A15H	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	
8A16H	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	
8A17H	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	
8A18H	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	
8A19H	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	
8A1AH	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	
8A1BH	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	
8A1CH	35357				TOU Calendar Year 1 Profile 11 Status			F23	R	
8A1DH	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	
8A1EH	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	
8A1FH	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	
8A20H	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	
8A21H	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	
8A22H	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	
8A23H	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	
8A24H	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	
8A25H	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	
8A26H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A27H	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	
8A28H	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	
8A29H	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	
8A2AH	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	
8A2BH	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	
8A2CH	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	
8A2DH	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	
8A2EH	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	
8A2FH	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	
8A30H	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	
8A31H	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	
8A32H	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	
8A33H	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	
8A34H	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	
8A35H	35382				TOU Calendar Year 1 Profile 12 Status			F23	R	
8A36H	35383				TOU Calendar Year 1 Profile 12 Register for 00:00, 00:15, 00:30 & 00:45	7-7-7-7 / 0-0-0-0		F24	R	
8A37H	35384				TOU Calendar Year 1 Profile 12 Register for 01:00, 01:15, 01:30 & 01:45	7-7-7-7 / 0-0-0-0		F24	R	
8A38H	35385				TOU Calendar Year 1 Profile 12 Register for 02:00, 02:15, 02:30 & 02:45	7-7-7-7 / 0-0-0-0		F24	R	
8A39H	35386				TOU Calendar Year 1 Profile 12 Register for 03:00, 03:15, 03:30 & 03:45	7-7-7-7 / 0-0-0-0		F24	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A3AH	35387				TOU Calendar Year 1 Profile 12 Register for 04:00, 04:15, 04:30 & 04:45	7-7-7-7 / 0-0-0-0		F24	R	
8A3BH	35388				TOU Calendar Year 1 Profile 12 Register for 05:00, 05:15, 05:30 & 05:45	7-7-7-7 / 0-0-0-0		F24	R	
8A3CH	35389				TOU Calendar Year 1 Profile 12 Register for 06:00, 06:15, 06:30 & 06:45	7-7-7-7 / 0-0-0-0		F24	R	
8A3DH	35390				TOU Calendar Year 1 Profile 12 Register for 07:00, 07:15, 07:30 & 07:45	7-7-7-7 / 0-0-0-0		F24	R	
8A3EH	35391				TOU Calendar Year 1 Profile 12 Register for 08:00, 08:15, 08:30 & 08:45	7-7-7-7 / 0-0-0-0		F24	R	
8A3FH	35392				TOU Calendar Year 1 Profile 12 Register for 09:00, 09:15, 09:30 & 09:45	7-7-7-7 / 0-0-0-0		F24	R	
8A40H	35393				TOU Calendar Year 1 Profile 12 Register for 10:00, 10:15, 10:30 & 10:45	7-7-7-7 / 0-0-0-0		F24	R	
8A41H	35394				TOU Calendar Year 1 Profile 12 Register for 11:00, 11:15, 11:30 & 11:45	7-7-7-7 / 0-0-0-0		F24	R	
8A42H	35395				TOU Calendar Year 1 Profile 12 Register for 12:00, 12:15, 12:30 & 12:45	7-7-7-7 / 0-0-0-0		F24	R	
8A43H	35396				TOU Calendar Year 1 Profile 12 Register for 13:00, 13:15, 13:30 & 13:45	7-7-7-7 / 0-0-0-0		F24	R	
8A44H	35397				TOU Calendar Year 1 Profile 12 Register for 14:00, 14:15, 14:30 & 14:45	7-7-7-7 / 0-0-0-0		F24	R	
8A45H	35398				TOU Calendar Year 1 Profile 12 Register for 15:00, 15:15, 15:30 & 15:45	7-7-7-7 / 0-0-0-0		F24	R	
8A46H	35399				TOU Calendar Year 1 Profile 12 Register for 16:00, 16:15, 16:30 & 16:45	7-7-7-7 / 0-0-0-0		F24	R	
8A47H	35400				TOU Calendar Year 1 Profile 12 Register for 17:00, 17:15, 17:30 & 17:45	7-7-7-7 / 0-0-0-0		F24	R	
8A48H	35401				TOU Calendar Year 1 Profile 12 Register for 18:00, 18:15, 18:30 & 18:45	7-7-7-7 / 0-0-0-0		F24	R	
8A49H	35402				TOU Calendar Year 1 Profile 12 Register for 19:00, 19:15, 19:30 & 19:45	7-7-7-7 / 0-0-0-0		F24	R	
8A4AH	35403				TOU Calendar Year 1 Profile 12 Register for 20:00, 20:15, 20:30 & 20:45	7-7-7-7 / 0-0-0-0		F24	R	
8A4BH	35404				TOU Calendar Year 1 Profile 12 Register for 21:00, 21:15, 21:30 & 21:45	7-7-7-7 / 0-0-0-0		F24	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A4CH	35405				TOU Calendar Year 1 Profile 12 Register for 22:00, 22:15, 22:30 & 22:45	7-7-7-7 / 0-0-0-0		F24	R	
8A4DH	35406				TOU Calendar Year 1 Profile 12 Register for 23:00, 23:15, 23:30 & 23:45	7-7-7-7 / 0-0-0-0		F24	R	
8A4EH	35407				TOU Calendar Year 1 Profile 13 Status			F23	R	
8A4FH	35408				TOU Calendar Year 1 Profile 13 Register for 00:00, 00:15, 00:30 & 00:45	7-7-7-7 / 0-0-0-0		F24	R	
8A50H	35409				TOU Calendar Year 1 Profile 13 Register for 01:00, 01:15, 01:30 & 01:45	7-7-7-7 / 0-0-0-0		F24	R	
8A51H	35410				TOU Calendar Year 1 Profile 13 Register for 02:00, 02:15, 02:30 & 02:45	7-7-7-7 / 0-0-0-0		F24	R	
8A52H	35411				TOU Calendar Year 1 Profile 13 Register for 03:00, 03:15, 03:30 & 03:45	7-7-7-7 / 0-0-0-0		F24	R	
8A53H	35412				TOU Calendar Year 1 Profile 13 Register for 04:00, 04:15, 04:30 & 04:45	7-7-7-7 / 0-0-0-0		F24	R	
8A54H	35413				TOU Calendar Year 1 Profile 13 Register for 05:00, 05:15, 05:30 & 05:45	7-7-7-7 / 0-0-0-0		F24	R	
8A55H	35414				TOU Calendar Year 1 Profile 13 Register for 06:00, 06:15, 06:30 & 06:45	7-7-7-7 / 0-0-0-0		F24	R	
8A56H	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	
8A57H	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	
8A58H	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	
8A59H	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	
8A5AH	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	
8A5BH	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	
8A5CH	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	
8A5DH	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									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A5EH	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	
8A5FH	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	
8A60H	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	
8A61H	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	
8A62H	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	
8A63H	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	
8A64H	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	
8A65H	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	
8A66H	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	
8A67H	35432				TOU Calendar Year 1 Profile14 Status			F23	R	
8A68H	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	
8A69H	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	
8A6AH	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	
8A6BH	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	
8A6CH	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	
8A6DH	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	
8A6EH	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	
8A6FH	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	
8A70H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A71H	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	
8A72H	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	
8A73H	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	
8A74H	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	
8A75H	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	
8A76H	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	
8A77H	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	
8A78H	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	
8A79H	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	
8A7AH	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	
8A7BH	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	
8A7CH	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	
8A7DH	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	
8A7EH	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	
8A7FH	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	
8A80H	35457				TOU Calendar Year 1 Profile 15 Status			F23	R	
8A81H	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	
8A82H	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	
8A83H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A84H	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	
8A85H	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	
8A86H	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	
8A87H	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	
8A88H	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	
8A89H	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	
8A8AH	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	
8A8BH	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	
8A8CH	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	
8A8DH	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	
8A8EH	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	
8A8FH	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	
8A90H	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	
8A91H	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	
8A92H	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	
8A93H	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	
8A94H	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	
8A95H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8A96H	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	
8A97H	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	
8A98H	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	
8A99H	35482				TOU Calendar Year 1 Profile 16 Status			F23	R	
8A9AH	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	
8A9BH	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	
8A9CH	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	
8A9DH	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	
8A9EH	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	
8A9FH	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	
8AA0H	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	
8AA1H	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	
8AA2H	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	
8AA3H	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	
8AA4H	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	
8AA5H	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	
8AA6H	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	
8AA7H	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	
8AA8H	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	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8AA9H	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	
8AAAH	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	
8AABH	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	
8AACH	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	
8AADH	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	
8AAEH	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	
8AAFH	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	
8AB0H	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	
8AB1H	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	
8AB2H	35507				TOU Calendar Year 1 Monthly End Day Jan & Feb	30-28 (29) / 1-1		F25	R	
8AB3H	35508				TOU Calendar Year 1 Monthly End Day Mar & Apr	31-30 / 1-1		F25	R	
8AB4H	35509				TOU Calendar Year 1 Monthly End Day May & Jun	31-30 / 1-1		F25	R	
8AB5H	35510				TOU Calendar Year 1 Monthly End Day Jul & Aug	31-31 / 1-1		F25	R	
8AB6H	35511				TOU Calendar Year 1 Monthly End Day Sep & Oct	30-31 / 1-1		F25	R	
8AB7H	35512				TOU Calendar Year 1 Monthly End Day Nov & Dec	30-31 / 1-1		F25	R	
8AB8H-8ABFH	35513-35520				TOU Calendar Year 1 Profile 1 Label			F1	R	
8AC0H-8AC7H	35521-35528				TOU Calendar Year 1 Profile 2 Label			F1	R	
8AC8H-8ACFH	35529-35536				TOU Calendar Year 1 Profile 3 Label			F1	R	
8AD0H-8AD7H	35537-35544				TOU Calendar Year 1 Profile 4 Label			F1	R	
8AD8H-8ADBH	35545-35548				TOU Calendar Year 1 Profile 5 Label (Partial)			F1	R	
	Time of Use Calendar Window 6									
8ADCH-8ADFH	35549-35552				TOU Calendar Year 1 Profile 5 Label (Partial)			F1	R	
8AE0H-8AE7H	35553-35560				TOU Calendar Year 1 Profile 6 Label			F1	R	
8AE8H-8AEFH	35561-35568				TOU Calendar Year 1 Profile 7 Label			F1	R	
8AF0H-8AF7H	35569-35576				TOU Calendar Year 1 Profile 8 Label			F1	R	
8AF8H-8AFFH	35577-35584				TOU Calendar Year 1 Profile 9 Label			F1	R	
8B00H-8B07H	35585-35592				TOU Calendar Year 1 Profile 10 Label			F1	R	
8B08H-8B0FH	35593-35600				TOU Calendar Year 1 Profile 11 Label			F1	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
8B10H-8B17H	35601-35608				TOU Calendar Year 1 Profile 12 Label			F1	R	
8B18H-8B1FH	35609-35616				TOU Calendar Year 1 Profile 13 Label			F1	R	
8B20H-8B27H	35617-35624				TOU Calendar Year 1 Profile 14 Label			F1	R	
8B28H-8B2FH	35625-35632				TOU Calendar Year 1 Profile 15 Label			F1	R	
8B30H-8B37H	35633-35640				TOU Calendar Year 1 Profile 16 Label			F1	R	
8B38H-8B3FH	35641-35648				TOU Calendar Year 1 Reg 1 Label			F1	R	
8B40H-8B47H	35649-35656				TOU Calendar Year 1 Reg 2 Label			F1	R	
8B48H-8B4FH	35657-35664				TOU Calendar Year 1 Reg 3 Label			F1	R	
8B50H-8B57H	35665-35672				TOU Calendar Year 1 Reg 4 Label			F1	R	
8B58H-8B59H	35673-35674				TOU Calendar Year 1 Reg 5 Label (Partial)			F1	R	
	Time of Use Calendar Window 7									
8B5AH-8B5FH	35675-35680				TOU Calendar Year 1 Reg 5 Label (Partial)			F1	R	
8B60H-8B67H	35681-35688				TOU Calendar Year 1 Reg 6 Label			F1	R	
8B68H-8B6FH	35689-35696				TOU Calendar Year 1 Reg 7 Label			F1	R	
8B70H-8B77H	35697-35704				TOU Calendar Year 1 Reg 8 Label			F1	R	
8B78H-8B7BH	35705-35708				TOU Calendar Year 1 Start Date Season 1	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B7CH-8B7FH	35709-35712				TOU Calendar Year 1 Start Date Season 2	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B80H-8B83H	35713-35716				TOU Calendar Year 1 Start Date Season 3	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B84H-8B87H	35737-35720				TOU Calendar Year 1 Start Date Season 4	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B88H-8B8BH	35721-35724				TOU Calendar Year 1 Start Date Daylight Savings Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B8CH-8B8FH	35725-35728				TOU Calendar Year 1 End Date Daylight Savings Time	12/31/9999 23:59:59.99	10 msec	F3	R	1
8B90H	35729				TOU Calendar Year 1 DST Enable / Average Selection			F26	R	
8B91H	35730				Clear on New Period/ Freeze Period Selection					Ch5
8B92H	35731				Weekly Freeze Day of Week/ Freeze Hour					Ch5
8B93H-8BD7H	35732-35800				TOU Calendar Year 1 Undefined				R	
	Time of Use Upload Calendar Block									
8EFEH	36607				TOU Upload Calendar Window Locked to Port			F66	R/W	
8EFFH	36608				TOU Upload Calendar Window Sequence/Status			F27	R	
8F00H	36609				TOU Upload Calendar Window ID	14 / 1		F28	R/W	
8F01H-8F7EH	36610-36735				TOU Upload Calendar Window Data			F29	R/W	
8F7FH	36736				TOU Upload Calendar Window Checksum			F30	R/W	
	Dual Port Reading Block									
8F80H-8FBFH	36737-36800				128 bytes of Dual Port Readings are available at these registers		128 bytes		R	
	Historical Log 1 Snapshot Header									
9000H-9001H	36865-36866				Historical Log 1 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9002H	36867				Historical Log 1 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9003H	36868				Historical Log 1 Snapshot First Index	record 65535 / record 0	1 record		R	
9004H	36869				Historical Log 1 Snapshot Last Index	record 65535 / record 0	1 record		R	
9005H-9008H	36870-36873				Historical Log 1 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9009H-900CH	36874-36877				Historical Log 1 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
900DH-9010H	36878-36881				Historical Log 1 Snapshot Valid Bitmap				R	
9011H	36882				Historical Log 1 Max Records	65535 records / 0 records	1 record		R	
9012H	36883				Historical Log 1 Reset Status					
	Historical Log 2 Snapshot Header									
9040H-9041H	36929-36930				Historical Log 2 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9042H	36931				Historical Log 2 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9043H	36932				Historical Log 2 Snapshot First Index	record 65535 / record 0	1 record		R	
9044H	36933				Historical Log 2 Snapshot Last Index	record 65535 / record 0	1 record		R	
9045H-9048H	36934-36937				Historical Log 2 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9049H-904CH	36938-36941				Historical Log 2 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
904DH-9050H	36942-36945				Historical Log 2 Snapshot Valid Bitmap				R	
9051H	36946				Historical Log 2 Max Records	65535 records / 0 records	1 record		R	
9052H	36947				Historical Log 2 Reset Status					
	Limit Trigger Log Header									
9080H-9081H	36993-36994				Limit Trigger Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9082H	36995				Limit Trigger Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9083H-9084H	36996-36997				Limit Trigger Log First Index	record 65535 / record 0	1 record		R	
9085H-9086H	36998-36999				Limit Trigger Log Last Index	record 65535 / record 0	1 record		R	
9087H-908AH	37000-37003				Limit Trigger Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
908BH-908EH	37004-37007				Limit Trigger Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
908FH-9092H	37008-37011				Limit Trigger Log Valid Bitmap				R	
9093H-9094H	37012-37013				Limit Trigger Log Max Records	65535 records / 0 records	1 record		R	
9095H-9096H	37014-37015				Limit Trigger Log Records in Log	65535 records / 0 records	1 record		R	
9097H	37016				Limit Trigger Reset Status					
	Limit Snapshot Log Header									
90C0H-90C1H	37057-37058				Limit Snapshot Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
90C2H	37059				Limit Snapshot Log Record Size	65535 bytes / 0 bytes	1 byte		R	
90C3H-90C4H	37060-37061				Limit Snapshot Log First Index	record 65535 / record 0	1 record		R	
90C5H-90C1H	37062-37063				Limit Snapshot Log Last Index	record 65535 / record 0	1 record		R	
90C7H-90CAH	37064-37067				Limit Snapshot Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
90CBH-90CEH	37068-37071				Limit Snapshot Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
90CFH-90D2H	37072-37075				Limit Snapshot Log Valid Bitmap				R	
90D3H-90D4H	37076-37077				Limit Snapshot Log Max Records	65535 records / 0 records	1 record		R	
90D5H-90D6H	37078-37079				Limit Snapshot Log Records in Log	65535 records / 0 records	1 record		R	
	Digital Input Log Header									
9100H-9101H	37121-37122				Digital Input Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9102H	37123				Digital Input Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9103H-9104H	37124-37125				Digital Input Log First Index	record 65535 / record 0	1 record		R	
9105H-9106H	37126-37127				Digital Input Log Last Index	record 65535 / record 0	1 record		R	
9107H-910AH	37128-37131				Digital Input Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
910BH-910EH	37132-37135				Digital Input Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
910FH-9112H	37136-37139				Digital Input Log Valid Bitmap				R	
9113H-9114H	37140-37141				Digital Input Log Max Records	65535 records / 0 records	1 record		R	
9115H-9116H	37142-37143				Digital Input Log Records in Log	65535 records / 0 records	1 record		R	
9117H	37144				Digital Input Log Reset Status					
	Digital Input Snapshot Log Header									
9140H-9141H	37185-37186				Digital Input Snapshot Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9142H	37187				Digital Input Snapshot Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9143H-9144H	37188-37289				Digital Input Snapshot Log First Index	record 65535 / record 0	1 record		R	
9145H-9146H	37190-37191				Digital Input Snapshot Log Last Index	record 65535 / record 0	1 record		R	
9147H-914AH	37192-37195				Digital Input Snapshot Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
914BH-914EH	37196-37199				Digital Input Snapshot Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
914FH-9152H	37200-37203				Digital Input Snapshot Log Valid Bitmap				R	
9153H-9154H	37204-37205				Digital Input Snapshot Log Max Records	65535 records / 0 records	1 record		R	
9155H-9156H	37206-37207				Digital Input Snapshot Log Records in Log	65535 records / 0 records	1 record		R	
	Digital Output Log Header									
9180H-9181H	37249-37250				Digital Output Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9182H	37251				Digital Output Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9183H-9184H	37252-37253				Digital Output Log First Index	record 65535 / record 0	1 record		R	
9185H-9186H	37254-37255				Digital Output Log Last Index	record 65535 / record 0	1 record		R	
9187H-918AH	37256-37259				Digital Output Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
918BH-918EH	37260-37263				Digital Output Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
918FH-9192H	37264-37267				Digital Output Log Valid Bitmap				R	
9193H-9194H	37268-37269				Digital Output Log Max Records	65535 records / 0 records	1 record		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9195H-9196H	37270-37271				Digital Output Log Records in Log	65535 records / 0 records	1 record		R	
9197H	37272				Digital Output Log Reset Status					
	Digital Output Snapshot Log Header									
91C0H-91C1H	37313-37314				Digital Output Snapshot Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
91C2H	37315				Digital Output Snapshot Log Record Size	65535 bytes / 0 bytes	1 byte		R	
91C3H-91C4H	37316-37317				Digital Output Snapshot Log First Index	record 65535 / record 0	1 record		R	
91C5H-91C6H	37318-37319				Digital Output Snapshot Log Last Index	record 65535 / record 0	1 record		R	
91C7H-91CAH	37320-37323				Digital Output Snapshot Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
91CBH-91CEH	37324-37327				Digital Output Snapshot Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
91CFH-91D2H	37328-37331				Digital Output Snapshot Log Valid Bitmap				R	
91D3H-91D4H	37332-37333				Digital Output Snapshot Log Max Records	65535 records / 0 records	1 record		R	
91D5H-91D6H	37334-37335				Digital Output Snapshot Log Records in Log	65535 records / 0 records	1 record		R	
	Flicker Log Header									
9200H-9201H	37377-37378				Flicker Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9202H	37379				Flicker Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9203H-9204H	37380-37381				Flicker Log First Index	record 65535 / record 0	1 record		R	
9205H-9206H	37382-37383				Flicker Log Last Index	record 65535 / record 0	1 record		R	
9207H-920AH	37384-37387				Flicker Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
920BH-920EH	37388-37391				Flicker Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
920FH-9212H	37392-37395				Flicker Log Valid Bitmap				R	
9213H-9214H	37396-37397				Flicker Log Max Records	65535 records / 0 records	1 record		R	
9215H-9216H	37398-37399				Flicker Log Records in Log	65535 records / 0 records	1 record		R	
9217H	37400				Flicker Log Reset Status					
	Waveform Trigger Log Header									
9240H-9241H	37441-37442				Waveform Trigger Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9242H	37443				Waveform Trigger Log Reset Status					
9243H-9244H	37444-37445				Waveform Trigger Log First Index	record 65535 / record 0	1 record		R	
9245H-9246H	37446-37447				Waveform Trigger Log Last Index	record 65535 / record 0	1 record		R	
9247H-924AH	37448-37451				Waveform Trigger Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
924BH-924EH	37452-37455				Waveform Trigger Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
924FH-9252H	37456-37459				Waveform Trigger Log Valid Bitmap				R	
9253H-9254H	37460-37461				Waveform Trigger Log Max Records	65535 records / 0 records	1 record		R	
9255H-9256H	37462-37463				Waveform Trigger Log Records in Log	65535 records / 0 records	1 record		R	
9257H-9258H	37464-37465				Waveform Trigger Log Record Size	65535 records / 0 bytes	1 record		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	System Event Log Header									
9280H-9281H	37505-37506				System Event Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9282H	37507				System Event Log Record Size	65535 bytes / 0 bytes	1 byte		R	
9283H	37508				System Event Log First Index	record 65535 / record 0	1 record		R	
9284H	37509				System Event Log Last Index	record 65535 / record 0	1 record		R	
9285H-9288H	37510-37513				System Event Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9289H-928CH	37514-37517				System Event Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
928DH-9290H	37518-37521				System Event Log Valid Bitmap				R	
9291H-9292H	37522-37523				System Event Log Max Records	65535 records / 0 records	1 record		R	
9293H-9294H	37524-37525				System Event Log Records in Log	65535 records / 0 records	1 record		R	
9295H	37526				System Event Log Reset Status					
	Transient Log Header									
92C0H-92C1H	37569-37570				Transient Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
92C2H	37571				Transient Log Reset Status					
92C3H-92C4H	37572-37573				Transient Log First Index	record 65535 / record 0	1 record		R	
92C5H-92C6H	37574-37575				Transient Log Last Index	record 65535 / record 0	1 record		R	
92C7H-92CAH	37576-37579				Transient Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
92CBH-92CEH	37580-37583				Transient Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
92CFH-92D2H	37584-37587				Transient Log Valid Bitmap				R	
92D3H-92D4H	37588-37589				Transient Log Max Records	65535 records / 0 records	1 record		R	
92D5H-92D6H	37590-37591				Transient Log Records in Log	65535 records / 0 records	1 record		R	
92D7H-92D8H	37592-37593				Transient Log Record Size	65535 records / 0 bytes	1 record		R	
	PQ (CBEMA) Log Header									
9300H-9301H	37633-37634				PQ (CBEMA) Log Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9302H	37635				PQ (CBEMA) Log Record Size	65535 records / 0 bytes	1 record		R	
9303H-9304H	37636-37637				PQ (CBEMA) Log First Index	record 65535 / record 0	1 record		R	
9305H-9306H	37638-37639				PQ (CBEMA) Log Last Index	record 65535 / record 0	1 record		R	
9307H-930AH	37640-37643				PQ (CBEMA) Log First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
930BH-930EH	37644-37647				PQ (CBEMA) Log Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
93CFH-93D2H	37648-37651				PQ (CBEMA) Log Valid Bitmap				R	
93D3H-93D4H	37652-37653				PQ (CBEMA) Log Max Records	65535 records / 0 records	1 record		R	
93D5H-93D6H	37654-37655				PQ (CBEMA) Log Records in Log	65535 records / 0 records	1 record		R	
93D7H	37656				PQ (CBEMA) Log Reset Status					
	External Device Info Block Header									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9380H-9381H	37761-37762				External Device Info Block Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9382H	37763				External Device Info Block Record Size	65535 bytes / 0 bytes	1 byte		R	
9383H	37764				External Device Info Block First Index	record 65535 / record 0	1 record		R	
9384H	37765				External Device Info Block Last Index	record 65535 / record 0	1 record		R	
9385H-9388H	37766-37769				External Device Info Block First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9389H-938CH	37770-37773				External Device Info Block Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
938DH-9390H	37774-37777				External Device Info Block Valid Bitmap				R	
9391H	37778				External Device Info Block Max Records	65535 records / 0 records	1 record		R	
	External Device Programming Block Header									
93C0H-93C1H	37825-37826				External Device Programming Block Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
93C2H	37827				External Device Programming Block Record Size	65535 bytes / 0 bytes	1 byte		R	
93C3H	37828				External Device Programming Block First Index	record 65535 / record 0	1 record		R	
93C4H	37829				External Device Programming Block Last Index	record 65535 / record 0	1 record		R	
93C5H-93C8H	37830-37833				External Device Programming Block First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
93C9H-93CCH	37834-37837				External Device Programming Block Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
93CDH-93D0H	37838-37841				External Device Programming Block Valid Bitmap				R	
93D1H	37842				External Device Programming Block Max Records	65535 records / 0 records	1 record		R	
	Device History Block Header									
9400H-9401H	37889-37890				Device History Block Memory Size - oBsolet	4,294,967,295 bytes / 0 bytes	1 byte		R	
9402H	37891				Device History Block Record Size	65535 bytes / 0 bytes	1 byte		R	
9403H	37892				Device History Block First Index	record 65535 / record 0	1 record		R	
9404H	37893				Device History Block Last Index	record 65535 / record 0	1 record		R	
9405H-9408H	37894-37897				Device History Block First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9409H-940CH	37898-37901				Device History Block Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
940DH-9410H	37902-37905				Device History Block Valid Bitmap				R	
9411H	37906				Device History Block Max Records	65535 records / 0 records	1 record		R	
	Direct Memory Access Header									
9440H-9441H	37953-37954				Direct Memory Access Memory Size Obsolete	4,294,967,295 bytes / 0 bytes	1 byte		R	
9442H	37955				Direct Memory Access Record Size	65535 bytes / 0 bytes	1 byte		R	
9443H	37956				Direct Memory Access First Index	record 65535 / record 0	1 record		R	
9444H	37957				Direct Memory Access Last Index	record 65535 / record 0	1 record		R	
9445H-9448H	37958-37961				Direct Memory Access First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9449H-944CH	37962-37965				Direct Memory Access Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
944DH-9450H	37966-37969				Direct Memory Access Valid Bitmap				R	
9451H	37970				Direct Memory Access Max Records	65535 records / 0 records	1 record		R	
9452H	37971				Debug Update Buffer Register Bit 0[LSB] – 0= disable update/save buffer into the file, 1= enable update/save buffer into the file Bit 1 – update buffer (this bit is read 0 all time) Bit 2-15 - undefined				R/W	
9453H	37972				Debug Information Selection Register (non-increment) 0x00000 – Time of the last update 0x00001 - General SIU, window 1 / Touch screen description window 1 0x00002 – General SIU, window 2 / Touch screen last data/index window 1 0x00003 - Memory Controller, window 1 / Touch screen raw data window 1 0x00004 – Memory Controller, window 2 / Touch screen raw data window 2 0x00005 - Memory Controller, window 3 / Touch screen scaled data window 1 0x00006 - Memory Controller, window 4 / Touch screen scaled data window 2 0x00007 – Interrupt Controller, window 1 / Touch screen serial input buffer window 1 0x00008 – Interrupt Controller, window 2 / Touch screen serial input buffer window 2 0x00009 – Input/Output Port, window 1 / Touch screen serial input buffer window 3 0x0000A – Input/Output Port, window 2 / Touch screen serial input buffer window 4 0x0000B – Input/Output Port, window 3 / Touch screen serial input buffer window 5 0x0000C – SCC1 / Touch screen serial input buffer window 6 0x0000D – SCC3 / Touch screen undefined				R/W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9454-94B7H	37973-38072				Debug Information Window Register Returns up to 100 registers (200 bytes) of debug information, where the meaning and formats of each byte in the window depends on the selection in debug information selection register (0x9453)				R	
94B8H	38073				Debug Information Selection Register (increment) This register is related to debug information selection register (0x9453). It is read only, and when read, returns the same value that reading 0x9553 would return. However, reading this register increments the debug information selection value after the value has been reported, effecting subsequent reads of 0x9453, the window 0x9454-0x94B7, and 0x94B8 itself.				R	
94B9H	38074				SRAM block number: Set the SRAM block number that it is going to be retrieved.				W	
94BAH	38075				Debug enabled and mode :It can be set writing into this register. The lower byte set the enabled (when it is xx00 the debug is disabled and when it is xxx01 the debug is enabled). The higher byte set the debug mode, which kind of data is going to reported/updated (when it is set to 00xx NX1500_1.dbg file is reported/update when it is set to 01xx NX1500_2.dbg file is reported or updated.				W	
94FFH	38144				Indicates the path where in our system the pause/running dummy files, which are used during the log download proccess, are saved. 0 = \C\SYSTEM\LOGS\RUNNING\ \C\SYSTEM\LOGS\PAUSED\ 1 = \I\RUNNING\ \I\PAUSED\ 2 = \vf\RUNNING\ \vf\PAUSED\				R	
Window Index Block										
9500H	38145				Window Index for Historical Log 1	record 65535 / record 0	1 record		R/W	
9501H	38146				Window Index for Historical Log 2	record 65535 / record 0	1 record		R/W	
9502H	38147				Window Index for Limit Trigger Log	record 65535 / record 0	1 record		R/W	
9503H	38148				Window Index for Limit Snapshot Log	record 65535 / record 0	1 record		R/W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9504H	38149				Window Index for Digital Input Log	record 65535 / record 0	1 record		R/W	
9505H	38150				Window Index for Digital Input Snapshot Log	record 65535 / record 0	1 record		R/W	
9506H	38151				Window Index for Digital Output Log	record 65535 / record 0	1 record		R/W	
9507H	38152				Window Index for Digital Output Snapshot Log	record 65535 / record 0	1 record		R/W	
9508H	38153				Window Index for Flicker Log	record 65535 / record 0	1 record		R/W	
9509H	38154				Window Index for Waveform Trigger Log	record 65535 / record 0	1 record		R/W	
950AH	38155				Window Index for System Event Log	record 65535 / record 0	1 record		R/W	
950BH	38156				Window Index for Waveform Sample Log	record 65535 / record 0	1 record		R/W	
950CH	38157				Window Index for PQ (CBEMA) Log	record 65535 / record 0	1 record		R/W	
950DH	38158				Window Index for Reset Log	record 65535 / record 0	1 record		R/W	
950EH	38159				Window Index for External Device Info Block	record 65535 / record 0	1 record		R/W	
950FH	38160				Window Index for External Device Programming Blocks	record 65535 / record 0	1 record		R/W	
9510H	38161				Window Index for Device History Block	record 65535 / record 0	1 record		R/W	
9511H	38162				Window Index for Direct Memory Access	record 65535 / record 0	1 record		R/W	
	Window Mode Block									
9540H	38209				Window Mode for Historical Log 1				R/W	Ch.5
9541H	38210				Window Mode for Historical Log 2				R/W	Ch.5
9542H	38211				Window Mode for Limit Trigger Log				R/W	Ch.5
9543H	38212				Window Mode for Limit Snapshot Log				R/W	Ch.5
9544H	38213				Window Mode for Digital Input Log				R/W	Ch.5
9545H	38214				Window Mode for Digital Input Snapshot Log				R/W	Ch.5
9546H	38215				Window Mode for Digital Output Log				R/W	Ch.5
9547H	38216				Window Mode for Digital Output Snapshot Log				R/W	Ch.5
9548H	38217				Window Mode for Flicker Log				R/W	Ch.5
9549H	38218				Window Mode for Waveform Trigger Log				R/W	Ch.5
954AH	38219				Window Mode for System Event Log				R/W	Ch.5
954BH	38220				Window Mode for Waveform Samples Log				R/W	Ch.5
954CH	38221				Window Mode for PQ (CBEMA) Log				R/W	Ch.5
954DH	38222				Window Mode for Reset Log				R/W	Ch.5
954EH	38223				Window Mode for External Device Info Block				R/W	Ch.5
954FH	38224				Window Mode for External Device Programming Blocks				R/W	Ch.5
9550H	38225				Window Mode for Device History Block				R/W	Ch.5
9551H	38226				Window Mode for Direct Memory Access				R/W	Ch.5
	Window Block									
9580H-95BFH	38273-38336				Historical Log 1 Window				R	Ch.5
95C0H-95FFH	38337-38400				Historical Log 2 Window				R	Ch.5
9600H-963FH	38401-38464				Limit Trigger Log Window				R	Ch.5

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9640H-967FH	38465-38528				Limit Snapshot Log Window				R	Ch.5
9680H-96BFH	38529-38592				Digital Input Log Window				R	Ch.5
96C0H-96FFH	38593-38656				Digital Input Snapshot Log Window				R	Ch.5
9700H-973FH	38657-38720				Digital Output Log Window				R	Ch.5
9740H-977FH	38721-38784				Digital Output Snapshot Log Window				R	Ch.5
9780H-97BFH	38785-38848				Flicker Log Window				R	Ch.5
97C0H-97FFH	38849-38912				Waveform Trigger Log Window				R	Ch.5
9800H-983FH	38913-38976				System Event Log Window				R	Ch.5
9840H-987FH	38977-39040				Waveform Samples Log Window				R	Ch.5
9880H-98BFH	39041-39104				PQ (CBEMA) Log Window				R	Ch.5
98C0H-98FFH	39105-39168				Reset Log Window				R	Ch.5
9900H-993FH	39169-39232				External Device Info Block Window				R	Ch.5
9940H-997FH	39233-39296				External Device Programming Block Window				R	Ch.5
9980H-99BFH	39297-39360				Device History Block Window				R	Ch.5
	Auto Increment Window Block									
99FEH	39423				Auto Increment Configuration				R	Ch.5
99FFH	39424				Auto Increment Window Index				R	Ch.5
9A00H-9A3FH	39425-39488				Auto Increment Log Window				R	Ch.5
	Historical Log 3 Snapshot Header									
9E00H-9E01H	40449-40450				Historical Log 3 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9E02H	40451				Historical Log 3 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9E03H-9E04H	40452-40453				Historical Log 3 Snapshot First Index	record 65535 / record 0	1 record		R	
9E05H-9E06H	40454-40455				Historical Log 3 Snapshot Last Index	record 65535 / record 0	1 record		R	
9E07H-9E0AH	40456-40459				Historical Log 3 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9E0BH-9E0EH	40460-40463				Historical Log 3 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9E0FH-9E12H	40464-40467				Historical Log 3 Snapshot Valid Bitmap				R	
9E13H-9E14H	40468-40469				Historical Log 3 Max Records	65535 records / 0 records	1 record		R	
9E15H-9E16H	40470-40471				Historical Log 3 Records in Log	65535 records / 0 records	1 record		R	
9E17H	40472				Historical Log 3 Reset Status					
	Historical Log 4 Snapshot Header									
9E40H-9E41H	40513-40514				Historical Log 4 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9E42H	40515				Historical Log 4 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9E43H-9E44H	40516-40517				Historical Log 4 Snapshot First Index	record 65535 / record 0	1 record		R	
9E45H-9E46H	40518-40519				Historical Log 4 Snapshot Last Index	record 65535 / record 0	1 record		R	
9E47H-9E4AH	40520-40523				Historical Log 4 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9E4BH-9E4EH	40524-40527				Historical Log 4 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9E4FH-9E52H	40528-40531				Historical Log 4 Snapshot Valid Bitmap				R	
9E53H-9E54H	40532-40533				Historical Log 4 Max Records	65535 records / 0 records	1 record		R	
9E55H-9E56H	40534-40535				Historical Log 4 Records in Log	65535 records / 0 records	1 record		R	
9E57H	40536				Historical Log 4 Reset Status					
	Historical Log 5 Snapshot Header									
9E80H-9E81H	40577-40578				Historical Log 5 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9E82H	40579				Historical Log 5 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9E83H-9E84H	40580-40581				Historical Log 5 Snapshot First Index	record 65535 / record 0	1 record		R	
9E85H-9E86H	40582-40583				Historical Log 5 Snapshot Last Index	record 65535 / record 0	1 record		R	
9E87H-9E8AH	40584-40587				Historical Log 5 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9E8BH-9E8EH	40588-40591				Historical Log 5 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9E8FH-9E92H	40592-40595				Historical Log 5 Snapshot Valid Bitmap				R	
9E93H-9E94H	40596-40597				Historical Log 5 Max Records	65535 records / 0 records	1 record		R	
9E95H-9E96H	40598-40599				Historical Log 5 Records in Log	65535 records / 0 records	1 record		R	
9E97H	40600				Historical Log 5 Reset Status					
	Historical Log 6 Snapshot Header									
9EC0H-9EC1H	40641-40642				Historical Log 6 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9EC2H	40643				Historical Log 6 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9EC3H-9EC4H	40644-40645				Historical Log 6 Snapshot First Index	record 65535 / record 0	1 record		R	
9EC5H-9EC6H	40646-40647				Historical Log 6 Snapshot Last Index	record 65535 / record 0	1 record		R	
9EC7H-9ECAH	40648-40651				Historical Log 6 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9ECBH-9ECEH	40652-40655				Historical Log 6 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9ECFH-9ED2H	40656-40659				Historical Log 6 Snapshot Valid Bitmap				R	
9ED3H-9ED4H	40660-40661				Historical Log 6 Max Records	65535 records / 0 records	1 record		R	
9ED5H-9ED6H	40662-40663				Historical Log 6 Records in Log	65535 records / 0 records	1 record		R	
9ED7H	40664				Historical Log 6 Reset Status					
	Historical Log 7 Snapshot Header									
9F00H-9F01H	40705-40706				Historical Log 7 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9F02H	40707				Historical Log 7 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9F03H-9F04H	40708-40709				Historical Log 7 Snapshot First Index	record 65535 / record 0	1 record		R	
9F05H-9F06H	40710-40711				Historical Log 7 Snapshot Last Index	record 65535 / record 0	1 record		R	
9F07H-9F0AH	40712-40715				Historical Log 7 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9F0BH-9F0EH	40716-40719				Historical Log 7 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9F0FH-9F12H	40720-40723				Historical Log 7 Snapshot Valid Bitmap				R	
9F13H-9F14H	40724-40725				Historical Log 7 Max Records	65535 records / 0 records	1 record		R	
9F15H-9F16H	40726-40726				Historical Log 7 Records in Log	65535 records / 0 records	1 record		R	
9F17H	40728				Historical Log 7 Reset Status					
	Historical Log 8 Snapshot Header									
9F40H-9F41H	40769-40770				Historical Log 8 Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9F42H	40771				Historical Log 8 Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9F43H-9F44H	40772-40773				Historical Log 8 Snapshot First Index	record 65535 / record 0	1 record		R	
9F45H-9F46H	40774-40775				Historical Log 8 Snapshot Last Index	record 65535 / record 0	1 record		R	
9F47H-9F4AH	40776-40779				Historical Log 8 Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9F4BH-9F4EH	40780-40783				Historical Log 8 Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9F4FH-9F52H	40784-40787				Historical Log 8 Snapshot Valid Bitmap				R	
9F53H-9F54H	40788-40789				Historical Log 8 Max Records	65535 records / 0 records	1 record		R	
9F55H-9F56H	40790-40791				Historical Log 8 Records in Log	65535 records / 0 records	1 record		R	
9F57H	40792				Historical Log 8 Reset Status					
	Event Triggered Log Snapshot Header									
9F80H-9F81H	40833-40834				Event Triggered Log Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9F82H	40835				Event Triggered Log Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9F83H-9F84H	40836-40837				Event Triggered Log Snapshot First Index	record 65535 / record 0	1 record		R	
9F85H-9F86H	40838-40839				Event Triggered Log Snapshot Last Index	record 65535 / record 0	1 record		R	
9F87H-9F8AH	40840-40843				Event Triggered Log Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9F8BH-9F8EH	40844-40847				Event Triggered Log Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9F8FH-9F92H	40848-40851				Event Triggered Log Snapshot Valid Bitmap				R	
9F93H-9F94H	40852-40853				Event Triggered Log Max Records	65535 records / 0 records	1 record		R	
9F95H-9F96H	40854-40855				Event Triggered Log Records in Log	65535 records / 0 records	1 record		R	
9F97H	40856				Event Triggered Log Reset Status					
	EN50160 Log Snapshot Header									
9FC0H-9FC1H	40897-40898				EN50160 Log Snapshot Memory Size	4,294,967,295 bytes / 0 bytes	1 byte		R	
9FC2H	40899				EN50160 Log Snapshot Record Size	65535 bytes / 0 bytes	1 byte		R	
9FC3H-9FC4H	40900-40901				EN50160 Log Snapshot First Index	record 65535 / record 0	1 record		R	
9FC5H-9FC6H	40902-40903				EN50160 Log Snapshot Last Index	record 65535 / record 0	1 record		R	
9FC7H-9FCAH	40904-40907				EN50160 Log Snapshot First Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9FCBH-9FCEH	40908-40911				EN50160 Log Snapshot Last Timestamp	12/31/9999 23:59:59.99	10 msec		R	
9FCFH-9FD2H	40912-40915				EN50160 Log Snapshot Valid Bitmap				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
9FD3H-9FD4H	40916-40917				EN50160 Log Max Records	65535 records / 0 records	1 record		R	
9FD5H-9FD6H	40918-40919				EN50160 Log Records in Log	65535 records / 0 records	1 record		R	
9FD7H	40920				EN50160 Log Reset Status					
	Alarm Block									
A000H	40961				Last Alarm				R	
A010H-A08FH	40977-41104				Last Alarm Snapshot				R	
A090H	41105				Latched Exception Flag	65535 exceptions / 0 exceptions	1 exception		R	
	Port Control Block									
A300H	41729				Port Control Command				W	Ch.5
A301H-A303H	41730-41732				Port Control Lock States				R	Ch.5
A304H	41733				Port Control Pointer RecIn Comm 4 (I/O)	byte 511 / byte 0	1 byte		R/W	Ch.5
A305H	41734				Port Control Pointer RecOut Comm 4 (I/O)	byte 511 / byte 0	1 byte		R/W	Ch.5
A306H	41735				Port Control Pointer TrmIn Comm 4 (I/O)	byte 511 / byte 0	1 byte		R/W	Ch.5
A307H	41736				Port Control Pointer TrmOut Comm 4 (I/O)	byte 511 / byte 0	1 byte		R/W	Ch.5
A308H	41737				Port Control Pointer RecIn Comm 3	byte 511 / byte 0	1 byte		R/W	Ch.5
A309H	41738				Port Control Pointer RecOut Comm 3	byte 511 / byte 0	1 byte		R/W	Ch.5
A30AH	41739				Port Control Pointer TrmIn Comm 3	byte 511 / byte 0	1 byte		R/W	Ch.5
A30BH	41740				Port Control Pointer TrmOut Comm 3	byte 511 / byte 0	1 byte		R/W	Ch.5
A30CH	41741				Port Control Pointer RecIn Comm 2	byte 511 / byte 0	1 byte		R/W	Ch.5
A30DH	41742				Port Control Pointer RecOut Comm 2	byte 511 / byte 0	1 byte		R/W	Ch.5
A30EH	41743				Port Control Pointer TrmIn Comm 2	byte 511 / byte 0	1 byte		R/W	Ch.5
A30FH	41744				Port Control Pointer TrmOut Comm 2	byte 511 / byte 0	1 byte		R/W	Ch.5
A310H	41745				Port Control Pointer RecIn Comm 1 (232/485)	byte 511 / byte 0	1 byte		R/W	Ch.5
A311H	41746				Port Control Pointer RecOut Comm 1 (232/485)	byte 511 / byte 0	1 byte		R/W	Ch.5
A312H	41747				Port Control Pointer TrmIn Comm 1 (232/485)	byte 511 / byte 0	1 byte		R/W	Ch.5
A313H	41748				Port Control Pointer TrmOut Comm 1 (232/485)	byte 511 / byte 0	1 byte		R/W	Ch.5
A314H	41749				Port Control Pointer RecIn Comm 5 (DIAG)	byte 511 / byte 0	1 byte		R/W	Ch.5
A315H	41750				Port Control Pointer RecOut Comm 5 (DIAG)	byte 511 / byte 0	1 byte		R/W	Ch.5
A316H	41751				Port Control Pointer TrmIn Comm 5 (DIAG)	byte 511 / byte 0	1 byte		R/W	Ch.5
A317H	41752				Port Control Pointer TrmOut Comm 5 (DIAG)	byte 511 / byte 0	1 byte		R/W	Ch.5
A318H	41753				Port and Buffer Selection				R/W	Ch.5
A400H-A5FFH	41985-42496				Communication Buffer				R/W	Ch.5
	DSP2 Channel Block									
A600H-A9FFH	42497-43520				Channel 132, 133, 134,135					
	Ethernet Speed and Link Status									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
AA6A	43627				Ethernet 1, bit mask 0x0008, 1=Auto-Negotiation(should always be 1), 0=manual. bit maxk 0x0002, 1=100Mb, 0=10Mb. bit mask 0x0001, 1=full duplex, 0=half duplex. 0xFFFF is invalid value.			F51	R	
AA6B	43628				Ethernet 1, bit mask 0x0004, 1=link is up, 0=link is down. 0xFFFF is invalid value.			F51	R	
AA6C	43629				Ethernet 2, bit mask 0x0008, 1=Auto-Negotiation(should always be 1), 0=manual. bit maxk 0x0002, 1=100Mb, 0=10Mb. bit mask 0x0001, 1=full duplex, 0=half duplex. 0xFFFF is invalid value.			F51	R	
AA6D	43630				Ethernet 2, bit mask 0x0004, 1=link is up, 0=link is down. 0xFFFF is invalid value.			F51	R	
	DSP1 Diagnostic Block									
ADC0H-ADC3H	44481-44484				RMS Diagnostic Block Timestamp				R	
ADC4H	44485				Number of samples in Tenth sec reading					
ADC5H-ADC6H	44486-44487				Offset Phase A-E Voltage				R	
ADC7H-ADC8H	44488-44489				Offset Phase B-E Voltage				R	
ADC9H-ADCAH	44490-44491				Offset Phase C-E Voltage				R	
ADCBH-ADCCH	44492-44493				Offset Phase N-E Voltage				R	
ADCDH-ADCEH	44494-44495				Offset Phase A Current					
ADCFH-ADD0H	44496-44497				Offset Phase B Current					
ADD1H-ADD2H	44498-44499				Offset Phase C Current					
ADD3H-ADD4H	44500-44501				Offset Phase X Current					
ADD5H	44502				Cal Delta Phase A-E Voltage					
ADD6H	44503				Cal Delta Phase B-E Voltage					
ADD7H	44504				Cal Delta Phase C-E Voltage					
ADD8H	44505				Cal Delta Phase N-E Voltage					
ADD9H	44506				Cal Delta Phase A Current					
ADDAH	44507				Cal Delta Phase B Current					
ADDBH	44508				Cal Delta Phase C Current					
ADDCH	44509				Cal Delta Phase D Current					
ADDDH-ADDEH	44510-44511				Gain Phase A-E Voltage					
ADDFH-ADE0H	44512-44513				Gain Phase B-E Voltage					
ADE1H-ADE2H	44514-44515				Gain Phase C-E Voltage					
ADE3H-ADE4H	44516-44517				Gain Phase N-E Voltage					
ADE5H-ADE6H	44518-44519				Gain Phase A Current					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
ADE7H-ADE8H	44520-44521				Gain Phase B Current					
ADE9H-ADEAH	44522-44523				Gain Phase C Current					
ADEBH-ADECH	44524-44525				Gain Phase X Current					
ADEDH	44526				Phase Compensation A					
ADEEH	44527				Phase Compensation B					
ADEFH	44528				Phase Compensation C					
ADF0H-ADF1H	44529-44530				DC Phase A-E Voltage					
ADF2H-ADF3H	44531-44532				DC Phase B-E Voltage					
ADF4H-ADF5H	44533-44534				DC Phase C-E Voltage					
ADF6H-ADF7H	44535-44536				DC Phase N-E Voltage					
ADF8H-ADF9H	44537-44538				DC Phase A Current					
ADFAH-ADFBH	44539-44540				DC Phase B Current					
ADFCH-ADFDH	44541-44542				DC Phase C Current					
ADFEH-ADFFH	44543-44544				DC Phase X Current					
	Reserved									
AE00H-AE03H	44545-44548				Reserved				R/W	
AE04H	44549				Reserved				R/W	
	NVRAM Repair Block									
AF00H-AFFFH	44801-45056				Not used					
	Programmable Settings Block 1 (Range: B000H - CFFFH)									
	Communication Settings Block									
B000H	45057				Address, Port 4 (I/O)				R	
B001H	45058				Protocol & Baud Rate, Port 4 (I/O)				R	
B002H	45059				Parity & Stop Bits, Port 4 (I/O)				R	
B003H	45060				Data Bits & Response Delay, Port 4(I/O)				R	
B004H	45061				Address, Port 3				R	
B005H	45062				Protocol & Baud Rate, Port 3				R	
B006H	45063				Parity & Stop Bits, Port 3				R	
B007H	45064				Data Bits & Response Delay, Port 3				R	
B008H	45065				Address, Port 2				R	
B009H	45066				Protocol & Baud Rate, Port 2				R	
B00AH	45067				Parity & Stop Bits, Port 2				R	
B00BH	45068				Data Bits & Response Delay, Port 2				R	
B00CH	45069				Address, Port 1 (232/485)				R	
B00DH	45070				Protocol & Baud Rate, Port 1 (232/485)				R	
B00EH	45071				Parity & Stop Bits, Port 1 (232/485)				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B00FH	45072				Data Bits & Response Delay, Port 1 (232/485)				R	
B010H	45073				Port 4 (I/O) Mode / Port 3 Mode				R	
B011H	45074				Port 2 Mode / Port 1 Mode				R	
B012H	45075				Event Triggered info					
B013H	45076				Event Triggered timer					
	Limit Settings Block									
B014H	45077				Line Number, Limit 1				R	
B015H	45078				Point Number and SAB, Limit 1				R	
B016H	45079				Value 1, Limit 1				R	
B017H	45080				Value 2, Limit 1				R	
B018H	45081				Line Number, Limit 2				R	
B019H	45082				Point Number and SAB, Limit 2				R	
B01AH	45083				Value 1, Limit 2				R	
B01BH	45084				Value 2, Limit 2				R	
B01CH	45085				Line Number, Limit 3				R	
B01DH	45086				Point Number and SAB, Limit 3				R	
B01EH	45087				Value 1, Limit 3				R	
B01FH	45088				Value 2, Limit 3				R	
B020H	45089				Line Number, Limit 4				R	
B021H	45090				Point Number and SAB, Limit 4				R	
B022H	45091				Value 1, Limit 4				R	
B023H	45092				Value 2, Limit 4				R	
B024H	45093				Line Number, Limit 5				R	
B025H	45094				Point Number and SAB, Limit 5				R	
B026H	45095				Value 1, Limit 5				R	
B027H	45096				Value 2, Limit 5				R	
B028H	45097				Line Number, Limit 6				R	
B029H	45098				Point Number and SAB, Limit 6				R	
B02AH	45099				Value 1, Limit 6				R	
B02BH	45100				Value 2, Limit 6				R	
B02CH	45101				Line Number, Limit 7				R	
B02DH	45102				Point Number and SAB, Limit 7				R	
B02EH	45103				Value 1, Limit 7				R	
B02FH	45104				Value 2, Limit 7				R	
B030H	45105				Line Number, Limit 8				R	
B031H	45106				Point Number and SAB, Limit 8				R	
B032H	45107				Value 1, Limit 8				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B033H	45108				Value 2, Limit 8				R	
B034H	45109				Line Number, Limit 9				R	
B035H	45110				Point Number and SAB, Limit 9				R	
B036H	45111				Value 1, Limit 9				R	
B037H	45112				Value 2, Limit 9				R	
B038H	45113				Line Number, Limit 10				R	
B039H	45114				Point Number and SAB, Limit 10				R	
B03AH	45115				Value 1, Limit 10				R	
B03BH	45116				Value 2, Limit 10				R	
B03CH	45117				Line Number, Limit 11				R	
B03DH	45118				Point Number and SAB, Limit 11				R	
B03EH	45119				Value 1, Limit 11				R	
B03FH	45120				Value 2, Limit 11				R	
B040H	45121				Line Number, Limit 12				R	
B041H	45122				Point Number and SAB, Limit 12				R	
B042H	45123				Value 1, Limit 12				R	
B043H	45124				Value 2, Limit 12				R	
B044H	45125				Line Number, Limit 13				R	
B045H	45126				Point Number and SAB, Limit 13				R	
B046H	45127				Value 1, Limit 13				R	
B047H	45128				Value 2, Limit 13				R	
B048H	45129				Line Number, Limit 14				R	
B049H	45130				Point Number and SAB, Limit 14				R	
B04AH	45131				Value 1, Limit 14				R	
B04BH	45132				Value 2, Limit 14				R	
B04CH	45133				Line Number, Limit 15				R	
B04DH	45134				Point Number and SAB, Limit 15				R	
B04EH	45135				Value 1, Limit 15				R	
B04FH	45136				Value 2, Limit 15				R	
B050H	45137				Line Number, Limit 16				R	
B051H	45138				Point Number and SAB, Limit 16				R	
B052H	45139				Value 1, Limit 16				R	
B053H	45140				Value 2, Limit 16				R	
B054H	45141				Line Number, Limit 17				R	
B055H	45142				Point Number and SAB, Limit 17				R	
B056H	45143				Value 1, Limit 17				R	
B057H	45144				Value 2, Limit 17				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B058H	45145				Line Number, Limit 18				R	
B059H	45146				Point Number and SAB, Limit 18				R	
B05AH	45147				Value 1, Limit 18				R	
B05BH	45148				Value 2, Limit 18				R	
B05CH	45149				Line Number, Limit 19				R	
B05DH	45150				Point Number and SAB, Limit 19				R	
B05EH	45151				Value 1, Limit 19				R	
B05FH	45152				Value 2, Limit 19				R	
B060H	45153				Line Number, Limit 20				R	
B061H	45154				Point Number and SAB, Limit 20				R	
B062H	45155				Value 1, Limit 20				R	
B063H	45156				Value 2, Limit 20				R	
B064H	45157				Line Number, Limit 21				R	
B065H	45158				Point Number and SAB, Limit 21				R	
B066H	45159				Value 1, Limit 21				R	
B067H	45160				Value 2, Limit 21				R	
B068H	45161				Line Number, Limit 22				R	
B069H	45162				Point Number and SAB, Limit 22				R	
B06AH	45163				Value 1, Limit 22				R	
B06BH	45164				Value 2, Limit 22				R	
B06CH	45165				Line Number, Limit 23				R	
B06DH	45166				Point Number and SAB, Limit 23				R	
B06EH	45167				Value 1, Limit 23				R	
B06FH	45168				Value 2, Limit 23				R	
B070H	45169				Line Number, Limit 24				R	
B071H	45170				Point Number and SAB, Limit 24				R	
B072H	45171				Value 1, Limit 24				R	
B073H	45172				Value 2, Limit 24				R	
B074H	45173				Line Number, Limit 25				R	
B075H	45174				Point Number and SAB, Limit 25				R	
B076H	45175				Value 1, Limit 25				R	
B077H	45176				Value 2, Limit 25				R	
B078H	45177				Line Number, Limit 26				R	
B079H	45178				Point Number and SAB, Limit 26				R	
B07AH	45179				Value 1, Limit 26				R	
B07BH	45180				Value 2, Limit 26				R	
B07CH	45181				Line Number, Limit 27				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B07DH	45182				Point Number and SAB, Limit 27				R	
B07EH	45183				Value 1, Limit 27				R	
B07FH	45184				Value 2, Limit 27				R	
B080H	45185				Line Number, Limit 28				R	
B081H	45186				Point Number and SAB, Limit 28				R	
B082H	45187				Value 1, Limit 28				R	
B083H	45188				Value 2, Limit 28				R	
B084H	45189				Line Number, Limit 29				R	
B085H	45190				Point Number and SAB, Limit 29				R	
B086H	45191				Value 1, Limit 29				R	
B087H	45192				Value 2, Limit 29				R	
B088H	45193				Line Number, Limit 30				R	
B089H	45194				Point Number and SAB, Limit 30				R	
B08AH	45195				Value 1, Limit 30				R	
B08BH	45196				Value 2, Limit 30				R	
B08CH	45197				Line Number, Limit 31				R	
B08DH	45198				Point Number and SAB, Limit 31				R	
B08EH	45199				Value 1, Limit 31				R	
B08FH	45200				Value 2, Limit 31				R	
B090H	45201				Line Number, Limit 32				R	
B091H	45202				Point Number and SAB, Limit 32				R	
B092H	45203				Value 1, Limit 32				R	
B093H	45204				Value 2, Limit 32				R	
					Historical Log Settings Block					
B094H	45205				Line Number, Historical Log 1, Parameter 1				R	
B095H	45206				Point Number, Historical Log 1, Parameter 1				R	
B096H	45207				Line Number, Historical Log 1, Parameter 2				R	
B097H	45208				Point Number, Historical Log 1, Parameter 2				R	
B098H	45209				Line Number, Historical Log 1, Parameter 3				R	
B099H	45210				Point Number, Historical Log 1, Parameter 3				R	
B09AH	45211				Line Number, Historical Log 1, Parameter 4				R	
B09BH	45212				Point Number, Historical Log 1, Parameter 4				R	
B09CH	45213				Line Number, Historical Log 1, Parameter 5				R	
B09DH	45214				Point Number, Historical Log 1, Parameter 5				R	
B09EH	45215				Line Number, Historical Log 1, Parameter 6				R	
B09FH	45216				Point Number, Historical Log 1, Parameter 6				R	
B0A0H	45217				Line Number, Historical Log 1, Parameter 7				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B0A1H	45218				Point Number, Historical Log 1, Parameter 7				R	
B0A2H	45219				Line Number, Historical Log 1, Parameter 8				R	
B0A3H	45220				Point Number, Historical Log 1, Parameter 8				R	
B0A4H	45221				Line Number, Historical Log 1, Parameter 9				R	
B0A5H	45222				Point Number, Historical Log 1, Parameter 9				R	
B0A6H	45223				Line Number, Historical Log 1, Parameter 10				R	
B0A7H	45224				Point Number, Historical Log 1, Parameter 10				R	
B0A8H	45225				Line Number, Historical Log 1, Parameter 11				R	
B0A9H	45226				Point Number, Historical Log 1, Parameter 11				R	
B0AAH	45227				Line Number, Historical Log 1, Parameter 12				R	
B0ABH	45228				Point Number, Historical Log 1, Parameter 12				R	
B0ACH	45229				Line Number, Historical Log 1, Parameter 13				R	
B0ADH	45230				Point Number, Historical Log 1, Parameter 13				R	
B0AEH	45231				Line Number, Historical Log 1, Parameter 14				R	
B0AFH	45232				Point Number, Historical Log 1, Parameter 14				R	
B0B0H	45233				Line Number, Historical Log 1, Parameter 15				R	
B0B1H	45234				Point Number, Historical Log 1, Parameter 15				R	
B0B2H	45235				Line Number, Historical Log 1, Parameter 16				R	
B0B3H	45236				Point Number, Historical Log 1, Parameter 16				R	
B0B4H	45237				Line Number, Historical Log 1, Parameter 17				R	
B0B5H	45238				Point Number, Historical Log 1, Parameter 17				R	
B0B6H	45239				Line Number, Historical Log 1, Parameter 18				R	
B0B7H	45240				Point Number, Historical Log 1, Parameter 18				R	
B0B8H	45241				Line Number, Historical Log 1, Parameter 19				R	
B0B9H	45242				Point Number, Historical Log 1, Parameter 19				R	
B0BAH	45243				Line Number, Historical Log 1, Parameter 20				R	
B0BBH	45244				Point Number, Historical Log 1, Parameter 20				R	
B0BCH	45245				Line Number, Historical Log 1, Parameter 21				R	
B0BDH	45246				Point Number, Historical Log 1, Parameter 21				R	
B0BEH	45247				Line Number, Historical Log 1, Parameter 22				R	
B0BFH	45248				Point Number, Historical Log 1, Parameter 22				R	
B0C0H	45249				Line Number, Historical Log 1, Parameter 23				R	
B0C1H	45250				Point Number, Historical Log 1, Parameter 23				R	
B0C2H	45251				Line Number, Historical Log 1, Parameter 24				R	
B0C3H	45252				Point Number, Historical Log 1, Parameter 24				R	
B0C4H	45253				Line Number, Historical Log 1, Parameter 25				R	
B0C5H	45254				Point Number, Historical Log 1, Parameter 25				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B0C6H	45255				Line Number, Historical Log 1, Parameter 26				R	
B0C7H	45256				Point Number, Historical Log 1, Parameter 26				R	
B0C8H	45257				Line Number, Historical Log 1, Parameter 27				R	
B0C9H	45258				Point Number, Historical Log 1, Parameter 27				R	
B0CAH	45259				Line Number, Historical Log 1, Parameter 28				R	
B0CBH	45260				Point Number, Historical Log 1, Parameter 28				R	
B0CCH	45261				Line Number, Historical Log 1, Parameter 29				R	
B0CDH	45262				Point Number, Historical Log 1, Parameter 29				R	
B0CEH	45263				Line Number, Historical Log 1, Parameter 30				R	
B0CFH	45264				Point Number, Historical Log 1, Parameter 30				R	
B0D0H	45265				Line Number, Historical Log 1, Parameter 31				R	
B0D1H	45266				Point Number, Historical Log 1, Parameter 31				R	
B0D2H	45267				Line Number, Historical Log 1, Parameter 32				R	
B0D3H	45268				Point Number, Historical Log 1, Parameter 32				R	
B0D4H	45269				Line Number, Historical Log 1, Parameter 33				R	
B0D5H	45270				Point Number, Historical Log 1, Parameter 33				R	
B0D6H	45271				Line Number, Historical Log 1, Parameter 34				R	
B0D7H	45272				Point Number, Historical Log 1, Parameter 34				R	
B0D8H	45273				Line Number, Historical Log 1, Parameter 35				R	
B0D9H	45274				Point Number, Historical Log 1, Parameter 35				R	
B0DAH	45275				Line Number, Historical Log 1, Parameter 36				R	
B0DBH	45276				Point Number, Historical Log 1, Parameter 36				R	
B0DCH	45277				Line Number, Historical Log 1, Parameter 37				R	
B0DDH	45278				Point Number, Historical Log 1, Parameter 37				R	
B0DEH	45279				Line Number, Historical Log 1, Parameter 38				R	
B0DFH	45280				Point Number, Historical Log 1, Parameter 38				R	
B0E0H	45281				Line Number, Historical Log 1, Parameter 39				R	
B0E1H	45282				Point Number, Historical Log 1, Parameter 39				R	
B0E2H	45283				Line Number, Historical Log 1, Parameter 40				R	
B0E3H	45284				Point Number, Historical Log 1, Parameter 40				R	
B0E4H	45285				Line Number, Historical Log 1, Parameter 41				R	
B0E5H	45286				Point Number, Historical Log 1, Parameter 41				R	
B0E6H	45287				Line Number, Historical Log 1, Parameter 42				R	
B0E7H	45288				Point Number, Historical Log 1, Parameter 42				R	
B0E8H	45289				Line Number, Historical Log 1, Parameter 43				R	
B0E9H	45290				Point Number, Historical Log 1, Parameter 43				R	
B0EAH	45291				Line Number, Historical Log 1, Parameter 44				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B0EBH	45292				Point Number, Historical Log 1, Parameter 44				R	
B0ECH	45293				Line Number, Historical Log 1, Parameter 45				R	
B0EDH	45294				Point Number, Historical Log 1, Parameter 45				R	
B0EEH	45295				Line Number, Historical Log 1, Parameter 46				R	
B0EFH	45296				Point Number, Historical Log 1, Parameter 46				R	
B0F0H	45297				Line Number, Historical Log 1, Parameter 47				R	
B0F1H	45298				Point Number, Historical Log 1, Parameter 47				R	
B0F2H	45299				Line Number, Historical Log 1, Parameter 48				R	
B0F3H	45300				Point Number, Historical Log 1, Parameter 48				R	
B0F4H	45301				Line Number, Historical Log 1, Parameter 49				R	
B0F5H	45302				Point Number, Historical Log 1, Parameter 49				R	
B0F6H	45303				Line Number, Historical Log 1, Parameter 50				R	
B0F7H	45304				Point Number, Historical Log 1, Parameter 50				R	
B0F8H	45305				Line Number, Historical Log 1, Parameter 51				R	
B0F9H	45306				Point Number, Historical Log 1, Parameter 51				R	
B0FAH	45307				Line Number, Historical Log 1, Parameter 52				R	
B0FBH	45308				Point Number, Historical Log 1, Parameter 52				R	
B0FCH	45309				Line Number, Historical Log 1, Parameter 53				R	
B0FDH	45310				Point Number, Historical Log 1, Parameter 53				R	
B0FEH	45311				Line Number, Historical Log 1, Parameter 54				R	
B0FFH	45312				Point Number, Historical Log 1, Parameter 54				R	
B100H	45313				Line Number, Historical Log 1, Parameter 55				R	
B101H	45314				Point Number, Historical Log 1, Parameter 55				R	
B102H	45315				Line Number, Historical Log 1, Parameter 56				R	
B103H	45316				Point Number, Historical Log 1, Parameter 56				R	
B104H	45317				Line Number, Historical Log 1, Parameter 57				R	
B105H	45318				Point Number, Historical Log 1, Parameter 57				R	
B106H	45319				Line Number, Historical Log 1, Parameter 58				R	
B107H	45320				Point Number, Historical Log 1, Parameter 58				R	
B108H	45321				Line Number, Historical Log 1, Parameter 59				R	
B109H	45322				Point Number, Historical Log 1, Parameter 59				R	
B10AH	45323				Line Number, Historical Log 1, Parameter 60				R	
B10BH	45324				Point Number, Historical Log 1, Parameter 60				R	
B10CH	45325				Line Number, Historical Log 1, Parameter 61				R	
B10DH	45326				Point Number, Historical Log 1, Parameter 61				R	
B10EH	45327				Line Number, Historical Log 1, Parameter 62				R	
B10FH	45328				Point Number, Historical Log 1, Parameter 62				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B110H	45329				Line Number, Historical Log 1, Parameter 63				R	
B111H	45330				Point Number, Historical Log 1, Parameter 63				R	
B112H	45331				Line Number, Historical Log 1, Parameter 64				R	
B113H	45332				Point Number, Historical Log 1, Parameter 64				R	
B114H	45333				Line Number, Historical Log 2, Parameter 1				R	
B115H	45334				Point Number, Historical Log 2, Parameter 1				R	
B116H	45335				Line Number, Historical Log 2, Parameter 2				R	
B117H	45336				Point Number, Historical Log 2, Parameter 2				R	
B118H	45337				Line Number, Historical Log 2, Parameter 3				R	
B119H	45338				Point Number, Historical Log 2, Parameter 3				R	
B11AH	45339				Line Number, Historical Log 2, Parameter 4				R	
B11BH	45340				Point Number, Historical Log 2, Parameter 4				R	
B11CH	45341				Line Number, Historical Log 2, Parameter 5				R	
B11DH	45342				Point Number, Historical Log 2, Parameter 5				R	
B11EH	45343				Line Number, Historical Log 2, Parameter 6				R	
B11FH	45344				Point Number, Historical Log 2, Parameter 6				R	
B120H	45345				Line Number, Historical Log 2, Parameter 7				R	
B121H	45346				Point Number, Historical Log 2, Parameter 7				R	
B122H	45347				Line Number, Historical Log 2, Parameter 8				R	
B123H	45348				Point Number, Historical Log 2, Parameter 8				R	
B124H	45349				Line Number, Historical Log 2, Parameter 9				R	
B125H	45350				Point Number, Historical Log 2, Parameter 9				R	
B126H	45351				Line Number, Historical Log 2, Parameter 10				R	
B127H	45352				Point Number, Historical Log 2, Parameter 10				R	
B128H	45353				Line Number, Historical Log 2, Parameter 11				R	
B129H	45354				Point Number, Historical Log 2, Parameter 11				R	
B12AH	45355				Line Number, Historical Log 2, Parameter 12				R	
B12BH	45356				Point Number, Historical Log 2, Parameter 12				R	
B12CH	45357				Line Number, Historical Log 2, Parameter 13				R	
B12DH	45358				Point Number, Historical Log 2, Parameter 13				R	
B12EH	45359				Line Number, Historical Log 2, Parameter 14				R	
B12FH	45360				Point Number, Historical Log 2, Parameter 14				R	
B130H	45361				Line Number, Historical Log 2, Parameter 15				R	
B131H	45362				Point Number, Historical Log 2, Parameter 15				R	
B132H	45363				Line Number, Historical Log 2, Parameter 16				R	
B133H	45364				Point Number, Historical Log 2, Parameter 16				R	
B134H	45365				Line Number, Historical Log 2, Parameter 17				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B135H	45366				Point Number, Historical Log 2, Parameter 17				R	
B136H	45367				Line Number, Historical Log 2, Parameter 18				R	
B137H	45368				Point Number, Historical Log 2, Parameter 18				R	
B138H	45369				Line Number, Historical Log 2, Parameter 19				R	
B139H	45370				Point Number, Historical Log 2, Parameter 19				R	
B13AH	45371				Line Number, Historical Log 2, Parameter 20				R	
B13BH	45372				Point Number, Historical Log 2, Parameter 20				R	
B13CH	45373				Line Number, Historical Log 2, Parameter 21				R	
B13DH	45374				Point Number, Historical Log 2, Parameter 21				R	
B13EH	45375				Line Number, Historical Log 2, Parameter 22				R	
B13FH	45376				Point Number, Historical Log 2, Parameter 22				R	
B140H	45377				Line Number, Historical Log 2, Parameter 23				R	
B141H	45378				Point Number, Historical Log 2, Parameter 23				R	
B142H	45379				Line Number, Historical Log 2, Parameter 24				R	
B143H	45380				Point Number, Historical Log 2, Parameter 24				R	
B144H	45381				Line Number, Historical Log 2, Parameter 25				R	
B145H	45382				Point Number, Historical Log 2, Parameter 25				R	
B146H	45383				Line Number, Historical Log 2, Parameter 26				R	
B147H	45384				Point Number, Historical Log 2, Parameter 26				R	
B148H	45385				Line Number, Historical Log 2, Parameter 27				R	
B149H	45386				Point Number, Historical Log 2, Parameter 27				R	
B14AH	45387				Line Number, Historical Log 2, Parameter 28				R	
B14BH	45388				Point Number, Historical Log 2, Parameter 28				R	
B14CH	45389				Line Number, Historical Log 2, Parameter 29				R	
B14DH	45390				Point Number, Historical Log 2, Parameter 29				R	
B14EH	45391				Line Number, Historical Log 2, Parameter 30				R	
B14FH	45392				Point Number, Historical Log 2, Parameter 30				R	
B150H	45393				Line Number, Historical Log 2, Parameter 31				R	
B151H	45394				Point Number, Historical Log 2, Parameter 31				R	
B152H	45395				Line Number, Historical Log 2, Parameter 32				R	
B153H	45396				Point Number, Historical Log 2, Parameter 32				R	
B154H	45397				Line Number, Historical Log 2, Parameter 33				R	
B155H	45398				Point Number, Historical Log 2, Parameter 33				R	
B156H	45399				Line Number, Historical Log 2, Parameter 34				R	
B157H	45400				Point Number, Historical Log 2, Parameter 34				R	
B158H	45401				Line Number, Historical Log 2, Parameter 35				R	
B159H	45402				Point Number, Historical Log 2, Parameter 35				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B15AH	45403				Line Number, Historical Log 2, Parameter 36				R	
B15BH	45404				Point Number, Historical Log 2, Parameter 36				R	
B15CH	45405				Line Number, Historical Log 2, Parameter 37				R	
B15DH	45406				Point Number, Historical Log 2, Parameter 37				R	
B15EH	45407				Line Number, Historical Log 2, Parameter 38				R	
B15FH	45408				Point Number, Historical Log 2, Parameter 38				R	
B160H	45409				Line Number, Historical Log 2, Parameter 39				R	
B161H	45410				Point Number, Historical Log 2, Parameter 39				R	
B162H	45411				Line Number, Historical Log 2, Parameter 40				R	
B163H	45412				Point Number, Historical Log 2, Parameter 40				R	
B164H	45413				Line Number, Historical Log 2, Parameter 41				R	
B165H	45414				Point Number, Historical Log 2, Parameter 41				R	
B166H	45415				Line Number, Historical Log 2, Parameter 42				R	
B167H	45416				Point Number, Historical Log 2, Parameter 42				R	
B168H	45417				Line Number, Historical Log 2, Parameter 43				R	
B169H	45418				Point Number, Historical Log 2, Parameter 43				R	
B16AH	45419				Line Number, Historical Log 2, Parameter 44				R	
B16BH	45420				Point Number, Historical Log 2, Parameter 44				R	
B16CH	45421				Line Number, Historical Log 2, Parameter 45				R	
B16DH	45422				Point Number, Historical Log 2, Parameter 45				R	
B16EH	45423				Line Number, Historical Log 2, Parameter 46				R	
B16FH	45424				Point Number, Historical Log 2, Parameter 46				R	
B170H	45425				Line Number, Historical Log 2, Parameter 47				R	
B171H	45426				Point Number, Historical Log 2, Parameter 47				R	
B172H	45427				Line Number, Historical Log 2, Parameter 48				R	
B173H	45428				Point Number, Historical Log 2, Parameter 48				R	
B174H	45429				Line Number, Historical Log 2, Parameter 49				R	
B175H	45430				Point Number, Historical Log 2, Parameter 49				R	
B176H	45431				Line Number, Historical Log 2, Parameter 50				R	
B177H	45432				Point Number, Historical Log 2, Parameter 50				R	
B178H	45433				Line Number, Historical Log 2, Parameter 51				R	
B179H	45434				Point Number, Historical Log 2, Parameter 51				R	
B17AH	45435				Line Number, Historical Log 2, Parameter 52				R	
B17BH	45436				Point Number, Historical Log 2, Parameter 52				R	
B17CH	45437				Line Number, Historical Log 2, Parameter 53				R	
B17DH	45438				Point Number, Historical Log 2, Parameter 53				R	
B17EH	45439				Line Number, Historical Log 2, Parameter 54				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B17FH	45440				Point Number, Historical Log 2, Parameter 54				R	
B180H	45441				Line Number, Historical Log 2, Parameter 55				R	
B181H	45442				Point Number, Historical Log 2, Parameter 55				R	
B182H	45443				Line Number, Historical Log 2, Parameter 56				R	
B183H	45444				Point Number, Historical Log 2, Parameter 56				R	
B184H	45445				Line Number, Historical Log 2, Parameter 57				R	
B185H	45446				Point Number, Historical Log 2, Parameter 57				R	
B186H	45447				Line Number, Historical Log 2, Parameter 58				R	
B187H	45448				Point Number, Historical Log 2, Parameter 58				R	
B188H	45449				Line Number, Historical Log 2, Parameter 59				R	
B189H	45450				Point Number, Historical Log 2, Parameter 59				R	
B18AH	45451				Line Number, Historical Log 2, Parameter 60				R	
B18BH	45452				Point Number, Historical Log 2, Parameter 60				R	
B18CH	45453				Line Number, Historical Log 2, Parameter 61				R	
B18DH	45454				Point Number, Historical Log 2, Parameter 61				R	
B18EH	45455				Line Number, Historical Log 2, Parameter 62				R	
B18FH	45456				Point Number, Historical Log 2, Parameter 62				R	
B190H	45457				Line Number, Historical Log 2, Parameter 63				R	
B191H	45458				Point Number, Historical Log 2, Parameter 63				R	
B192H	45459				Line Number, Historical Log 2, Parameter 64				R	
B193H	45460				Point Number, Historical Log 2, Parameter 64				R	
B194H	45461				Snapshot Interval, Historical Log 1	3600/0	1 second		R	
B195H	45462				Snapshot Interval, Historical Log 2	3600/0	1 second		R	
B196H	45463				Record Size, Historical Log 1				R	
B197H	45464				Record Size, Historical Log 2				R	
					Waveform/CBEMA Settings Block					
B198H	45465				Phase A-N Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B199H	45466				Phase B-N Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19AH	45467				Phase C-N Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19BH	45468				Phase A-B Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19CH	45469				Phase B-C Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19DH	45470				Phase C-A Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19EH	45471				Phase X-N Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B19FH	45472				Phase N-E Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B1A0H	45473				Phase A-E Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B1A1H	45474				Phase B-E Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B1A2H	45475				Phase C-E Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B1A3H	45476				Phase X-E Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B1A4H	45477				Phase A-N Voltage Below Setpoint	+327.67% / -327.68%	0.01%		R	
B1A5H	45478				Phase B-N Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1A6H	45479				Phase C-N Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1A7H	45480				Phase A-B Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1A8H	45481				Phase B-C Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1A9H	45482				Phase C-A Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1AAH	45483				Phase X-N Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1ABH	45484				Phase N-E Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1ACH	45485				Phase A-E Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1ADH	45486				Phase B-E Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1AEH	45487				Phase C-E Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1AFH	45488				Phase X-E Voltage Above Setpoint	+327.67% / -327.68%	0.01%		R	
B1B0H	45489				Phase A Current Below Setpoint					
B1B1H	45490				Phase B Current Below Setpoint					
B1B2H	45491				Phase C Current Below Setpoint					
B1B3H	45492				Phase X Current Below Setpoint					
B1B4H	45493				Phase A Current Above Setpoint					
B1B5H	45494				Phase B Current Above Setpoint					
B1B6H	45495				Phase C Current Above Setpoint					
B1B7H	45496				Phase X Current Above Setpoint					
B1B8H	45497				Voltage RMS Sag/Swell					
B1B9H	45498				Voltage Wave shape					
B1BAH	45499				Current RMS Sag/Swell					
B1BBH	45500				Current RMS Chng ROR					
					High Speed Input Settings Block					
B1BCH-B1C3H	45501-45508				Input 1 Name				R	
B1C4H-B1CBH	45509-45516				Input 1 Open Label				R	
B1CCH-B1D3H	45517-45524				Input 1 Close Label				R	
B1D4H-B1D5H	45525-45526				Input 1 Value				R	
B1D6H	45527				Input 1 Mode				R	
B1D7H	45528				Reserved					
B1D8H-B1DFH	45529-45536				Input 2 Name				R	
B1E0H-B1E7H	45537-45544				Input 2 Open Label				R	
B1E8H-B1EFH	45545-45552				Input 2 Close Label				R	
B1F0H-B1F1H	45553-45554				Input 2 Value				R	
B1F2H	45555				Input 2 Mode				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B1F3H	45556				Reserved					
B1F4H-B1FBH	45557-45564				Input 3 Name				R	
B1FCH-B203H	45565-45572				Input 3 Open Label				R	
B204H-B20BH	45573-45580				Input 3 Close Label				R	
B20CH-B20DH	45581-45582				Input 3 Value				R	
B20EH	45583				Input 3 Mode				R	
B20FH	45584				Reserved					
B210H-B217H	45585-45592				Input 4 Name				R	
B218H-B21FH	45593-45600				Input 4 Open Label				R	
B220H-B227H	45601-45608				Input 4 Close Label				R	
B228H-B229H	45609-45610				Input 4 Value				R	
B22AH	45611				Input 4 Mode				R	
B22BH	45612				Reserved					
B22CH-B233H	45613-45620				Input 5 Name				R	
B234H-B23BH	45621-45628				Input 5 Open Label				R	
B23CH-B243H	45629-45636				Input 5 Close Label				R	
B244H-B245H	45637-45638				Input 5 Value				R	
B246H	45639				Input 5 Mode				R	
B247H	45640				Reserved					
B248H-B24FH	45641-45648				Input 6 Name				R	
B250H-B257H	45649-45656				Input 6 Open Label				R	
B258H-B25FH	45657-45664				Input 6 Close Label				R	
B260H-B261H	45665-45666				Input 6 Value				R	
B262H	45667				Input 6 Mode				R	
B263H	45668				Reserved					
B264H-B26BH	45669-45676				Input 7 Name				R	
B26CH-B273H	45677-45684				Input 7 Open Label				R	
B274H-B27BH	45685-45692				Input 7 Close Label				R	
B27CH-B27DH	45693-45694				Input 7 Value				R	
B27EH	45695				Input 7 Mode				R	
B27FH	45696				Reserved					
B280H-B287H	45697-45704				Input 8 Name				R	
B288H-B28FH	45705-45712				Input 8 Open Label				R	
B290H-B297H	45713-45720				Input 8 Close Label				R	
B298H-B299H	45721-45722				Input 8 Value				R	
B29AH	45723				Input 8 Mode				R	
B29BH	45724				Reserved				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B29CH-B29FH	45725-45728				Reserved				R	
	External Digital Output Module Settings Block									
B2A0H	45729				Address, External Digital Output Module 1				R	
B2A1H-B2A3H	45730-45732				Reserved					
B2A4H	45733				Line Number, Relay 1, External Digital Output Module 1				R	
B2A5H	45734				Point Number, Relay 1, External Digtial Output Module 1				R	
B2A6H	45735				Line Number, Relay 2, External Digital Output Module 1				R	
B2A7H	45736				Point Number, Relay 2, External Digtial Output Module 1				R	
B2A8H	45737				Line Number, Relay 3, External Digital Output Module 1				R	
B2A9H	45738				Point Number, Relay 3, External Digtial Output Module 1				R	
B2AAH	45739				Line Number, Relay 4, External Digital Output Module 1				R	
B2ABH	45740				Point Number, Relay 4, External Digtial Output Module 1				R	
B2ACH	45741				Line Number, Relay 5, External Digital Output Module 1				R	
B2ADH	45742				Point Number, Relay 5, External Digtial Output Module 1				R	
B2AEH	45743				Line Number, Relay 6, External Digital Output Module 1				R	
B2AFH	45744				Point Number, Relay 6, External Digtial Output Module 1				R	
B2B0H	45745				Line Number, Relay 7, External Digital Output Module 1				R	
B2B1H	45746				Point Number, Relay 7, External Digtial Output Module 1				R	
B2B2H	45747				Line Number, Relay 8, External Digital Output Module 1				R	
B2B3H	45748				Point Number, Relay 8, External Digtial Output Module 1				R	
B2B4H	45749				Address, External Digital Output Module 2				R	
B2B5H-B2B7H	45750-45752				Reserved					
B2B8H	45753				Line Number, Relay 1, External Digital Output Module 2				R	
B2B9H	45754				Point Number, Relay 1, External Digtial Output Module 2				R	
B2BAH	45755				Line Number, Relay 2, External Digital Output Module 2				R	
B2BBH	45756				Point Number, Relay 2, External Digtial Output Module 2				R	
B2BCH	45757				Line Number, Relay 3, External Digital Output Module 2				R	
B2BDH	45758				Point Number, Relay 3, External Digtial Output Module 2				R	
B2BEH	45759				Line Number, Relay 4, External Digital Output Module 2				R	
B2BFH	45760				Point Number, Relay 4, External Digtial Output Module 2				R	
B2C0H	45761				Line Number, Relay 5, External Digital Output Module 2				R	
B2C1H	45762				Point Number, Relay 5, External Digtial Output Module 2				R	
B2C2H	45763				Line Number, Relay 6, External Digital Output Module 2				R	
B2C3H	45764				Point Number, Relay 6, External Digtial Output Module 2				R	
B2C4H	45765				Line Number, Relay 7, External Digital Output Module 2				R	
B2C5H	45766				Point Number, Relay 7, External Digtial Output Module 2				R	
B2C6H	45767				Line Number, Relay 8, External Digital Output Module 2				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B2C7H	45768				Point Number, Relay 8, External Digtial Output Module 2				R	
B2C8H	45769				Address, External Digital Output Module 3				R	
B2C9H-B2CBH	45770-45772				Reserved					
B2CCH	45773				Line Number, Relay 1, External Digital Output Module 3				R	
B2CDH	45774				Point Number, Relay 1, External Digtial Output Module 3				R	
B2CEH	45775				Line Number, Relay 2, External Digital Output Module 3				R	
B2CFH	45776				Point Number, Relay 2, External Digtial Output Module 3				R	
B2D0H	45777				Line Number, Relay 3, External Digital Output Module 3				R	
B2D1H	45778				Point Number, Relay 3, External Digtial Output Module 3				R	
B2D2H	45779				Line Number, Relay 4, External Digital Output Module 3				R	
B2D3H	45780				Point Number, Relay 4, External Digtial Output Module 3				R	
B2D4H	45781				Line Number, Relay 5, External Digital Output Module 3				R	
B2D5H	45782				Point Number, Relay 5, External Digtial Output Module 3				R	
B2D6H	45783				Line Number, Relay 6, External Digital Output Module 3				R	
B2D7H	45784				Point Number, Relay 6, External Digtial Output Module 3				R	
B2D8H	45785				Line Number, Relay 7, External Digital Output Module 3				R	
B2D9H	45786				Point Number, Relay 7, External Digtial Output Module 3				R	
B2DAH	45787				Line Number, Relay 8, External Digital Output Module 3				R	
B2DBH	45788				Point Number, Relay 8, External Digtial Output Module 3				R	
B2DCH	45789				Address, External Digital Output Module 4				R	
B2DDH-B2DFH	45790-45792				Reserved					
B2E0H	45793				Line Number, Relay 1, External Digital Output Module 4				R	
B2E1H	45794				Point Number, Relay 1, External Digtial Output Module 4				R	
B2E2H	45795				Line Number, Relay 2, External Digital Output Module 4				R	
B2E3H	45796				Point Number, Relay 2, External Digtial Output Module 4				R	
B2E4H	45797				Line Number, Relay 3, External Digital Output Module 4				R	
B2E5H	45798				Point Number, Relay 3, External Digtial Output Module 4				R	
B2E6H	45799				Line Number, Relay 4, External Digital Output Module 4				R	
B2E7H	45800				Point Number, Relay 4, External Digtial Output Module 4				R	
B2E8H	45801				Line Number, Relay 5, External Digital Output Module 4				R	
B2E9H	45802				Point Number, Relay 5, External Digtial Output Module 4				R	
B2EAH	45803				Line Number, Relay 6, External Digital Output Module 4				R	
B2EBH	45804				Point Number, Relay 6, External Digtial Output Module 4				R	
B2ECH	45805				Line Number, Relay 7, External Digital Output Module 4				R	
B2EDH	45806				Point Number, Relay 7, External Digtial Output Module 4				R	
B2EEH	45807				Line Number, Relay 8, External Digital Output Module 4				R	
B2EFH	45808				Point Number, Relay 8, External Digtial Output Module 4				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B2F0H-B2F3H	45809-45812				Reserved				R	
	External Analog Output Module Settings Block									
B2F4H	45813				Address, External Analog Output Module 1				R	
B2F5H-B2F7H	45814-45816				Reserved					
B2F8H	45817				Line Number, Relay 1, External Analog Output Module 1				R	
B2F9H	45818				Point Number, Relay 1, External Digtial Output Module 1				R	
B2FAH	45819				Line Number, Relay 2, External Analog Output Module 1				R	
B2FBH	45820				Point Number, Relay 2, External Digtial Output Module 1				R	
B2FCH	45821				Line Number, Relay 3, External Analog Output Module 1				R	
B2FDH	45822				Point Number, Relay 3, External Digtial Output Module 1				R	
B2FEH	45823				Line Number, Relay 4, External Analog Output Module 1				R	
B2FFH	45824				Point Number, Relay 4, External Digtial Output Module 1				R	
B300H	45825				Line Number, Relay 5, External Analog Output Module 1				R	
B301H	45826				Point Number, Relay 5, External Digtial Output Module 1				R	
B302H	45827				Line Number, Relay 6, External Analog Output Module 1				R	
B303H	45828				Point Number, Relay 6, External Digtial Output Module 1				R	
B304H	45829				Line Number, Relay 7, External Analog Output Module 1				R	
B305H	45830				Point Number, Relay 7, External Digtial Output Module 1				R	
B306H	45831				Line Number, Relay 8, External Analog Output Module 1				R	
B307H	45832				Point Number, Relay 8, External Digtial Output Module 1				R	
B308H	45833				Address, External Analog Output Module 2				R	
B309H-B30BH	45834-45836				Reserved					
B30CH	45837				Line Number, Relay 1, External Analog Output Module 2				R	
B32DH	45870				Point Number, Relay 1, External Digtial Output Module 2				R	
B30EH	45839				Line Number, Relay 2, External Analog Output Module 2				R	
B30FH	45840				Point Number, Relay 2, External Digtial Output Module 2				R	
B310H	45841				Line Number, Relay 3, External Analog Output Module 2				R	
B311H	45842				Point Number, Relay 3, External Digtial Output Module 2				R	
B312H	45843				Line Number, Relay 4, External Analog Output Module 2				R	
B313H	45844				Point Number, Relay 4, External Digtial Output Module 2				R	
B314H	45845				Line Number, Relay 5, External Analog Output Module 2				R	
B315H	45846				Point Number, Relay 5, External Digtial Output Module 2				R	
B316H	45847				Line Number, Relay 6, External Analog Output Module 2				R	
B317H	45848				Point Number, Relay 6, External Digtial Output Module 2				R	
B318H	45849				Line Number, Relay 7, External Analog Output Module 2				R	
B319H	45850				Point Number, Relay 7, External Digtial Output Module 2				R	
B31AH	45851				Line Number, Relay 8, External Analog Output Module 2				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B31BH	45852				Point Number, Relay 8, External Digtial Output Module 2				R	
B31CH	45853				Address, External Analog Output Module 3				R	
B31DH-B31FH	45854-45856				Reserved					
B320H	45857				Line Number, Relay 1, External Analog Output Module 3				R	
B321H	45858				Point Number, Relay 1, External Digtial Output Module 3				R	
B322H	45859				Line Number, Relay 2, External Analog Output Module 3				R	
B323H	45860				Point Number, Relay 2, External Digtial Output Module 3				R	
B324H	45861				Line Number, Relay 3, External Analog Output Module 3				R	
B325H	45862				Point Number, Relay 3, External Digtial Output Module 3				R	
B326H	45863				Line Number, Relay 4, External Analog Output Module 3				R	
B327H	45864				Point Number, Relay 4, External Digtial Output Module 3				R	
B328H	45865				Line Number, Relay 5, External Analog Output Module 3				R	
B329H	45866				Point Number, Relay 5, External Digtial Output Module 3				R	
B32AH	45867				Line Number, Relay 6, External Analog Output Module 3				R	
B32BH	45868				Point Number, Relay 6, External Digtial Output Module 3				R	
B32CH	45869				Line Number, Relay 7, External Analog Output Module 3				R	
B32DH	45870				Point Number, Relay 7, External Digtial Output Module 3				R	
B32EH	45871				Line Number, Relay 8, External Analog Output Module 3				R	
B32FH	45872				Point Number, Relay 8, External Digtial Output Module 3				R	
B330H	45873				Address, External Analog Output Module 4				R	
B331H-B333H	45874-45876				Reserved					
B334H	45877				Line Number, Relay 1, External Analog Output Module 4				R	
B335H	45878				Point Number, Relay 1, External Digtial Output Module 4				R	
B336H	45879				Line Number, Relay 2, External Analog Output Module 4				R	
B337H	45880				Point Number, Relay 2, External Digtial Output Module 4				R	
B338H	45881				Line Number, Relay 3, External Analog Output Module 4				R	
B339H	45882				Point Number, Relay 3, External Digtial Output Module 4				R	
B33AH	45883				Line Number, Relay 4, External Analog Output Module 4				R	
B33BH	45884				Point Number, Relay 4, External Digtial Output Module 4				R	
B33CH	45885				Line Number, Relay 5, External Analog Output Module 4				R	
B33DH	45886				Point Number, Relay 5, External Digtial Output Module 4				R	
B33EH	45887				Line Number, Relay 6, External Analog Output Module 4				R	
B33FH	45888				Point Number, Relay 6, External Digtial Output Module 4				R	
B340H	45889				Line Number, Relay 7, External Analog Output Module 4				R	
B341H	45890				Point Number, Relay 7, External Digtial Output Module 4				R	
B342H	45891				Line Number, Relay 8, External Analog Output Module 4				R	
B343H	45892				Point Number, Relay 8, External Digtial Output Module 4				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	External KYZ Output Module Settings Block									
B344H	45893				Address, External KYZ Output Module 1				R	
B345H	45894				Energy Assignement, Relay 1-2, External KYZ Output Module 1				R	
B346H	45895				Energy Assignement, Relay 3-4, External KYZ Output Module 1				R	
B347H	45896				Reserved					
B348H	45897				Address, External KYZ Output Module 2				R	
B349H	45898				Energy Assignement, Relay 1-2, External KYZ Output Module 2				R	
B34AH	45899				Energy Assignement, Relay 3-4, External KYZ Output Module 2				R	
B34BH	45900				Reserved					
B34CH	45901				Address, External KYZ Output Module 3				R	
B34DH	45902				Energy Assignement, Relay 1-2, External KYZ Output Module 3				R	
B34EH	45903				Energy Assignement, Relay 3-4, External KYZ Output Module 3				R	
B34FH	45904				Reserved					
B350H	45905				Address, External KYZ Output Module 4				R	
B351H	45906				Energy Assignement, Relay 1-2, External KYZ Output Module 4				R	
B352H	45907				Energy Assignement, Relay 3-4, External KYZ Output Module 4				R	
B353H	45908				Reserved					
	CT & PT Ratio Settings Block									
B354H-B355H	45909-45910				Phase Current CT Ratio Numerator	+999,999.99 / +0.01	1/100 A pri		R	
B356H-B357H	45911-45912				Phase Current CT Ratio Denominator	+999,999.99 / +0.01	1/100 A sec		R	
B358H-B359H	45913-45914				Measured Neutral Current CT Ratio Numerator	+999,999.99 / +0.01	1/100 A pri		R	
B35AH-B35BH	45915-45916				Measured Neutral Current CT Ratio Denominator	+999,999.99 / +0.01	1/100 A sec		R	
B35CH-B35DH	45917-45918				Phase Voltage PT Ratio Numerator	+999,999.99 / +0.01	1/100 V pri		R	
B35EH-B35FH	45919-45920				Phase Voltage PT Ratio Denominator	+999,999.99 / +0.01	1/100 V sec		R	
B360H-B361H	45921-45922				Auxiliary Voltage PT Ratio Numerator	+999,999.99 / +0.01	1/100 V pri		R	
B362H-B363H	45923-45924				Auxiliary Voltage PT Ratio Denominator	+999,999.99 / +0.01	1/100 V sec		R	
	Hookup and Time Settings Block									
B364H	45925				Hookup				R	
B365H	45926				Frequency & Time Zone Hour Selection				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B366H	45927				Time Zone Half Hour & Daylight Savings Time Enable				R	
B367H	45928				Transformer Loss Compensation (TLC) & Internal KYZ Form				R	
B368H	45929				Reserved				R	
B369H-B36BH	45930-45932				Daylight Savings Time Start				R	
B36CH	45933				Reserved				R	
B36DH-B36FH	45934-45936				Daylight Savings Time End				R	
B370H-B371H	45937-45938				% Loss of Watts due to Iron (TLC)				R	
B372H-B373H	45939-45940				% Loss of Watts due to Copper (TLC)				R	
B374H-B375H	45941-45942				% Loss of VAR due to Iron (TLC)				R	
B376H-B377H	45943-45944				% Loss of VAR due to Copper (TLC)				R	
B378H-B37BH	45945-45948				Primary Hour Reading Rollover					
	Average Settings Block									
B37CH	45949				Thermal and Block Averaging Time Interval	65535 / 0	1 second		R	
B37DH	45950				Rolling Averaging Sub-Interval	65535 / 0	1 second		R	
B37EH	45951				Predictive Rolling Window Average	100.00 / 0	0.01 %		R	
B37FH	45952				Rolling Sub-Intervals / Time of Use Log Enable	1~255/not used			R	
	Exception Profile Block									
B380H-B387H	45953-45960				Limits				R	
B388H-B389H	45961-45962				External Inputs				R	
B38AH	45963				Reserved					
B38BH	45964				Digital Inputs				R	
B38CH-B38DH	45965-45966				Device Internal Change				R	
B38EH-B38FH	45967-45968				External Digital Input Mode				R	
	Device Label Settings Block									
B390H-B397H	45969-45976				Meter Designation				R	
B398H-B39FH	45977-45984				Auxiliary Voltage Label (1250 only)				R	
B3A0H-B3A7H	45985-45992				Measured Neutral Current Label				R	
	Network Settings Block									
B3A8H-B3A9H	45993-45994				IP Address				R	
B3AAH-B3ABH	45995-45996				Subnet Mask				R	
B3ACH-B3ADH	45997-45998				Default Gateway				R	
B3AEH	45999				Port 2 Baud Rate / Gateway Delay				R	
B3AFH	46000				Mode/ Mode 2				R	
B3B0H-B3B7H	46001-46008				Computer Name				R	
B3B8H-B3B9H	46009-46010				DNS Server 1 IP Address				R	
B3BAH-B3BBH	46011-46012				DNS Server 2 IP Address					
B3BCH-B3BDH	46013-46014				Server / Service Enable Bits					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B3BEH	46015				Email Port Number					
B3BFH	46016				FTP Port Number					
	Block Window Average External Synchronization Block									
B3C0H	46017				BWA Synch Enable / BWA Synch Mask				R	
	Display Configuration Block									
B3C1H	46018				Display Configuration				R	
	Energy Direction Block									
B3C2H	46019				Received Energy Direction/Power Factor labeling				R	
B3C3H	46020				Reserved					
	Full Scale Block									
B3C4H-B3C5H	46021-46022				Full Scale Phase Current	65535 / 0	1 / 65536		R	
B3C6H-B3C7H	46023-46024				Full Scale Measured Neutral Current	65535 / 0	1 / 65536		R	
B3C8H-B3C9H	46025-46026				Full Scale Phase-to-Neutral Voltage	65535 / 0	1 / 65536		R	
B3CAH-B3CBH	46027-46028				Full Scale Auxiliary Voltage	65535 / 0	1 / 65536		R	
B3CCH-B3CDH	46029-46030				Full Scale Phase-To-Phase Voltage	65535 / 0	1 / 65536		R	
B3CEH-B3CFH	46031-46032				Full Scale Phase Power	65535 / 0	1 / 65536		R	
B3D0H-B3D1H	46033-46034				Full Scale Total Power	65535 / 0	1 / 65536		R	
B3D2H-B3D3H	46035-46036				Full Scale Frequency	65535 / 0	1 / 65536		R	
B3D4H-B3D5H	46037-46038				Full Scale Phase-To-Earth Voltage					
B3D6H-B3D7H	46039-46040				Full Scale XE Voltage					
B3D8H-B3D9H	46041-46042				Full Scale NE Voltage					
B3DAH-B3E3H	46043-46052				Reserved					
	External Module Software Interface Block									
B3E4H	46053				External Module 1 & 2 Type				R	
B3E5H	46054				External Module 3 & 4 Type				R	
B3E6H	46055				External Module 5 & 6 Type				R	
B3E7H	46056				External Module 7 & 8 Type				R	
B3E8H	46057				External Module 9 & 10 Type				R	
B3E9H	46058				External Module 11 & 12 Type				R	
B3EAH	46059				External Module 13 & 14 Type				R	
B3EBH	46060				External Module 15 & 16 Type				R	
B3ECH	46061				External Module 1 & 2 Slot				R	
B3EDH	46062				External Module 3 & 4 Slot				R	
B3EEH	46063				External Module 5 & 6 Slot				R	
B3EFH	46064				External Module 7 & 8 Slot				R	
B3F0H	46065				External Module 9 & 10 Slot				R	
B3F1H	46066				External Module 11 & 12 Slot				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B3F2H	46067				External Module 13 & 14 Slot				R	
B3F3H	46068				External Module 15 & 16 Slot				R	
B3F4H-B3FBH	46069-46076				External Module 1 Label				R	
B3FCH-B403H	46077-46084				External Module 2 Label				R	
B404H-B40BH	46085-46092				External Module 3 Label				R	
B40CH-B413H	46093-46100				External Module 4 Label				R	
B414H-B41BH	46101-46108				External Module 5 Label				R	
B41CH-B423H	46109-46116				External Module 6 Label				R	
B424H-B24BH	46117-46124				External Module 7 Label				R	
B24CH-B433H	46125-46132				External Module 8 Label				R	
B434H-B43BH	46133-46140				External Module 9 Label				R	
B43CH-B443H	46141-46148				External Module 10 Label				R	
B444H-B44BH	46149-46156				External Module 11 Label				R	
B44CH-B453H	46157-46164				External Module 12 Label				R	
B454H-B45BH	46165-46172				External Module 13 Label				R	
B45CH-B463H	46173-46180				External Module 14 Label				R	
B464H-B46BH	46181-46188				External Module 15 Label				R	
B46CH-B473H	46189-46196				External Module 16 Label				R	
	External Module Port Assignment Block									
B474H-B475H	46197				Reserved				R	
B476H	46199				Digital Output Module 1 & 2 Port Assignment				R	
B477H	46200				Digital Output Module 3 & 4 Port Assignment				R	
B478H-B479H	46201				Reserved				R	
B47AH	46203				Analog Output Module 1 & 2 Port Assignment				R	
B47BH	46204				Analog Output Module 3 & 4 Port Assignment				R	
B47CH	46205				KYZ Output Module 1 & 2 Port Assignment				R	
B47DH	46206				KYZ Output Module 3 & 4 Port Assignment				R	
	Manual Control Relay Block									
B47EH	46207				Manual Control Relay Settings				R	
B47FH	46208				Flicker Log/ Reserved				R	
	Internal Input Pulse Accumulation Scale Factor Block									
B480H-B481H	46209-46210				Internal Input 1 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B482H-B483H	46211-46212				Internal Input 2 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B484H-B485H	46213-46214				Internal Input 3 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B486H-B487H	46215-46216				Internal Input 4 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B488H-B489H	46217-46218				Internal Input 5 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B48AH-B48BH	46219-46220				Internal Input 6 Pulse Accumulation Scale Factor	4294967295 / 0			R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B48CH-B48DH	46221-46222				Internal Input 7 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B48EH-B48FH	46223-46224				Internal Input 8 Pulse Accumulation Scale Factor	4294967295 / 0			R	
B490H	46225				Internal Input 1 & 2 Pulse Accumulation Aggregator Assignment				R	
B491H	46226				Internal Input 3 & 4 Pulse Accumulation Aggregator Assignment				R	
B492H	46227				Internal Input 5 & 6 Pulse Accumulation Aggregator Assignment				R	
B493H	46228				Internal Input 7 & 8 Pulse Accumulation Aggregator Assignment				R	
B494H-B49BH	46229-46236				Internal Input 1 Pulse Accumulation Label			F2	R	
B49CH-B4A3H	46237-46244				Internal Input 2 Pulse Accumulation Label			F2	R	
B4A4H-B4ABH	46245-46252				Internal Input 3 Pulse Accumulation Label			F2	R	
B4ACH-B4B3H	46253-46260				Internal Input 4 Pulse Accumulation Label			F2	R	
B4B4H-B4BBH	46261-46268				Internal Input 5 Pulse Accumulation Label			F2	R	
B4BCH-B4C3H	46269-46276				Internal Input 6 Pulse Accumulation Label			F2	R	
B4C4H-B4CBH	46277-46284				Internal Input 7 Pulse Accumulation Label			F2	R	
B4CCH-B4D3H	46285-46292				Internal Input 8 Pulse Accumulation Label			F2	R	
B4D4H-B4DBH	46293-46300				Internal Input Pulse Aggregation 1 Label			F2	R	
B4DCH-B4E3H	46301-46308				Internal Input Pulse Aggregation 2 Label			F2	R	
B4E4H-B4EBH	46309-46316				Internal Input Pulse Aggregation 3 Label			F2	R	
B4ECH-B4F3H	46317-46324				Internal Input Pulse Aggregation 4 Label			F2	R	
B4F4H	46325				Nexus Watthour Selection / Aggregation Assignment				R	
					I^2t and V^2t Threshold Block					
B4F5H-B4F6H	46326-46327				I^2t Threshold				R	
B4F7H-B4F8H	46328-46329				V^2t Threshold				R	
					Internal KYZ Settings Block					
B4F9H	46330				Internal KYZ Pulse Width (Relay 1-Pulse 1/ Relay 2-Pulse 2)				R	
B4FAH	46331				Internal KYZ Pulse Width (Relay 3/ Relay 4)				R	
B4FBH	46332				Reserved / Internal KYZ Channel Select (Relay 1-Pulse 1)				R	
B4FCH	46333				Internal KYZ Channel Select (Relay 2-Pulse 2/ Relay 3)				R	
B4FDH	46334				Internal KHZ Channel Select (Relay 4/ Reserved)				R	
B4FEH-B4FFH	46335-46336				Internal KYZ Watthour Per Pulse (Relay 1-Pulse 1)				R	
B500H-B501H	46337-46338				Internal KYZ Watthour Per Pulse (Relay 2-Pulse 2)				R	
B502H-B503H	46339-46340				Internal KYZ Watthour Per Pulse (Relay 3)				R	
B504H-B505H	46341-46342				Internal KYZ Watthour Per Pulse (Relay 4)				R	
B506H-B507H	46343-46344				Reserved				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B508H	46345				Internal KYZ enable/ End of Interval Pulse enable				R	
B509H	46346				End of Interval Pulse (Relay, Width)				R	
B50AH	46347				Cold Load Delay / Cumulative Demand Settings				R	
B50BH	46348				Short Term Flicker Interval / Long Term Flicker Interval				R	
B50CH	46349				Flicker Voltage Adaptor Level				R	
B50DH	46350				Flicker Base Frequency/Min power off				R	
B50EH	46351				Block Average Cont.					
B50FH	46352				Accum Mode/Reserved					
B510H-B523H	46353-46372				Reserved				R	
	Internal Input Pulse Accumulation Unit Label Block									
B524H-B527H	46373-46376				Internal Input 1 Pulse Accumulation Unit Label			F2	R	
B528H-B52BH	46377-46380				Internal Input 2 Pulse Accumulation Unit Label			F2	R	
B52CH-B52FH	46381-46384				Internal Input 3 Pulse Accumulation Unit Label			F2	R	
B530H-B533H	46385-46388				Internal Input 4 Pulse Accumulation Unit Label			F2	R	
B534H-B537H	46389-46392				Internal Input 5 Pulse Accumulation Unit Label			F2	R	
B538H-B53BH	46393-46396				Internal Input 6 Pulse Accumulation Unit Label			F2	R	
B53CH-B53FH	46397-46400				Internal Input 7 Pulse Accumulation Unit Label			F2	R	
B540H-B543H	46401-46404				Internal Input 8 Pulse Accumulation Unit Label			F2	R	
B544H-B547H	46405-46408				Internal Input Pulse Aggregation 1 Unit Label			F2	R	
B548H-B54BH	46409-46412				Internal Input Pulse Aggregation 2 Unit Label			F2	R	
B54CH-B54FH	46413-46416				Internal Input Pulse Aggregation 3 Unit Label			F2	R	
B550H-B553H	46417-46420				Internal Input Pulse Aggregation 4 Unit Label			F2	R	
B554H-B6D3H	46421-46804				Reserved				R	
	Limit Profile Label Block									
B6D4H-B6DBH	46805-46812				Limit 1 Label			F2	R	ch.7
B6DCH-B6E3H	46813-46820				Limit 2 Label			F2	R	ch.7
B6E4H-B6EBH	46821-46828				Limit 3 Label			F2	R	ch.7
B6ECH-B6F3H	46829-46836				Limit 4 Label			F2	R	ch.7
B6F4H-B6FBH	46837-46844				Limit 5 Label			F2	R	ch.7
B6FCH-B703H	46845-46852				Limit 6 Label			F2	R	ch.7
B704H-B70BH	46853-46860				Limit 7 Label			F2	R	ch.7
B70CH-B713H	46861-46868				Limit 8 Label			F2	R	ch.7
B714H-B71BH	46869-46876				Limit 9 Label			F2	R	ch.7
B71CH-B723H	46877-46884				Limit 10 Label			F2	R	ch.7
B724H-B72BH	46885-46892				Limit 11 Label			F2	R	ch.7
B72CH-B733H	46893-46900				Limit 12 Label			F2	R	ch.7
B734H-B73BH	46901-46908				Limit 13 Label			F2	R	ch.7

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B73CH-B743H	46909-46916				Limit 14 Label			F2	R	ch.7
B744H-B74BH	46917-46924				Limit 15 Label			F2	R	ch.7
B74CH-B753H	46925-46932				Limit 16 Label			F2	R	ch.7
B754H-B75BH	46933-46940				Limit 17 Label			F2	R	ch.7
B75CH-B763H	46941-46948				Limit 18 Label			F2	R	ch.7
B764H-B76BH	46949-46956				Limit 19 Label			F2	R	ch.7
B76CH-B773H	46957-46964				Limit 20 Label			F2	R	ch.7
B774H-B77BH	46965-46972				Limit 21 Label			F2	R	ch.7
B77CH-B783H	46973-46980				Limit 22 Label			F2	R	ch.7
B784H-B78BH	46981-46988				Limit 23 Label			F2	R	ch.7
B78CH-B793H	46989-46996				Limit 24 Label			F2	R	ch.7
B794H-B79BH	46997-47004				Limit 25 Label			F2	R	ch.7
B79CH-B7A3H	47005-47012				Limit 26 Label			F2	R	ch.7
B7A4H-B7ABH	47213-47020				Limit 27 Label			F2	R	ch.7
B7ACH-B7B3H	47021-47028				Limit 28 Label			F2	R	ch.7
B7B4H-B7BBH	47029-47036				Limit 29 Label			F2	R	ch.7
B7BCH-B7C3H	47037-47044				Limit 30 Label			F2	R	ch.7
B7C4H-B7CBH	47045-47052				Limit 31 Label			F2	R	ch.7
B7CCH-B7D3H	47053-47060				Limit 32 Label			F2	R	ch.7
	External Analog Output Module Channel Update Block									
B7D4H	47061				Module 1/ Module 2				R	
B7D5H	47062				Module 3/ Module 4				R	
	DNP Block									
	Miscellaneous DNP Settings Block									
B7D6H	47063				MSB: Scale for Analog Output of Average Pulse Accumulation LSB: Compressed DNP Mapping				R	
B7D7H	47064				MSB: Energy in the interval LSB: DNP Time synchronization				R	
B7D8H	47065				DNP Time Synchronization Time Interval				R	
B7D9H	47066				Bit 13(Choice of Class 0 poll between Object 20 and Object 21), Bitmap				R	
B7DAH-B7DDH	47067-47070				DNP Freeze Date & Time	12/31/9999 23:59:59.99	10 msec	F3	R	
B7DEH	47071				DNP Freeze Interval MSB: Hour LSB: Minute				R	
B7DFH-B7FFH	47072-47104				Reserved					
	Custom DNP Definition Block for Analog Input (Object 30)									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
B800H	47105				Point 0: Line Number Line Number from an analog input readings, such as 34 (One second Phase-Neutron Voltage Update)				R	
B801H	47106				Point 0: MSB: Point Number Point Number from an analog input readings, such as 0 (Phase A-N Voltage from One secod phase-neutron voltage) LSB: Scaling				R	
B802H	47107				Point 0: Deadband	-328% / +328%	0.01%		R	
B803H	47108				(One second Phase A-N Voltage				R	
B804H-B8FFH	47109-47360				Point 1 - Point 63					
	Custom DNP Definition Block for Binary Counter (Object 20)									
B900H	47361				Point 0: Line Number Line Number from an accumulation readings, such as 537 (Energy Scaled)				R	
B901H	47362				Point 0: MSB: Point Number Point Number from an accumulation readings, such as 0 (Positive Wh (Quadrant 1+4) from Energy Scaled) LSB: Scaling				R	
B902H-B903H	47363-47364				Point 0: Delta values for Event to occur				R	
B904H	47365				Point 0: MSB: Class Assignment (8 bit bitmap) LSB: Reserved				R	
B905H-B907H	47366-47368				Point 0, reserved					
B908H-B93FH	47369-47424				Point 1 - Point 8					
	Custom DNP Definition Block for Binary Input (Object 1)									
B940H	47425				Point 0-7: Line Number Line Number from a binary input readings, such as 233 (Low Speed (Internal) Inputs)				R	
B941H	47426				Point 0-7: MSB: Point Number Point Number from a binary input readings, such as 0 (Input 1 from Low Speed (Internal) Inputs) LSB: Class Assignment (8 bit bitmap)				R	
B942H-B943H	47427-47428				Point 0-7: Reserved					
B944H-B95FH	47429-47456				Point 8-15 - Point 57-64					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Custom DNP Definition Block for Binary Output (Object 10)									
B960H	47457				Relay: Enable/Disable				R	
B961H	47458				Reset: Enable/Disable				R	
	Custom DNP Definition Block for Global Values									
B962H	47459				Choice Of Variation 0: MSB: For Binary Input (Object 1) LSB: For Binary Input Change (Object 2)				R	
B963H	47460				Choice Of Variation 0: MSB: For Binary Counter (Object 20) LSB: For Frozen Counter (Object 21)				R	
B964H	47461				Choice Of Variation 0: MSB: For Counter Change Event (Object 22) LSB: For Frozen Counter Event (Object 23)				R	
B965H	47462				Choice Of Variation 0: MSB: For Analog Input (Object 30) LSB: For Frozen Analog Input (Object 31)				R	
B966H	47463				Choice Of Variation 0: MSB: For Analog Change Event (Object 32) LSB: For Frozen Analog Event (Object 33)				R	
B967H	47464				MSB: Custom 16-bit Scaling Enable LSB: Reserved				R	
B968H-B969H	47465				Scale for Ia, b, c, n	+32767 A / 0 A	1/ 65536 A sec	F7	R	
B96AH-B96BH	47466				Scale for Iaux	+32767 A / 0 A	1/ 65536 A sec	F7	R	
B96CH-B96DH	47467				Scale for Van, bn, cn	+32767 V / 0 V	1/ 65536 V sec	F7	R	
B96EH-B96FH\	47468				Scale for Vaux	+32767 V / 0 V	1/ 65536 V sec	F7	R	
B970H-B971H	47469				Scale for Vab, bc, ca	+32767 V / 0 V	1/ 65536 V sec	F7	R	
B972H-B973H	47470				Scale for Power a, b, c	+32767 W / -32768 W	1/ 65536 W sec	F7	R	
B974H-B975H	47471				Scale for Total Power	+32767 W / -32768 W	1/ 65536 W sec	F7	R	
B976H-B977H	47472				Scale for Frequency (High End)	+32767 Hz / -32768 Hz	1/ 65536 Hz	F7	R	
B978H-B979H	47473				Scale for Frequency (Low End)	+32767 Hz / -32768 Hz	1/ 65536 Hz	F7	R	
B97AH-BDFFH	47474-48640				Reserved					
BE00H-C27FH	48641-49792				Reserved					
	External Digital Output Module Labels Block									
C280H-C287H	49793-49800				Module 1 Relay Label 1				R	
C288H-C28FH	49801-49808				Module 1 Relay Label 2				R	
C290H-C297H	49809-49816				Module 1 Relay Label 3				R	
C298H-C29FH	49817-49824				Module 1 Relay Label 4				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
C2A0H-C2A7H	49825-49832				Module 2 Relay Label 1				R	
C2A8H-C2AFH	49833-49840				Module 2 Relay Label 2				R	
C2B0H-C2B7H	49841-49848				Module 2 Relay Label 3				R	
C2B8H-C2BFH	49849-49856				Module 2 Relay Label 4				R	
C2C0H-C2C7H	49857-49864				Module 3 Relay Label 1				R	
C2C8H-C2CFH	49865-49872				Module 3 Relay Label 2				R	
C2D0H-C2D7H	49873-49880				Module 3 Relay Label 3				R	
C2D8H-C2DFH	49881-49888				Module 3 Relay Label 4				R	
C2E0H-C2E7H	49889-49896				Module 4 Relay Label 1				R	
C2E8H-C2EFH	49897-49904				Module 4 Relay Label 2				R	
C2F0H-C2F7H	49905-49912				Module 4 Relay Label 3				R	
C2F8H-C2FFH	49913-49920				Module 4 Relay Label 4				R	
C300H-C307H	49921-49928				Module 1 Relay Common Shorted to Normally Closed Label 1				R	
C308H-C30FH	49929-49936				Module 1 Relay Common Shorted to Normally Closed Label 2				R	
C310H-C317H	49937-49944				Module 1 Relay Common Shorted to Normally Closed Label 3				R	
C318H-C31FH	49945-49952				Module 1 Relay Common Shorted to Normally Closed Label 4				R	
C320H-C327H	49953-49960				Module 2 Relay Common Shorted to Normally Closed Label 1				R	
C328H-C32FH	49961-49968				Module 2 Relay Common Shorted to Normally Closed Label 2				R	
C330H-C337H	49969-49976				Module 2 Relay Common Shorted to Normally Closed Label 3				R	
C338H-C33FH	49977-49984				Module 2 Relay Common Shorted to Normally Closed Label 4				R	
C340H-C347H	49985-49992				Module 3 Relay Common Shorted to Normally Closed Label 1				R	
C348H-C34FH	49993-50000				Module 3 Relay Common Shorted to Normally Closed Label 2				R	
C350H-C357H	50001-50008				Module 3 Relay Common Shorted to Normally Closed Label 3				R	
C358H-C35FH	50009-50016				Module 3 Relay Common Shorted to Normally Closed Label 4				R	
C360H-C367H	50017-50024				Module 4 Relay Common Shorted to Normally Closed Label 1				R	
C368H-C36FH	50025-50032				Module 4 Relay Common Shorted to Normally Closed Label 2				R	
C370H-C377H	50033-50040				Module 4 Relay Common Shorted to Normally Closed Label 3				R	
C378H-C37FH	50041-50048				Module 4 Relay Common Shorted to Normally Closed Label 4				R	
C380H-C387H	50049-50056				Module 1 Relay Common Shorted to Normally Opened Label 1				R	
C388H-C38FH	50057-50064				Module 1 Relay Common Shorted to Normally Opened Label 2				R	
C390H-C397H	50065-50072				Module 1 Relay Common Shorted to Normally Opened Label 3				R	
C398H-C39FH	50073-50080				Module 1 Relay Common Shorted to Normally Opened Label 4				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
C3A0H-C3A7H	50081-50088				Module 2 Relay Common Shorted to Normally Opened Label 1				R	
C3Q8H-C3AFH	50089-50096				Module 2 Relay Common Shorted to Normally Opened Label 2				R	
C3B0H-C3B7H	50097-50104				Module 2 Relay Common Shorted to Normally Opened Label 3				R	
C3B8H-C3BFH	50105-50112				Module 2 Relay Common Shorted to Normally Opened Label 4				R	
C3C0H-C3C7H	50113-50120				Module 3 Relay Common Shorted to Normally Opened Label 1				R	
C3C8H-C3CFH	50121-50128				Module 3 Relay Common Shorted to Normally Opened Label 2				R	
C3D0H-C3D7H	50129-50136				Module 3 Relay Common Shorted to Normally Opened Label 3				R	
C3D8H-C3DFH	50137-50144				Module 3 Relay Common Shorted to Normally Opened Label 4				R	
C3E0H-C3E7H	50145-50152				Module 4 Relay Common Shorted to Normally Opened Label 1				R	
C3E8H-C3EFH	50153-50160				Module 4 Relay Common Shorted to Normally Opened Label 2				R	
C3F0H-C3F7H	50161-50168				Module 4 Relay Common Shorted to Normally Opened Label 3				R	
C3F8H-C3FFH	50169-50176				Module 4 Relay Common Shorted to Normally Opened Label 4				R	
	Reserved Block									
C400H-C45FH	50177-50272				Reserved					
	Customizable Modbus Map Settings Block									
C460H-C461H	50273-50274				Line 1, Point 1				R	
C462H-C65FH	50275-50784				Line 2, Point 2 - Line 256, Point 256				R	
	Network Settings 10/100 Card									
	Auto TFTP Download Settings									
C660H	50785				Enable/ Disable					
C661H	50786				TFTP Port					
C662H-C663H	50787-50788				Client IP					
C664H-C665H	50789-50790				Server IP					
C666H-C667H	50791-50792				Default Gateway					
C668H-C669H	50793-50794				Subnet Mask					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
C66AH	50795				Email Mode					
C66BH	50796				FTP Download					
C66CH-C6ABH	50797-50860				Download Filename (128 Bytes)					
	Email Client settings									
C6ACH-C6CBH	50861-50892				Email Server IP Addres / Name (64 bytes)					
C6CCH-C6EBH	50893-50924				Nxs Comm Email Processing Service IP Address / Name (64 bytes)					
C6ECH-C70BH	50925-50956				Return / Reply Address (64 bytes)					
C70CH-C72BH	50957-50988				Email Subject Text (64 Bytes)					
C72CH-C73BH	50989-51004				Email Username (32 Bytes)					
C73CH-C74BH	51005-51020				Email Password (32 Bytes)					
C74CH-C7CBH	51021-51148				Reserved					
C7CCH-C7D3H	51149-51156				Reserved					
	DNP LAN/WAN									
C7D4H	51157				MSB: Mode LSB: Bitmap Set				R	
C7D5H	51158				MSB: UDP Addressing LSB: Validate Source IPs				R	
C7D6H	51159				TCP Listen Port				R	
C7D7H	51160				UDP Listen Port				R	
C7D8H-C7D9H	51161-51162				Valid IP Address 1				R	
C7DAH-C7DBH	51163-51164				Valid IP Address 2				R	
C7DCH-C7DDH	51165-61166				Valid IP Address 3				R	
C7DEH-C7DFH	51167-51168				Valid IP Address 4				R	
C7E0H-C7E1H	51169-51170				Valid IP Subnet Mask 1				R	
C7E2H-C7E3H	51171-51172				Valid IP Subnet Mask 2				R	
C7E4H-C7E5H	51173-51174				Valid IP Subnet Mask 3				R	
C7E6H-C7E7H	51175-51176				Valid IP Subnet Mask 4				R	
C7E8H-C7EBH	51177-51180				TCP Starting Valid Client Ports				R	
C7ECH-C7EFH	51181-51184				TCP Ending Valid Client Ports				R	
C7F0H-C7F3H	51185-51188				UDP Starting Valid Client Ports				R	
C7F4H-C7F7H	51189-51192				UDP Ending Valid Client Ports				R	
C7F8H-C7F9H	51193-51194				Reserved					
C7FAH	51195				UDP Respond Port				R	
C7FBH					Device Address				R	
C7FCH-C7FFH	51196-51200				Reserved					
	Customizable Modbus Map Format Block									

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
C800H	51201				Custom Modbus Point 1 Style / Format				R	
C801H	51202				Custom Modbus Point 1 Unit / Special					
C802H-C9FFH	51203-51712				Custom Modbus Points 2-256 Style / Format and Unit / Special				R	
	Energy Scale Settings									
CA00H	51713				Q1234 VAh/ Q12 VARh			F65		
CA01H	51714				Q34 VARh/ Q14 Wh			F65		
CA02H	51715				Q1 VAh/ Q1 VARh			F65		
CA03H	51716				Q4 VAh/ Q4 VARh			F65		
CA04H	51717				Q23 Wh/ Q2 VAh			F65		
CA05H	51718				Q2 VARh/ Q3 VAh			F65		
CA06H	51719				Q3 VARh/ I^2t Phase A			F65		
CA07H	51720				I^2t Phase B/ I^2t Phase C			F65		
CA08H	51721				V^2t Phase A/ V^2t Phase B			F65		
CA09H	51722				V^2t Phase C/ Q1 Wh			F65		
CA0AH	51723				Q4 Wh/ Q2 Wh			F65		
CA0BH	51724				Q3 Wh/ Q1234 VAh, Uncompensated			F65		
CA0CH	51725				Q12 VARh, Uncompensated/ Q34 VARh, Uncompensated			F65		
CA0DH	51726				Q14 Wh, Uncompensated/ Q23 Wh, Uncompensated			F65		
CA0EH	51727				+Oh/ -Oh			F65		
CA0FH	51728				Q14 Wh Test Mode/ Q1 VAh Test Mode			F65		
CA10H	51729				Q1 VARh Test Mode/ Q4 VAh Test Mode			F65		
CA11H	51730				Q4 VARh Test Mode/ Q23 Wh Test Mode			F65		
CA12H	51731				Q2 VAh Test Mode/ Q2 VARh Test Mode			F65		
CA13H	51732				Q3 VAh Test Mode/ Q3 VARh Test Mode			F65		
CA14H	51733				Pulse Accumulation, Input 1/ Pulse Accumulation Input 2			F65		
CA15H	51734				Pulse Accumulation, Input 3/ Pulse Accumulation Input 4			F65		
CA16H	51735				Pulse Accumulation, Input 5/ Pulse Accumulation Input 6			F65		
CA17H	51736				Pulse Accumulation, Input 7/ Pulse Accumulation Input 8			F65		
CA18H	51737				Pulse Aggregation 1/ Pulse Aggregation 2			F65		
CA19H	51738				Pulse Aggregation 3/ Pulse Aggregation 4			F65		
CA1AH	51739				SYNCH connection (Yes/No 1-255/0) / FVF change per day (1-50)			F47 F49		
CA1BH	51740				Reserved					
CA1CH	51741				TDD Reference Voltage			F7		
CA1DH	51742				TDD Reference Current			F7		
CA1EH-CA94H	51743-51861				Reserved					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
CA95H-CEEFH	51861-52976				Reserved					
	Update Settings Block									
CEF0H-CF6FH	52977-53104				User Memo Field (256 bytes)					
CF70H-CFEFH	53105-53232				Name of User Who Last Updated the Profile (256 bytes)					
CFF0H	53233				Device Profile Version (Year)					
CFF1H	53234				Device Profile Version (Month/ Day)					
CFF2H	53235				Device Profile Version (Build)					
CFF3H	53236				Pro Software ID					
CFF4H-CFF5H	53237-53238				Electro Industries Device Type (Base Unit)					
CFF6H	53239				Electro Industries Device Type (Option 1/ Option 2)					
CFF7H	53240				Electro Industries Device Type (Option 3/ Option 4)					
CFF8H	53241				Update Programming Software Version Number (Major)					
CFF9H	53242				Update Programming Software Version Number (Minor)					
CFFAH	53243				Update Programming Software Version Number (Revision)					
CFFBH-CFFEH	53244-53247				Update Time				R	
CFFFH	53248				Programmable Settings Block Checksum				R	
	12-Bit RTU Block									
D000H	53249				Sanity Rregister			F58	R	
D001H	53250				Phase A Current	+5 A / 0 A	5 / 2048 A sec	F59	R	
D002H	53251				Phase B Current	+5 A / 0 A	5 / 2048 A sec	F59	R	
D003H	53252				Phase C Current	+5 A / 0 A	5 / 2048 A sec	F59	R	
D004H	53253				Phase A-N Voltage	+150 V / 0 V	150 / 2048 V sec	F59	R	
D005H	53254				Phase B-N Voltage	+150 V / 0 V	150 / 2048 V sec	F59	R	
D006H	53255				Phase C-N Voltage	+150 V / 0 V	150 / 2048 V sec	F59	R	
D007H	53256				Total Watt	+1500 W / -1500 W	1500 / 2048 W sec	F59	R	
D008H	53257				Total VAR	+1500 VAR / -1500 VAR	1500 / 2048 VAR sec	F59	R	
D009H	53258				Phase A Watt	+1500 W / -1500 W	1500 / 2048 W sec	F59	R	
D00AH	53259				Phase B Watt	+1500 W / -1500 W	1500 / 2048 W sec	F59	R	
D00BH	53260				Phase C Watt	+1500 W / -1500 W	1500 / 2048 W sec	F59	R	
D00CH	53261				Phase A VAR	+1500 VAR / -1500 VAR	1500 / 2048 VAR sec	F59	R	
D00DH	53262				Phase B VAR	+1500 VAR / -1500 VAR	1500 / 2048 VAR sec	F59	R	
D00EH	53263				Phase C VAR	+1500 VAR / -1500 VAR	1500 / 2048 VAR sec	F59	R	
D00FH-D010H	53264-53265				Reserved					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
D011H	53266				Computed Neutral Current	+5 A / 0 A	5 / 2048 A sec	F59	R	
D012H-D013H	53267-53268				Positive Watthour	+99,999,999 kWh / 0 kWh	1 kWh pri	F60	R	
D014H-D015H	53269-53270				Negative Watthour	0 kWh / +99,999,999 kWh	1 kWh pri	F60	R	
D016H-D017H	53271-53272				Positive VARhour	+99,999,999 kVARh / 0 kVARh	1 kVARh pri	F60	R	
D018H-D019H	53273-53274				Negative VARhour	0 kVARh / +99,999,999 kVARh	1 kVARh pri	F60	R	
D01AH	53275				Frequency	45 Hz / 75 Hz	30 / 4096 Hz	F61	R	
D01BH-D062H	53276-53347				Reserved					
D063H	53348				Energy Reset				W	
	NVRAM Window									
D800H-DFFFH	55296-57344				NVRAM readings (Diagnostic Purpose only)					
	Action Block									
E000H	57345				Log Reset				W	Ch.5
E001H	57346				Maximum Reset				W	
E002H	57347				Minimum Reset				W	
E003H	57348				Energy Reset				W	
E004H	57349				Calibrate 120 V				R/W	
E005H	57350				Calibrate 150 mA				R/W	
E006H	57351				Calibrate 250 mA				R/W	
E007H	57352				Calibrate 500 mA				R/W	
E008H	57353				Calibrate 1 A				R/W	
E009H	57354				Calibrate 2.5 A				R/W	
E00AH	57355				Calibrate 5 A				R/W	
E00BH	57356				Calibrate Automatic				R/W	
E00CH	57357				Calibrate +1 A Phase				R/W	
E00DH	57358				Calibrate -1 A Phase				R/W	
E00EH	57359				Calibrate +1 B Phase				R/W	
E00FH	57360				Calibrate -1 B Phase				R/W	
E010H	57361				Calibrate +1 C Phase				R/W	
E011H	57362				Calibrate -1 C Phase				R/W	
E012H	57363				Calibrate +1 Aux Phase				R/W	
E013H	57364				Calibrate -1 Aux Phase				R/W	
E014H	57365				Start Calibration Mode				R/W	
E015H	57366				Calibrate Manual Gain Adjustment				R/W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
E016H	57367				Activate first time CTPT Compensation				R/W	
E017H	57368				Calibrate Manual Phase Adjustment				R/W	
E018H	57369				Calibrate Multiplier 1x				R/W	
E019H	57370				Calibrate Multiplier 10x				R/W	
E01AH	57371				Calibrate References				R/W	
E01BH	57372				Reset DSP1				R/W	
E01CH	57373				Calibrate Phase at 500 mA				R/W	
E01DH	57374				Calibrate Phase at 1 A				R/W	
E01EH	57375				Calibrate Phase at 5 A				R/W	
E01FH	57376				Calibrate Phase at 10 A				R/W	
E020H	57377				Calibrate Phase at 2.5 A				R/W	
E021H	57378				Preload CTPT compensation values				R/W	
E022H	57379				25 mA Current Calibration Request Flag					
E023H	57380				Internal KYZ Enable				R/W	
E024H	57381				Flicker Enable				R/W	
E025H	57382				Undefined				R/W	
E026H	57383				Calibrate Waveform 120 V				R/W	
E027H	57384				Calibrate Waveform - 5 A				R/W	
E028H	57385				Calibrate Waveform - DC Offset				R/W	
E029H	57386				Reset Time Of Use Current Month				R/W	
E02AH	57387				Manual Waveform Capture				W	
E02BH	57388				Reset Internal Input Accumulations and Aggregations				R/W	
E02CH	57389				Override Data not yet Valid Block				W	
E02DH	57390				Refresh External IO Header Information				R/W	
E02EH	57391				Refresh External IO Programming Information				W	
E02FH	57392				Relay Locking Relay Selection				R/W	
E030H	57393				Relay Locking Action Selection				R/W	
E033H	57396				Reset KYZ Output Accumulations				W	
E034H	57397				Reset Cumulative Demand				W	
E035H	57398				Reset Historical Log 1				W	
E036H	57399				Reset Historical Log 2				W	
E037H	57400				Reset Sequence of Events Log				W	
E038H	57401				Reset Digital Input Log				W	
E039H	57402				Reset Digital Output Log				W	
E03AH	57403				Reset Flicker Log				W	
E03BH	57404				Reset Waveform Log				W	
E03CH	57405				Reset PQ Log				W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
E03DH	57406				Reset System Event Log				W	
E03EH	57407				Reset Total Average Power Factor				W	
E03FH	57408				Reset Time of Use Active Registers				W	
E044H	57413				Power Quality Test (EN-50160/IEC61000-4-30) Re-Start/ Reset Flag				W	
E047H	57416				Copy Dual Port readings to Dual Port Reading Block				W	
E048H	57417				Calibrate Phase at 150 mA					
E049H	57418				Calibrate Phase at 250 mA				R/W	
E04AH	57398				Reset Historical Log 3				W	
E04BH	57399				Reset Historical Log 4					
E04CH	57400				Reset Historical Log 5					
E04DH	57401				Reset Historical Log 6					
E04EH	57402				Reset Historical Log 7					
E04FH	57403				Reset Historical Log 8					
E050H	57404				Reset Event Triggered Log					
E051H	57405				Reset Transient Log					
E052H	57406				Lock Log, write some value different 0x0000 lock all logs to log					
E080H	57473				Reserved				R/W	
E081H	57474				Reserved	-672 / +672	sec / month		R/W	
E082H	57475				Reserved				R/W	
	Factory Calibration Block									
EE00H-EE03H	60929-60932				Factory Calibration Block Timestamp				R	
EE04H-EE07H	60933-60936				Factory Calibration Timestamp				R	
EE08H-EE09H	60937-60938				Gain factor for Van				R	
EE0AH-EE0FH	60939-60944				Gain factors for Vbn, Vcn, Vxn				R	
EE10H-EE11H	60945-60946				Gain Factor for Ia 150 mA				R	
EE12H-EE13H	60947-60948				Gain Factor for Ia 250 mA				R	
EE14H-EE15H	60949-60950				Gain Factor for Ia 500 mA				R	
EE16H-EE17H	60951-60952				Gain Factor for Ia 1 A				R	
EE18H-EE19H	50953-60954				Gain Factor for Ia 2.5 A				R	
EE1AH-EE1BH	60955-60956				Gain Factor for Ia 5 A				R	
EE1CH-EE27H	60957-60968				Gain factors for Ib				R	
EE1CH-EE3FH	60969-60992				Gain factors for Ic, Ix				R	
EE40H	60993				Unused				R	
EE41H	60994				Phase Compensation for Phase A 500 mA				R	
EE42H	60995				Phase Compensation for Phase A 1 A				R	
EE43H	60996				Phase Compensation for Phase A 2.5 A				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
EE44H	60997				Phase Compensation for Phase A 5 A				R	
EE45H	60998				Phase Compensation for Phase A 10 A				R	
EE46H-EE4AH	60999-61003				Phase Compensation for Phase B				R	
EE4BH-EE4FH	61004-61008				Phase Compensation for Phase C				R	
EE50H-EE60H	61009-61025				Unused				R	
EE61H	61026				Calibration Checksum				R	
	CTPT Compensation Calibration Block									
EE62H-EE65H	61027-61030				CTPT Compensation Calibration Block Timestamp				R	
EE66H-EE69H	61031-61034				CTPT Compensation Calibration Timestamp				R	
EE6AH-EE6BH	61035-61036				Gain factor for Van				R	
EE6CH-EE71H	61037-61042				Gain factors for Vbn, Vcn, Vxn				R	
EE72H-EE73H	61043-61044				Gain Factor for Ia 150 mA				R	
EE74H-EE75H	61045-61046				Gain Factor for Ia 250 mA				R	
EE76H-EE77H	61047-61048				Gain Factor for Ia 500 mA				R	
EE78H-EE79H	61049-61050				Gain Factor for Ia 1 A				R	
EE7AH-EE7BH	61051-61052				Gain Factor for Ia 2.5 A				R	
EE7CH-EE7DH	61053-61054				Gain Factor for Ia 5 A				R	
EE7EH-EE89H	61055-61066				Gain factors for Ib				R	
EE8AH-EEA1H	61067-61090				Gain factors for Ic, Ix				R	
EEA2H	61091				Unused				R	
EEA3H	61092				Phase Compensation for Phase A 500 mA				R	
EEA4H	61093				Phase Compensation for Phase A 1 A				R	
EEA5H	61094				Phase Compensation for Phase A 2.5 A				R	
EEA6H	61095				Phase Compensation for Phase A 5 A				R	
EEA7H	61096				Phase Compensation for Phase A 10 A				R	
EEA8H-EEACH	61097-61101				Phase Compensation for Phase B				R	
EEADH-EEB1H	61102-61106				Phase Compensation for Phase C				R	
EEB2H-EEC2H	61107-61123				Unused				R	
EEC3H	61124				Calibration Checksum				R	
	Calibration Modification Block									
EF00H	61185				Calibration Modification Selection				R/W	
EF01H-EF04H	61186-61189				Calibration Timestamp				R/W	
EF05H-EF06H	61190-61191				Gain factor for Van				R/W	
EF07H-EF0CH	61192-61197				Gain factors for Vbn, Vcn, Vxn				R/W	
EF0DH-EF0EH	61198-61199				Gain Factor for Ia 150 mA				R/W	
EF0FH-EF10H	61200-61201				Gain Factor for Ia 250 mA				R/W	
EF11H-EF12H	61202-61203				Gain Factor for Ia 500 mA				R/W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
EF13H-EF14H	61204-61205				Gain Factor for Ia 1 A				R/W	
EF15H-EF16H	61206-61207				Gain Factor for Ia 2.5 A				R/W	
EF17H-EF18H	61208-61209				Gain Factor for Ia 5 A				R/W	
EF19H-EF24H	61210-61221				Gain factors for Ib				R/W	
EF25H-EF3CH	61222-61245				Gain factors for Ic, Ix				R/W	
EF3DH	61246				Unused				R/W	
EF3EH	61247				Phase Compensation for Phase A 500 mA				R/W	
EF3FH	61248				Phase Compensation for Phase A 1 A				R/W	
EF40H	61249				Phase Compensation for Phase A 2.5 A				R/W	
EF41H	61250				Phase Compensation for Phase A 5 A				R/W	
EF42H	61251				Phase Compensation for Phase A 10 A				R/W	
EF43H-EF47H	61252-61256				Phase Compensation for Phase B				R/W	
EF48H-EF4CH	61257-61261				Phase Compensation for Phase C				R/W	
EF4DH-EF5DH	61262-61278				Unused				R/W	
EF5EH	61279				Calibration Checksum				R/W	
EF5FH	61280				Calibration Modification Checksum				R/W	
	Display Parameter Block									
EF60H	61281				contrast, low byte, AND with 0x00FF					
EF61H	61282				volume, low byte, AND with 0x00FF					
EF62H	61283				backlight					
EF63H	61284				calibration, upper left corner X					
EF64H	61285				calibration, upper left corner Y					
EF65H	61286				calibration, upper right corner X					
EF66H	61287				calibration, upper right corner Y					
EF67H	61288				calibration, lower left corner X					
EF68H	61289				calibration, lower left corner Y					
EF69H	61290				calibration, lower right corner X					
EF6AH	61291				calibration, lower right corner Y					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
EF6BH	61292				LCD staus/command Register Bit 0[LSB] - The front panel push button is not pressed=0 The front panel push button is pressed=1 Bit 1 - Written in this register with this bit set to 1 cause the screen jump to calibration screen. If this bit is set to 0, nothing happen Bit 2 - written in this register with this bit set to 1 cause the meter send a command to the touch screen controller to read firmware version and vendor ID. Bit 3-15 - undefined					
EF6CH-EF6D	61293-61294				Touch screen controller version.	9.9.9.9 / 0.0.0.0	0.0.0.1 version	F2	R	
EF6EH	61295				Touch screen last raw x					
EF6FH	61296				Touch screen last raw y					
EF70H	61297				Touch screen last scaled x					
EF71H	61298				Touch screen last scaled y					
EF72H	61299				Touch screen controller verndor ID					
EF73H	61300				MSB - Display Rotation: 0 = 0 degree; 1=90 degree; 2=180 degree; 3=270 degree LSB - Display Language: 1 = English; 2 = Chinese; 3 = Herbrew; 4 = Portuguese; 5 = Spanish; 6 = French					
	File update lock command									
EF74H	61301				Bit 0[LSB] - Lock access to IEC-61850 SCL folder for update Bit 1-15 -undefined Note 01: After the update the meter needs be reset. Note 02: Writting 1 to those bits enable the lock					
	FPGA Transient Block									
EF7CH-EF7EH	61309-61311				Threshold					
EF7FH	61312				Mode					
	DSP2 Info Block									
EF80H-EFFFH	61313-61440				Variation string			F2		
F000H-F269H	61441-62058				Reserved					
	DSP2 Data Export									
F600H	62977				Request Group ID					
F601H	62978				Request Item ID					
F602H	62979-62980				IP Address					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F604H	62981				Port ID					
F605H	62982-62983				Count down time					
F607H	62984				Command					
F608H	62985-62989				Start time					
F60DH	62990-62991				Sequence number					
F60FH	62992				Frame version					
F610H-F61FH	62993-63008				Request list					
					Date/Time Format Settings					
F678H	63097				MSB = Date format (Default = 0) LSB = Time format (Default = 0)				W	
F679H	63098				MSB = Date separator (Default = '-') LSB = Time separator (Default = ':')				W	
F67AH	63099				MSB = Date Year separator (Fixed at SP) LSB = reserved				W	
					DSP1 Health Block					
F680H	63105				Health Block Pos Update Sequence Number				R	
F681H-F684H	63106-63109				Health Block Timestamp				R	
F685H	63110				Health Status (High byte) - Health Block Boot from Scratch Count(Low byte)				R	
F686H	63111				Health Block Boot from Run Count(High byte) - Health Block Boot Init Count(Low byte)				R	
F687H	63112				Health Block Boot Self Reset Count(High byte)-Health Block Boot Reset Request Count(Low byte)				R	
F688H	63113				Health Block Boot No Main Loop Csec				R	
F689H	63114				Health Block Boot No Flash Activity Csec				R	
F68AH	63115				Health Block Run Init Count(High byte)-Health Block Run Self Reset Count(Low byte)				R	
F68BH	63116				Health Block Run Reset Request Count(High byte)-Health Block Process Status Sec(Low byte)				R	
F68CH	63117				Health Block Run Process Status Csec(High byte) - Unused(Low byte)				R	
F68DH	63118				Health Block Checksum				R	
F68EH	63119				Health Block Pre Update Sequence Number				R	
					Installed Board Status provided by Meter					
F690H	63121				Count				R	
F691H-F692H	63122-63123				Board index 1 hardware ID				R	
F693H	63124				Board index 1 status				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F694H-F6F0H	63125-63217				Board index 2-32 hardware ID and status				R	
	Meter I2C Interface									
F700H	63233				I2C Status					
F701H	63234				I2C Command					
F702H-F703H	63235-63236				I2C Hardware ID					
F704H	63237				I2C Device Address					
F705H	63238				I2C Windows Index					
F706H	63239				I2C Data Length					
F707H	63240				I2C Data Checksum					
F708H-F747H	63241-63304				I2C Window					
F7FFH	63488				The least significant byte of this register indicates the jump setting for Ethernet option board : Bit1 Bit0 0 0 -> undefined 0 1 -> NTFI 1 0 -> NTRJ 1 1 -> NTWF				R	
	DSP2 Channel Block 2									
	Multicycle RMS Result Frame 10cycles for 50Hz sytem, 12cycles for 60HZ sytem									
F800H-F803H	63489-63492				Multicycle Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
F804H-F805H	63493-63494				Multicycle RMS Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F806H-F807H	63495-63496				Multicycle RMS Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F808H-F809H	63497-63498				Multicycle RMS Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F80AH-F80BH	63499-63500				Multicycle RMS Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F80CH-F80DH	63501-63502				Multicycle RMS Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F80EH-F80FH	63503-63504				Multicycle RMS Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F810H-F811H	63505-63506				Multicycle RMS Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F812H-F813H	63507-63508				Multicycle RMS Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F814H-F815H	63509-63510				Multicycle RMS Ires Current	-32767.999/+32767.999	Amps	F73	R	
F816H-F817H	63511-63512				Multicycle RMS Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F818H-F819H	63513-63514				Multicycle RMS Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F81AH-F81BH	63515-63516				Multicycle RMS Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F81CH-F81DH	63517-63518				Multicycle RMS Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F81EH-F81FH	63519-63520				Multicycle RMS Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F820H-F821H	63521-63522				Multicycle RMS Phase A Current	-32767.999/+32767.999	Amps	F73	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F822H-F823H	63523-63524				Multicycle RMS Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F824H-F825H	63525-63526				Multicycle RMS Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F826H-F827H	63527-63528				Multicycle RMS Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F828H-F829H	63529-63530				Multicycle MEAN Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F82AH-F82BH	63531-63532				Multicycle MEAN Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F82CH-F82DH	63533-63534				Multicycle MEAN Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F82EH-F82FH	63535-63536				Multicycle MEAN Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F830H-F831H	63537-63538				Multicycle MEAN Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F832H-F833H	63539-63540				Multicycle MEAN Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F834H-F835H	63541-63542				Multicycle MEAN Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F836H-F837H	63543-63544				Multicycle MEAN Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F838H-F839H	63545-63546				Multicycle MEAN Ires Current	-32767.999/+32767.999	Amps	F73	R	
F83AH-F83BH	63547-63548				Multicycle MEAN Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F83CH-F83DH	63549-63550				Multicycle MEAN Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F83EH-F83FH	63551-63552				Multicycle MEAN Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F840H-F841H	63553-63554				Multicycle MEAN Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F842H-F843H	63555-63556				Multicycle MEAN Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F844H-F845H	63557-63558				Multicycle MEAN Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F846H-F847H	63559-63560				Multicycle MEAN Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F848H-F849H	63561-63562				Multicycle MEAN Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F84AH-F84BH	63563-63564				Multicycle MEAN Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F84CH-F84DH	63565-63566				1st reference chanel 0.2sec frequency	0/+32767.999	Hz	F73	R	
F84EH-F84FH	63567-63568				2nd reference chanel 0.2sec frequency	0/+32767.999	Hz	F73	R	
F850H-F851H	63569-63570				3rd reference chanel 0.2sec frequency	0/+32767.999	Hz	F73	R	
F852H-F853H	63571-63572				4th reference chanel 0.2sec frequency	0/+32767.999	Hz	F73	R	
F854H-F854H	63573-63574				5th reference chanel 0.2sec frequency	0/+32767.999	Hz	F73	R	
F856H	63575				1st frequency reference channel, multicycle completed point timeframe number	0/+65535		F51	R	
F857H	63576				2nd frequency reference channel, multicycle completed point timeframe number	0/+65535		F51	R	
F858H	63577				3rd frequency reference channel, multicycle completed point timeframe number	0/+65535		F51	R	
F859H	63578				4th frequency reference channel, multicycle completed point timeframe number	0/+65535		F51	R	
F85AH	63579				5th frequency reference channel, multicycle completed point timeframe number	0/+65535		F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F85BH	63580				1st frequency reference channel, multicycle completed point index number	0/+65535		F51	R	
F85CH	63581				2nd frequency reference channel, multicycle completed point index number	0/+65535		F51	R	
F85DH	63582				3rd frequency reference channel, multicyclecompleted point index number	0/+65535		F51	R	
F85EH	63583				4th frequency reference channel, multicycle completed point index number	0/+65535		F51	R	
F85FH	63584				5th frequency reference channel, multicycle completed point index number	0/+65535		F51	R	
F860H-F861H	63585-63586				Fundamental phase angle Phase A-N Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F862H-F863H	63587-63588				Fundamental phase angle Phase B-N Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F864H-F865H	63589-63590				Fundamental phase angle Phase C-N Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F866H-F867H	63591-63592				Fundamental phase angle Phase A-B Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F868H-F869H	63593-63594				Fundamental phase angle Phase B-C Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F86AH-F86BH	63595-63596				Fundamental phase angle Phase C-A Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F86CH-F86DH	63597-63598				Fundamental phase angle Phase X-N Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F86EH-F86FH	63599-63600				Fundamental phase angle Vres Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F870H-F871H	63601-63602				Fundamental phase angle Ires Current	-327.67/+327.67 degree	0.01 degree	F9	E	
F872H-F873H	63603-63604				Fundamental phase angle Phase A-E Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F874H-F875H	63605-63606				Fundamental phase angle Phase B-E Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F876H-F877H	63607-63608				Fundamental phase angle Phase C-E Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F878H-F879H	63609-63610				Fundamental phase angle Phase X-E Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F87AH-F87BH	63611-63612				Fundamental phase angle Phase N-E Voltage	-327.67/+327.67 degree	0.01 degree	F9	E	
F87CH-F87DH	63613-63614				Fundamental phase angle Phase A Current	-327.67/+327.67 degree	0.01 degree	F9	E	
F87EH-F87FH	63615-63616				Fundamental phase angle Phase B Current	-327.67/+327.67 degree	0.01 degree	F9	E	
F880H-F881H	63617-63618				Fundamental phase angle Phase C Current	-327.67/+327.67 degree	0.01 degree	F9	E	
F882H-F883H	63619-63620				Fundamental phase angle Phase X Current	-327.67/+327.67 degree	0.01 degree	F9	E	
F884H-F885H	63621-63622				Multicycle Fundamental RMS Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F886H-F887H	63623-63624				Multicycle Fundamental RMS Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F888H-F889H	63625-63626				Multicycle Fundamental RMS Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F88AH-F88BH	63627-63628				Multicycle Fundamental RMS Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F88CH-F88DH	63629-63630				Multicycle Fundamental RMS Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F88EH-F88FH	63631-63632				Multicycle Fundamental RMS Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F890H-F891H	63633-63634				Multicycle Fundamental RMS Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F892H-F893H	63635-63636				Multicycle Fundamental RMS Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F894H-F895H	63637-63638				Multicycle Fundamental RMS Ires Current	-32767.999/+32767.999	Amps	F73	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F896H-F897H	63639-63640				Multicycle Fundamental RMS Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F898H-F899H	63641-63642				Multicycle Fundamental RMS Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F89AH-F89BH	63643-63644				Multicycle Fundamental RMS Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F89CH-F89DH	63645-63646				Multicycle Fundamental RMS Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F89EH-F89FH	63647-63648				Multicycle Fundamental RMS Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F8A0H-F8A1H	63649-63650				Multicycle Fundamental RMS Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F8A2H-F8A3H	63651-63652				Multicycle Fundamental RMS Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F8A4H-F8A5H	63653-63654				Multicycle Fundamental RMS Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F8A6H-F8A7H	63655-63656				Multicycle Fundamental RMS Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F8A8H	63657				Symm Comp Phase (Voltage PN) - Zero Sequence	-327.67/+327.67 degree	0.01 degree	F9	E	
F8A9H	63658				Symm Comp Phase (Voltage PN) - Pos Sequence	-327.67/+327.67 degree	0.01 degree	F9	E	
F8AAH	63659				Symm Comp Phase (Voltage PN) - Neg Sequence	-327.67/+327.67 degree	0.01 degree	F9	E	
F8ABH	63660				ref channel update timestamp	0/4294967295		F115	R	
F8ACH-F8ADH	63661-63662				0.2sec Symm Comp Mag (Voltage PN) - Zero Sequence	-32767.999/+32767.999	Volts	F73	R	
F8AEH-F8AFH	63663-63664				0.2sec Symm Comp Mag (Voltage PN) - Pos Sequence	-32767.999/+32767.999	Volts	F73	R	
F8B0H-F8B1H	63665-63666				0.2sec Symm Comp Mag (Voltage PN) - Neg Sequence	-32767.999/+32767.999	Volts	F73	R	
F8B2H-F8B3H	63667-63668				0.2sec Symm Comp Phase (Voltage PN) - Zero Sequence	-32767.999/+32767.999	degree	F73	R	
F8B4H-F8B5H	63669-63670				0.2sec Symm Comp Phase (Voltage PN) - Pos Sequence	-32767.999/+32767.999	degree	F73	R	
F8B6H-F8B7H	63671-63672				0.2sec Symm Comp Phase (Voltage PN) - Neg Sequence	-32767.999/+32767.999	degree	F73	R	
F8B8H-F8B9H	63673-63674				Zero-Crossing Angle channel V1	-327.67/+327.67 degree	0.01 degree	F9	E	
F8BAH-F8BBH	63675-63676				Zero-Crossing Angle channel V2	-327.67/+327.67 degree	0.01 degree	F9	E	
F8BCH-F8BDH	63677-63678				Zero-Crossing Angle channel V3	-327.67/+327.67 degree	0.01 degree	F9	E	
F8BEH-F8BFH	63679-63680				Zero-Crossing Angle channel V4	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C0H-F8C1H	63681-63682				Zero-Crossing Angle channel V5	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C2H	63683				Zero-Crossing Delay channel V1	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C3H	63684				Zero-Crossing Delay channel V2	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C4H	63685				Zero-Crossing Delay channel V3	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C5H	63686				Zero-Crossing Delay channel V4	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C6H	63687				Zero-Crossing Delay channel V5	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C7H	63688				Default Zero-Crossing Delay	-327.67/+327.67 degree	0.01 degree	F9	E	
F8C8H	63689				Underdeviation Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8C9H	63690				Underdeviation Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8CAH	63691				Underdeviation Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8CBH	63692				Underdeviation Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F8CCH	63693				Underdeviation Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F8CDH	63694				Underdeviation Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F8CEH	63695				Overdeviation Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F8CFH	63696				Overdeviation Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8D0H	63697				Overdeviation Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8D1H	63698				Overdeviation Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F8D2H	63699				Overdeviation Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F8D3H	63700				Overdeviation Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F8D4H-F8D5H	63701-63702				Multicycle update timestamp	0/4294967295		F115	R	
F8D6H	63703				Flagging Multicycle RMS Phase A-N Voltage			F75	R	
F8D7H	63704				Flagging Multicycle RMS Phase B-N Voltage			F75	R	
F8D8H	63705				Flagging Multicycle RMS Phase C-N Voltage			F75	R	
F8D9H	63706				Flagging Multicycle RMS Phase A-B Voltage			F75	R	
F8DAH	63707				Flagging Multicycle RMS Phase B-C Voltage			F75	R	
F8DBH	63708				Flagging Multicycle RMS Phase C-A Voltage			F75	R	
F8DCH-F8E1H	63709-63714				Reserved					
F8E2H	63715				Underdeviation 3sec Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E3H	63716				Underdeviation 3sec Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E4H	63717				Underdeviation 3sec Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E5H	63718				Underdeviation 3sec Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E6H	63719				Underdeviation 3sec Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E7H	63720				Underdeviation 3sec Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E8H	63721				Overdeviation 3sec Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8E9H	63722				Overdeviation 3sec Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8EAH	63723				Overdeviation 3sec Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F8EBH	63724				Overdeviation 3sec Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F8ECH	63725				Overdeviation 3sec Phase B-C Voltage	-327.67/+327.67%	0.01%	F10		
F8EDH	63726				Overdeviation 3sec Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F8EEH	63727				3sec Unbalance Counter	0/65536		F51		
F8EFH	63728				3sec Deviation Counter	0/65537		F51		
F8F0H	63729				Phase Sequence			F13		
F8F1H	63730				0.2 sec RMS Phase A-N Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F2H	63731				0.2 sec RMS Phase B-N Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F3H	63732				0.2 sec RMS Phase C-N Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F4H	63733				0.2 sec RMS Phase A-B Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F8F5H	63734				0.2 sec RMS Phase B-C Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F6H	63735				0.2 sec RMS Phase C-A Voltage (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F7H	63736				0.2 sec RMS Phase A Current (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F8H	63737				0.2 sec RMS Phase B Current (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8F9H	63738				0.2 sec RMS Phase C Current (Change comparing to previous value)	-327.67/+327.67%	0.01%	F10	R	
F8FAH-F8FBH	63739-63740				Reserved					
F8FCH-F8FFH	63741-63744				Multicycle Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
	3second RMS Result Frame 150cycles for 50Hz sytem, 180cycles for 60HZ sytem									
F900H-F903H	63745-63748				3 sec Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
F904H-F905H	63749-63750				3 sec RMS Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F906H-F907H	63751-63752				3 sec RMS Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F908H-F909H	63753-63754				3 sec RMS Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F90AH-F90BH	63755-63756				3 sec RMS Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F90CH-F90DH	63757-63758				3 sec RMS Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F90EH-F90FH	63759-63760				3 sec RMS Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F910H-F911H	63761-63762				3 sec RMS Phase X-N Voltage	-32767.999/+32767.999	Amps	F73	R	
F912H-F913H	63763-63764				3 sec RMS Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F914H-F915H	63765-63766				3 sec RMS Ires Current	-32767.999/+32767.999	Amps	F73	R	
F916H-F917H	63767-63768				3 sec RMS Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F918H-F919H	63769-63770				3 sec RMS Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F91AH-F91BH	63771-63772				3 sec RMS Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F91CH-F91DH	63773-63774				3 sec RMS Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F91EH-F91FH	63775-63776				3 sec RMS Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F920H-F921H	63777-63778				3 sec RMS Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F922H-F923H	63779-63780				3 sec RMS Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F924H-F925H	63781-63782				3 sec RMS Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F926H-F927H	63783-63784				3 sec RMS Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F928H-F929H	63785-63786				3 sec MEAN Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F92AH-F92BH	63787-63788				3 sec MEAN Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F92CH-F92DH	63789-63790				3 sec MEAN Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F92EH-F92FH	63791-63792				3 sec MEAN Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F930H-F931H	63793-63794				3 sec MEAN Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F932H-F933H	63795-63796				3 sec MEAN Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F934H-F935H	63797-63798				3 sec MEAN Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F936H-F937H	63799-63800				3 sec MEAN Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F938H-F939H	63801-63802				3 sec MEAN Ires Current	-32767.999/+32767.999	Amps	F73	R	
F93AH-F93BH	63803-63804				3 sec MEAN Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F93CH-F93DH	63805-63806				3 sec MEAN Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F93EH-F93FH	63807-63808				3 sec MEAN Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F940H-F941H	63809-63810				3 sec MEAN Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F942H-F943H	63811-63812				3 sec MEAN Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F944H-F945H	63813-63814				3 sec MEAN Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F946H-F947H	63815-63816				3 sec MEAN Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F948H-F949H	63817-63818				3 sec MEAN Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F94AH-F94BH	63819-63820				3 sec MEAN Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F94CH	63821				1st frequency reference channel, 3s completed point timeframe number	0/+65535		F51	R	
F94DH	63822				2nd frequency reference channel, 3s completed point timeframe number	0/+65535		F51	R	
F94EH	63823				3rd frequency reference channel, 3s completed point timeframe number	0/+65535		F51	R	
F94FH	63824				4th frequency reference channel, 3s completed point timeframe number	0/+65535		F51	R	
F950H	63825				5th frequency reference channel, 3s completed point timeframe number	0/+65535		F51	R	
F951H	63826				1st frequency reference channel, 3s completed point index number	0/+65535		F51	R	
F952H	63827				2nd frequency reference channel, 3s completed point index number	0/+65535		F51	R	
F953H	63828				3rd frequency reference channel, 3s completed point index number	0/+65535		F51	R	
F954H	63829				4th frequency reference channel, 3s completed point index number	0/+65535		F51	R	
F955H	63830				5th frequency reference channel, 3s completed point index number	0/+65535		F51	R	
F956H-F959H	63831-63834				10 min Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
F95AH-F95BH	63835-63836				10 min RMS Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F95CH-F95DH	63837-63838				10 min RMS Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F95EH-F95FH	63839-63840				10 min RMS Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F960H-F961H	63841-63842				10 min RMS Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F962H-F963H	63843-63844				10 min RMS Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F964H-F965H	63845-63846				10 min RMS Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F966H-F967H	63847-63848				10 min RMS Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F968H-F969H	63849-63850				10 min RMS Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F96AH-F96BH	63851-63852				10 min RMS Ires Current	-32767.999/+32767.999	Amps	F73	R	
F96CH-F96DH	63853-63854				10 min RMS Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F96EH-F96FH	63855-63856				10 min RMS Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F970H-F971H	63857-63858				10 min RMS Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F972H-F973H	63859-63860				10 min RMS Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F974H-F975H	63861-63862				10 min RMS Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F976H-F977H	63863-63864				10 min RMS Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F978H-F979H	63865-63866				10 min RMS Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F97AH-F97BH	63867-63868				10 min RMS Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F97CH-F97DH	63869-63870				10 min RMS Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F97EH	63871				1st frequency reference channel, 10min completed point timeframe number	0/+65535		F51	R	
F97FH	63872				2nd frequency reference channel, 10min completed point timeframe number	0/+65535		F51	R	
F980H	63873				3rd frequency reference channel, 10min completed point timeframe number	0/+65535		F51	R	
F981H	63874				4th frequency reference channel, 10min completed point timeframe number	0/+65535		F51	R	
F982H	63875				5th frequency reference channel, 10min completed point timeframe number	0/+65535		F51	R	
F983H	63876				1st frequency reference channel, 10min completed point index number	0/+65535		F51	R	
F984H	63877				2nd frequency reference channel, 10min completed point index number	0/+65535		F51	R	
F985H	63878				3rd frequency reference channel, 10min completed point index number	0/+65535		F51	R	
F986H	63879				4th frequency reference channel, 10min completed point index number	0/+65535		F51	R	
F987H	63880				5th frequency reference channel, 10min completed point index number	0/+65535		F51	R	
F988H-F98BH	63881-63884				2 hour Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
F98CH-F98DH	63885-63886				2 hour RMS Phase A-N Voltage	-32767.999/+32767.999	Volts	F73	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F98EH-F98FH	63887-63888				2 hour RMS Phase B-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F990H-F991H	63889-63890				2 hour RMS Phase C-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F992H-F993H	63891-63892				2 hour RMS Phase A-B Voltage	-32767.999/+32767.999	Volts	F73	R	
F994H-F995H	63893-63894				2 hour RMS Phase B-C Voltage	-32767.999/+32767.999	Volts	F73	R	
F996H-F997H	63895-63896				2 hour RMS Phase C-A Voltage	-32767.999/+32767.999	Volts	F73	R	
F998H-F999H	63897-63898				2 hour RMS Phase X-N Voltage	-32767.999/+32767.999	Volts	F73	R	
F99AH-F99BH	63899-63900				2 hour RMS Vres Voltage	-32767.999/+32767.999	Volts	F73	R	
F99CH-F99DH	63901-63902				2 hour RMS Ires Current	-32767.999/+32767.999	Amps	F73	R	
F99EH-F99FH	63903-63904				2 hour RMS Phase A-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F9A0H-F9A1H	63905-63906				2 hour RMS Phase B-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F9A2H-F9A3H	63907-63908				2 hour RMS Phase C-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F9A4H-F9A5H	63909-63910				2 hour RMS Phase X-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F9A6H-F9A7H	63911-63912				2 hour RMS Phase N-E Voltage	-32767.999/+32767.999	Volts	F73	R	
F9A8H-F9A9H	63913-63914				2 hour RMS Phase A Current	-32767.999/+32767.999	Amps	F73	R	
F9AAH-F9ABH	63915-63916				2 hour RMS Phase B Current	-32767.999/+32767.999	Amps	F73	R	
F9ACH-F9ADH	63917-63918				2 hour RMS Phase C Current	-32767.999/+32767.999	Amps	F73	R	
F9AEH-F9AFH	63919-63920				2 hour RMS Phase X Current	-32767.999/+32767.999	Amps	F73	R	
F9B0H	63921				1st frequency reference channel, 2hour completed point timeframe number	0/+65535		F51	R	
F9B1H	63922				2nd frequency reference channel, 2hour completed point timeframe number	0/+65535		F51	R	
F9B2H	63923				3rd frequency reference channel, 2hour completed point timeframe number	0/+65535		F51	R	
F9B3H	63924				4th frequency reference channel, 2hour completed point timeframe number	0/+65535		F51	R	
F9B4H	63925				5th frequency reference channel, 2hour completed point timeframe number	0/+65535		F51	R	
F9B5H	63926				1st frequency reference channel, 2hour completed point index number	0/+65535		F51	R	
F9B6H	63927				2nd frequency reference channel, 2hour completed point index number	0/+65535		F51	R	
F9B7H	63928				3rd frequency reference channel, 2hour completed point index number	0/+65535		F51	R	
F9B8H	63929				4th frequency reference channel, 2hour completed point index number	0/+65535		F51	R	
F9B9H	63930				5th frequency reference channel, 2hour completed point index number	0/+65535		F51	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F9BAH-F9BBH	63931-63932				3sec update timestamp	0/4294967295		F115	R	
F9BCH-F9BDH	63933-63934				10min update timestamp	0/4294967295		F115	R	
F9BEH-F9BFH	63935-63936				2hour update timestamp	0/4294967295		F115	R	
F9C0H	63937				Flagging 3sec RMS Phase A-N Voltage			F75	R	
F9C1H	63938				Flagging 3sec RMS Phase B-N Voltage			F75	R	
F9C2H	63939				Flagging 3sec RMS Phase C-N Voltage			F75	R	
F9C3H	63940				Flagging 3sec RMS Phase A-B Voltage			F75	R	
F9C4H	63941				Flagging 3sec RMS Phase B-C Voltage			F75	R	
F9C5H	63942				Flagging 3sec RMS Phase C-A Voltage			F75	R	
F9C6H	63943				Flagging 10min RMS Phase A-N Voltage			F75	R	
F9C7H	63944				Flagging 10min RMS Phase B-N Voltage			F75	R	
F9C8H	63945				Flagging 10min RMS Phase C-N Voltage			F75	R	
F9C9H	63946				Flagging 10min RMS Phase A-B Voltage			F75	R	
F9CAH	63947				Flagging 10min RMS Phase B-C Voltage			F75	R	
F9CBH	63948				Flagging 10min RMS Phase C-A Voltage			F75	R	
F9CCH	63949				Flagging 2hour RMS Phase A-N Voltage			F75	R	
F9CDH	63950				Flagging 2hour RMS Phase B-N Voltage			F75	R	
F9CEH	63951				Flagging 2hour RMS Phase C-N Voltage			F75	R	
F9CFH	63952				Flagging 2hour RMS Phase A-B Voltage			F75	R	
F9D0H	63953				Flagging 2hour RMS Phase B-C Voltage			F75	R	
F9D1H	63954				Flagging 2hour RMS Phase C-A Voltage			F75	R	
F9D2H-F9DDH	63955-63966				Reserved					
F9DEH	63967				Underdeviation 10min RMS Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9DFH	63968				Underdeviation 10min RMS Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E0H	63969				Underdeviation 10min RMS Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E1H	63970				Underdeviation 10min RMS Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E0H	63971				Underdeviation 10min RMS Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E3H	63972				Underdeviation 10min RMS Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E4H	63973				Overdeviation 10min RMS Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E5H	63974				Overdeviation 10min RMS Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E6H	63975				Overdeviation 10min RMS Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E7H	63976				Overdeviation 10min RMS Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E8H	63977				Overdeviation 10min RMS Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F9E9H	63978				Overdeviation 10min RMS Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F9EAH	63979				Underdeviation 2hour RMS Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9EBH	63980				Underdeviation 2hour RMS Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9ECH	63981				Underdeviation 2hour RMS Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
F9EDH	63982				Underdeviation 2hour RMS Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F9EEH	63983				Underdeviation 2hour RMS Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F9EFH	63984				Underdeviation 2hour RMS Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F0H	63985				Overdeviation 2hour RMS Phase A-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F1H	63986				Overdeviation 2hour RMS Phase B-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F2H	63987				Overdeviation 2hour RMS Phase C-N Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F3H	63988				Overdeviation 2hour RMS Phase A-B Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F4H	63989				Overdeviation 2hour RMS Phase B-C Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F5H	63990				Overdeviation 2hour RMS Phase C-A Voltage	-327.67/+327.67%	0.01%	F10	R	
F9F6H	63991				10min RMS Counter	0/65535		F51	R	
F9F7H	63992				10min Unbalance Counter	0/65536		F51	R	
F9F8H	63993				10min Deviation Counter	0/65537		F51	R	
F9F9H	63994				2hour RMS Counter	0/65538		F51	R	
F9FAH	63995				2hour Unbalance Counter	0/65539		F51	R	
F9FBH	63996				2hour Deviation Counter	0/65540		F51	R	
F9FCH-F9FFH	63997-64000				2 hour Update RTC Timestamp	12/31/9999 23:59:59.99	10 msec	F3	R	
FA00H-FAFFH	64001-64256				waveform RMS, DSP2 channel 137					
FB20H-FBFFH	64289-64312				waveform capture diagnostic info					
FC00H-FC33H	64513-64564				waveform calibration					
	General Meter Information Block									
FD00H-FD01H	64769-64770				information COMM runtime firmware build (Minor). See also register 0x0048-0x0049 for Major					
FD02H-FD06H	64771-64775				information DSP					
FD07H-FD08H	64776-64777				information COMM BOOT firmware build (Minor). See also register 0x004A-0x004B for Major					
FD40H	64833				FPGA sport status					
FD41H-FD42H	64834-64835				COMM runtime total number of start				R	
FD43H-FD44H	64836-64837				COMM runtime watchdog count				R	
FD45H	64838				COMM-DSP1 param update counter				R	
FD46H	64839				COMM-FPGA load counter				R	
FD47H	64840				COMM-DSP1 param update counter A				R	
FD48H	64841				Modbus TCP (1st/2nd Ethernet Board) connection status: lsb bit-0 is for 1st connection, 0=connection used or N/A, 1=connection is free.			F112	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
FD49H	64842				Modbus TCP (2nd Ethernet Board/TBD) connection status: lsb bit-0 is for 1st connection, 0=connection used or N/A, 1=connection is free.			F112	R	
FD4AH-FD4BH	64843-64844				Indicates if the logs are paused/running. 0 means log are running otherwise logs are paused. Bit 0[LSB]0 = Historical 1 Bit 1 = Historical 2 Bit 2 = Sequence of Event (Limit) Bit 3 = Digital Input Bit 4 = Digital Output Bit 5 = Flicker Bit 6 = Waveform Bit 7 = System Events Bit 8 = Transients Bit 9 = PQ Bit 10 = Interval Log 3 Bit 11 = Interval Log 4 Bit 12 = Interval Log 5 Bit 13 = Interval Log 6 Bit 14 = Interval Log 7 Bit 15 = Interval Log 8 Bit 16 = Event Triggered Bit 17 = EN50160			F113	R	
FD50H-FD51H	64849-64850				EN50160 Invalid Setting Code, bits.			F113	R	
FD80H-FDFFH	64897-65024				Processor Identifications					
					Operational Communication Settings Block					
FE00H	65025				Operational Address, Port 4 (I/O)				R	
FE01H	65026				Operational Protocol & Baud Rate, Port 4 (I/O)				R	
FE02H	65027				Operational Parity & Stop Bits, Port 4 (I/O)				R	
FE03H	65028				Operational Data Bits & Response Delay, Port 4(I/O)				R	
FE04H	65029				Operational Address, Port 3				R	
FE05H	65030				Operational Protocol & Baud Rate, Port 3				R	
FE06H	65031				Operational Parity & Stop Bits, Port 3				R	
FE07H	65032				Operational Data Bits & Response Delay, Port 3				R	
FE08H	65033				Operational Address, Port 2				R	
FE09H	65034				Operational Protocol & Baud Rate, Port 2				R	
FE0AH	65035				Operational Parity & Stop Bits, Port 2				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
FE0BH	65036				Operational Data Bits & Response Delay, Port 2				R	
FE0CH	65037				Operational Address, Port 1 (232/485)				R	
FE0DH	65038				Operational Protocol & Baud Rate, Port 1 (232/485)				R	
FE0EH	65039				Operational Parity & Stop Bits, Port 1 (232/485)				R	
FE0FH	65040				Operational Data Bits & Response Delay, Port 1 (232/485)				R	
	Diagnostic Block									
FE10H-FE12H	65041-65043				Data Valid Bits				R	
	Compact Flash Block									
FE13H-FE16H	65044-65047				Size (MSB)			F55		
FE17H-FE20H	65048-65057				Serial Number: ASCII, right justified, with no null string terminator			F2		
FE21H-FE24H	65058-65061				FAT Type: ASCII, right justified, with no null string terminator			F2		
FE25H-FE38H	65062-65081				Model Number: ASCII, left justified, with no null string terminator			F2		
FE39H-FE3EH	65082-65087				Reserved					
	Device Identification Block 2									
FE3FH	65088				FPGA Version			F112	R	
FE40H-FE47H	65089-65096				Nexus Comm Boot Firmware Variation String 1			F1	R	
FE48H-FE4FH	65097-65104				Nexus Comm Boot Firmware Variation String 2			F1	R	
FE50H-FE57H	65105-65112				Nexus Comm Boot Firmware Variation String 3			F1	R	
FE58H-FE5FH	65113-65120				Nexus Comm Boot Firmware Variation String 4			F1	R	
FE60H-FE67H	65121-65128				Nexus Comm Boot Firmware Variation String 5			F1	R	
FE68H-FE6FH	65129-65136				Nexus Comm Boot Firmware Variation String 6			F1	R	
FE70H-FE77H	65137-65144				Nexus Comm Boot Firmware Variation String 7			F1	R	
FE78H-FE7FH	65145-65152				Nexus Comm Boot Firmware Variation String 8			F1	R	
FE80H-FE87H	65153-65160				Nexus DSP Boot Firmware Variation String 1			F1	R	
FE88H-FE8FH	65161-65168				Nexus DSP Boot Firmware Variation String 2			F1	R	
FE90H-FE97H	65168-65176				Nexus DSP Boot Firmware Variation String 3			F1	R	
FE98H-FE9FH	65177-65184				Nexus DSP Boot Firmware Variation String 4			F1	R	
FEA0H-FEA7H	65185-65192				Nexus DSP Boot Firmware Variation String 5			F1	R	
FEA8H-FEAFH	65193-65200				Nexus DSP Boot Firmware Variation String 6			F1	R	
FEB0H-FEB7H	65201-65208				Nexus DSP Boot Firmware Variation String 7			F1	R	
FEB8H-FEBFH	65209-65216				Nexus DSP Boot Firmware Variation String 8			F1	R	
FEC0H-FEC7H	65217-65224				Nexus DSP Run-Time Firmware Variation String 1			F1	R	
FEC8H-FECFH	65225-65232				Nexus DSP Run-Time Firmware Variation String 2			F1	R	
FED0H-FED7H	65233-65240				Nexus DSP Run-Time Firmware Variation String 3			F1	R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
FED8H-FEDFH	65241-65248				Nexus DSP Run-Time Firmware Variation String 4			F1	R	
FEE0H-FEE7H	65249-65256				Nexus DSP Run-Time Firmware Variation String 5			F1	R	
FEE8H-FEEFH	65257-65264				Nexus DSP Run-Time Firmware Variation String 6			F1	R	
FEF0H-FEF7H	65265-65272				Nexus DSP Run-Time Firmware Variation String 7			F1	R	
FEF8H-FEFFH	65273-65280				Nexus DSP Run-Time Firmware Variation String 8			F1	R	
	DSP1 Diagnostic Block									
FF00H-FF1FH	65281-65312				DSP Diagnostic				R	
	Password Block									
FF23H-FF27H	65316-65320				Level 1/Level 2 User Password	Fixed Length String			W	Ch.8.106
FF28H	65321				Level 1/Level 2 Password State	Enumeration			R	Ch.8.106
FF29H	65322				Sealing Switch State	Enumeration			R	Ch.8.106
FF2A-FF2C	65323-65325				Reserved	Enumeration			R	
FF2DH	65326				Level 1/Level 2 Password Lock	Enumeration			R/W	Ch.8.106
FF2EH	65327				Password Sequence/Status	Enumeration			R	Ch.8.106
FF2FH	65328				Password Command	Enumeration			R/W	Ch.8.106
FF30H-FF32H	65329-65331				Reserved					
FF33H-FF37H	65332-65336				New Password A	Fixed Length String			W	Ch.8.106
FF38H-FF3AH	65337-65339				Reserved					
FF3BH-FF3FH	65340-65344				New Password B	Fixed Length String			W	Ch.8.106
	Dynamic Configuration Block									
FF40H	65345				NVRAM Configuration				R	
FF41H	65346				Current Time State: Time Source, DST, Coldload Status. b7:IRIG-B, b6:DST,b5:Line Sync,b4:Coldload, Yes/No 1/0				R	
FF42H	65347				Network Card				R	
FF43H	65348				Reserved					
FF44H	65349				Sealing Switch Installed	Enumeration			R	
FF45H	65350				Vswitch state				R	
	Hardware Options Block									
FF50H	65361				Form / 4 KYZ				R	
FF51H	65362				Com Port 4 / Com Port 3				R	
FF52H	65363				Com Port 2 / Com Port 1				R	
FF53H	65364				1 Amp / 300 V				R	
FF54H	65365				Reserved				R	
FF55H	65366				OEM model/ Freq Range (Software use only)				R	
FF56H	65367				Reserved				R	
FF57H	65368				Reserved				R	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
	Reserved Status Block									
FF60H	65377				Reserved				R	
FF61H	65378				Reserved				R	
FF62H	65379				Reserved	0 / +672	sec / month		R	
FF63H	65380				Reserved	-672 / +672	sec / month		R	
	Tiny Encryption Input Block									
FF68H-FF6FH	65385-65392				Tiny Encryption Input Registers				R/W	
	Flash Control Block									
FF80H	65409				Nexus Comm Operation Indicator (B15-B0). The fourth bit is used to indicate if the meter is either in boot (set to 1) or runtime mode (set to 0). The bits into this register have different meaning, depends which mode the meter is. Bit 0 [LSB] 1 = COMM error (checksum/not found/read). (N/A to RUNTIME). Bit 1 1 = Programmable Setting error (checksum/not found/read). Bit 2 1 = CF not found/discovered Bit 3 1 = Forced be into boot mode using default communication setting. (N/A to RUNTIME). Bit 4 Indicating is in COMM boot or Runtime, 1=in boot, 0= in runtime Bit 5 1 = FPGA firmware error (checksum/loading/not found/read). Bit 6 1 = DSP2 firmware error (checksum/not found/read). Bit 7 1 = Generic memory test failed. (N/A to RUNTIME). Bit 8 1 = COMM internal memory test failed. (N/A to RUNTIME). Bit 9 1 = File system failed. (N/A to RUNTIME). Bit 10 1 = Logging stopped due to invalid log folder/files Bit 11 1 = Running/Pause folder error. (N/A to BOOT) Bit 12 1 = Scan board failure (N/A to runtime)			F112	R	
FF81H	65410				Nexus Comm FLASH Sequence & Status / FLASH Command(WR)				R	
FF82H	65411				FLASH Locked Port				R/W	Ch.5
FF83H	65412				Nexus Comm FLASH Code Checksum	65535 / 0	1		R/W	
FF84H	65413				Nexus Comm FLASH Programmable Settings Checksum	65535 / 0	1		R/W	

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
FF85H	65414				Nexus DSP Operation Indicator (Read only in Runtime): COMM's initial DSP1 health status value is 0x8000, where the bit-15 is undefined/unused by DSP1. COMM uses this bit to indicate it has not received valid health status value from DSP1 after a startup. Once this bit is cleared, it could not be set again until a new system restart.				R	
FF86H	65415				Nexus DSP FLASH Sequence & Status / FLASH Command				R	
FF87H	65416				Nexus DSP FLASH Code Checksum	65535 / 0	1		R/W	
FF88H	65417				Port To Port Communications, RS-485 Port 2				R/W	
FF89H	65418				Port To Port Communications, RS-485 Port 1				R/W	
FF8AH	65419				Port To Port Communications, USB serial				R/W	
FF8BH	65420				Port To Port Communications, Optical				R/W	
FF8CH	65421				Port To Port Communications, Reserved				R/W	
FF90H-FF91H	65425-65426				Additional meter status bits (Available when Bit 15 on 0xFF80 register is set). 1st 4-bytes group. Bit 31[MSB] = 1 (Invalid waveform calibration) Bit 30 = 1 (Invalid profile settings for PQ/Waveform) Possible error conditions 1) Waveform capture sample per cycle rate is invalid 2) Sample reduction factor does not match sample per cycle 3) Mismatch between transfer channels and transient setting Bit 29 = 1 (Invalid NV Memory) Bit 28-10 = Not defined Bit 11 = 1 (IEC-61850 server stop running because not valid nx1500.cid file) Bit 10 = 1 (IEC-61850 server stop running because fail to allocate memory) Bit 9 = 1 (IEC-61850 server running using default's nx1500.cid file) Bit 8 = 1 (IEC-61850 server running using nx1500.cid file with mismatch IP) Bit 7-0 = Not defined					
FF92H-FFAFH	65427-65456				Additional meter status bits: 2nd/16th 4-bytes group.					
FFB0H-FFBFH	65457-65472				Meter Reserved					
FFDCH	65501				DSP Boot FLASH Manufacturer ID/ Device ID (Boot Mode Only)					

Addr. (hex)	Address(4X)	Line	Pt	DNP Obj	Description	Range	Units	Type	R/W	Notes
FFDDH	65502				DSP Run FLASH Manufacturer ID/ Device ID (Boot Mode Only)					
FFDEH	65503				DSP Boot & Run FLASH Sector Protect Status (Boot Mode Only)				W	
FFDFH	65504				DSP Boot & Run FLASH chip test results (Boot Mode Only)				W	
	Update Information Block									
FFE0H	65505				Update status					
FFE1H	65506				Update error code					
FFE2H-FFE5H	65507-65510				file data time					
FFE6H	65511				file checksum					
	Meter Restart									
FFFAH	65531				Complete Meter Restart Command - write 0x0001					
FFFBH	65532				Reserved					
	Meter Serial Number									
FFFCH-FFFFH	65533-65536				Meter Serial Number	9,999,999,999,999,999 / 0	1		R	16-digit Packed BCD

The map below is from the Input Registers of the Modbus Map.

Addr. (hex)	Address(3X)	Line	Pt	DNP Obj	Description	Range	Units	Type
8606H-8607H	34311-34312	10309	0		3 sec Symm Comp Mag (Current PN) - Zero Sequence	-32767.999/+32767.999	Amp	F73
8608H-8609H	34313-34314	10309	1		3 sec Symm Comp Mag (Current PN) - Pos Sequence	-32767.999/+32767.999	Amp	F73
860AH-860BH	34315-34316	10309	2		3 sec Symm Comp Mag (Current PN) - Neg Sequence	-32767.999/+32767.999	Amp	F73
860CH-860DH	34317-34318	10310	0		10 min Symm Comp Mag (Current PN) - Zero Sequence	-32767.999/+32767.999	Amp	F73
860EH-860FH	34319-34320	10310	1		10 min Symm Comp Mag (Current PN) - Pos Sequence	-32767.999/+32767.999	Amp	F73
8610H-8611H	34321-34322	10310	2		10 min Symm Comp Mag (Current PN) - Neg Sequence	-32767.999/+32767.999	Amp	F73
8612H	34323	10311	0		3 sec Symm Comp Phase (Current PN) - Zero Sequence	-327.67/+327.67	degree	F69
8613H	34324	10311	1		3 sec Symm Comp Phase (Current PN) - Pos Sequence	-327.67/+327.67	degree	F69
8614H	34325	10311	2		3 sec Symm Comp Phase (Current PN) - Neg Sequence	-327.67/+327.67	degree	F69
8615H	34326	10312	0		10 min Symm Comp Phase (Current PN) - Zero Sequence	-327.67/+327.67	degree	F69
8616H	34327	10312	1		10 min Symm Comp Phase (Current PN) - Pos Sequence	-327.67/+327.67	degree	F69
8617H	34328	10312	2		10 min Symm Comp Phase (Current PN) - Neg Sequence	-327.67/+327.67	degree	F69
8618H-8619H	34329-34330	10313	0		3 sec Symm Comp Ratio (Current PN) - Zero Sequence	0/65535.9999	(1/65536*100)%	F103
861AH-861BH	34331-34332	10313	1		3 sec Symm Comp Ratio (Current PN) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103
861CH-861DH	34333-34334	10313	2		3 sec Symm Comp Ratio (Current PP) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103
861EH-861FH	34335-34336	10314	0		10 min Symm Comp Ratio (Current PN) - Zero Sequence	0/65535.9999	(1/65536*100)%	F103
8620H-8621H	34337-34338	10314	1		10 min Symm Comp Ratio (Current PN) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103
8622H-8623H	34339-34340	10314	2		10 min Symm Comp Ratio (Current PP) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103
8624H-8625H	34341-34342	10315	0		2 hour Symm Comp Ratio (Current PN) - Zero Sequence	0/65535.9999	(1/65536*100)%	F103
8626H-8627H	34343-34344	10315	1		2 hour Symm Comp Ratio (Current PN) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103
8628H-8629H	34345-34346	10315	2		2 hour Symm Comp Ratio (Current PP) - Neg Sequence	0/65535.9999	(1/65536*100)%	F103

Chapter 3
Communication Data Formats

This chapter expands upon information listed in the Nexus® 1500 meter's 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:

Address	00001		00002		00003		00004		00005		00006		00007		00008	
Value	3031H		3037H		2043H		6578H		7573H		2031H		3530H		3200H	
Bytes	30H	31H	30H	37H	20H	43H	65H	78H	75H	73H	20H	31H	35H	30H	30H	00H
ASCII	'0'	'1'	'0'	'7'	"	'N'	'e'	'x'	'u'	's'	"	'1'	'5'	'0'	'0'	Null
Register	"01"		"07"		"N"		"ex"		"us"		"1"		"50"		"0"	
String	"0107 Nexus 1500"															

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:

Address	00073		00074	
Value	3030H		3134H	
Bytes	30H	30H	31H	31H
ASCII	'0'	'0'	'1'	'1'
Register	"00"		"14"	
String	"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:

Address	00081		00082		00083		00084	
Value	1404H		0619H		0913H		3056H	
Bytes	14H	04H	06H	19H	09H	13H	30H	56H
Decimal	20	04	6	25	9	19	48	86
Unit	Century	Year	Month	Date	Hour	Minute	Second	10 Millisecond
Date	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 the Week**	**Value**	**Day of the Week**
0001H	Sunday	**0005H**	Thursday
0002H	Monday	**0006H**	Friday
0003H	Tuesday	**0007H**	Saturday
0004H	Wednesday		

3.5: Type F5 Not used by the Nexus® 1500 meter

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.

Address	00118															
Value	0461H															
Bytes	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
Meaning	_	_	_	_	_	Change	_	_	Clsd	Opn	Opn	Clsd	Clsd	Clsd	Clsd	Opn
Interpretation	Inputs 7, 6, and ,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:

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

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

Address	00153	00154
Value	FFFEH	C000H
4-byte signed integer (Hex)	FFFEC000H	
Most significant bit	1	
Compliment	00013FFFH	
Increment	00014000H	
4-byte integer (Decimal)	-81920	
1/65536 VAR Secondary	-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	0.0000	01F4H	500	0.500	03E7H	999	0.999
4	03E8H	1000	1.000	05DCH	1500	0.500	07CFH	1999	0.001
3	07D0H	2000	0.0000	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 data shown on the right:

Address	00171
Value	0C10H
Decimal	3088
PF	Q2, 0.912

Example:

Register 00171, Tenth second Phase A Power Factor, might contain the data: shown on the right:

Address	00171
Value	0390H
Decimal	912
PF	Q1, 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:

Address	00175
Value	08BBH
Most significant bit	0
Decimal	+2235
Angle	+22.35 Degrees

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

Address	00175
Value	F745H
Most significant bit	1
Compliment	08BAH
Increment	08BBH
Decimal	-2235
Angle	-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:

Address	00234
Value	08BBH
Most significant bit	0
Decimal	+2235
Percent	+22.35 %

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

Address	00234
Value	F745H
Most significant bit	1
Compliment	08BAH
Increment	08BBH
Decimal	-2235
Percent	-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:

Address	00982				00983				00984				00985			
Value	000H				0001H				0534H				1284H			
Bytes	00H		00H		00H		01H		05H		34H		12H		84H	
Nibbles	0H	0H	0H	0H	0H	0H	0H	1H	0H	5H	3H	4H	1H	2H	8H	4H
Digit	0	0	0	0	0	0	0	1	0	5	3	4	1	2	8	4
Unit	P	T			G		M				k					
VAh	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:

Address	01002	01003	01004	01005
Value	0000H	0000H	0647H	6164H
8-byte unsigned integer (Hex)	0000000006476164H			
Decimal	105341284			
VAh	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, Communicator EXT 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:

Address	02769															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Points	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Passed	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	No	No	No	Yes
Interpretation	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:

Address	02773															
Value	5100H															
Bytes	51H								00H							
Bits	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0
									Undefined							
Input	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
Meaning	Clsd	Opn	Clsd	Opn	Clsd	Clsd	Clsd	Opn								
Interpretation	Inputs 7, 5, and 1 are open; all other inputs are closed.															

3.17: Type F17 Digital Input States in Digital Input Option Board

- 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 Digital Inputs in a Digital Input Option board, 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 0AD5H, Digital Input States, Digital Input Option board in Slot 3, might contain the following data:

Address (Hex)	0AD5H															
Value	5100H															
Bytes	51H								00H							
Bits	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Digital Input States								Undefined							
Input	8	7	6	5	4	3	2	1								
Meaning	Closed	Open	Closed	Open	Closed	Closed	Closed	Open								
Interpretation	Inputs 7, 5 and 1 are open; all other inputs are closed.															

3.18: Type F18 Digital Input Option Board Input Accumulation / Cumulative Demand

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

Example:

Registers 0AD6H-0AD7H, Input Accumulation 1, Digital Input Option Board in slot 3, might contain the following data:

Addr (Hex)	0AD6H	0AD7H
Value	0647H	6164H
4 byte unsigned integer	06476164H	
Decimal	105341284	
Accumulated Transitions	105,341,284 Accumulated Transitions	

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

- Length: 4 Registers (8 bytes)
- Range: 9,999,999,999,999,999/0 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:

Address	02850				02851				02852				02853			
Value	000H				0001H				0534H				1284H			
Bytes	00H		00H		00H		01H		05H		34H		12H		84H	
Nibbles	0H	0H	0H	0H	0H	0H	0H	1H	0H	5H	3H	4H	1H	2H	8H	4H
Digit	0	0	0	0	0	0	0	1	0	5	3	4	1	2	8	4
Unit	P	T			G		M		k							
VAh	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:

Address	02898	02899	02900	02901
Value	0000H	0000H	0647H	6164H
8-byte unsigned integer	0000000006476164H			
Decimal	105341284			
VAh	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:

Address	34821	
Value	1363H	
Bytes	13H	63H
Decimal	19	99
Unit	Century	Year
Date	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**	**Value(Hex)**	**Profile**
00H	Profile1	08H	Profile9
01H	Profile2	09H	Profile10
02H	Profile2	010H	Profile11
03H	Profile3	011H	Profile12
04H	Profile4	012H	Profile13
05H	Profile5	013H	Profile14
06H	Profile6	014H	Profile15
07H	Profile7	015H	Profile16

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

Address	34954	
Value	0305H	
Bytes	03H	05H
Decimal	3	5
Meaning	Profile 3	Profile 5
Day	March 4	March 5
Day (Leap Year)	March 3	March 4
Meaning	Profile 3 on March 4	Profile 5 on March 5
Meaning (Leap Year)	Profile 3 on March 3	Profile 5 on March 4

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:

Address	35107
Value	0001H
Decimal	1
Meaning	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:

Address	35108			
Value	1234H			
Bytes	12H		34H	
Nibbles	1H	2H	3H	4H
Decimal	1	2	3	4
Period	00:00-00:14	00:15-00:29	00:30-00:44	00:45-00:59
Meaning	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:

Address	35507	
Value	0E0FH	
Bytes	0EH	0FH
Decimal	14	15
Month	January	February
Day	Jan 14	Jan 15
Meaning	Billing months run through January 14, from January 15 through February 15 and start on February 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:

Value (Hex)	**Selection**
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:

Address	35729	
Value	0001H	
Bytes	00H	01H
Decimal	0	1
Purpose	DST Enabled	Average Selection
Meaning	DST Disabled for TOU	Rolling Window Averages for TOU Peak and 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:

Address	36608	
Value	4202H	
Bytes	42H	02H
Decimal	66	2
Purpose	Sequence	Status
Meaning	Sequence #66	Unfinished
Meaning	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:

Address	36609
Value	0DH
Decimal	13
Meaning	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:

Address	36736
Value	3245H
Decimal	12869
Meaning	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:

Value (Hex)	Year
0000H	Year 1
0001H	Year 2
0002H-0013H	Year 3 - Year 20
0014H-FFFH	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:

Value (Hex)	Year
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 / - 3267.8 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, meter's Internal Temperature, might contain the following data:

Address	05946
Value	08BBH
Most significant bit	0
Decimal	+223
Celsius	+22.3 degree C

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

Address	05946
Value	F745H
Most significant bit	1
Compliment	08BAH
Increment	08BBH
Decimal	1223
Celsius	122.3 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:

Address	05979															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Logic (T/F)	F	F	F	F	F	T	F	F	F	T	T	F	F	F	F	T
Interpretation	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:

Address	04H	00H
Value	0400H	
Bytes	06000	
Interpretation	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:

Address	06008															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
State (NO/NC)	NC	NC	NC	NC	NC	NO	NC	NC	NC	NO	NO	NC	NC	NC	NC	NO
Interpretation	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:

Address	06009															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Update?	Yes					Yes				Yes	Yes					Yes
Interpretation	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:

Address	060010															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
State (NO/NC)	NC	NC	NC	NC	NC	NO	NC	NC	NC	NO	NC	NC	NC	NC	NC	NC
Interpretation	Relays 6 and 10 are supposed to be energized, all others 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:

Address	060011															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
State (NO/NC)	NC	NC	NC	NC	NC	NO	NC	NC	NC	NO	NO	NC	NC	NC	NC	NO
Interpretation	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:

Address	060012															
Value	FFF0H															
Bytes	FFH								F0H							
Bits	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valid?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interpretation	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:

Address	060013															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Locked?						Lock				Lock	Lock					Lock
Interpretation	Relays 6, 10, 11, and 16 are locked; all other relays are under control of the RelayLogic 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:

Address	060014															
Value	0461H															
Bytes	04H								61H							
Bits	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relay	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NO/NC	NC	NC	NC	NC	NC	NO	NC	NC	NC	NO	NO	NC	NC	NC	NC	NO
Interpretation	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 two 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	RTC Clock Battery Status
14	1	User Set Current Threshold in use
13	2	DSP1 Internal Failure
12	3	Device Profile Changed before current meter start
11	4	reserved
10	5	Clock date/time changed by user
9	6	DST active
8-1	7-14	Undefined
0 (LSB)	15	Undefined

Example:

Register 1796H, Miscellaneous Flags, might contain the following data:

Addr (Hex)	1796H															
Value	8000H															
Bytes	80H								00H							
Bits	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Interpretation	Battery is Low.															

3.44: Type F44 Digital Input Option Board Data 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 status of the data received from Digital Input Option Board as follows:.

Bit	Point	Meaning
15 (MSB)	0	Status of Data from Digital Input Option Board in slot 3
(Modbus Register 0AD5H)		
14	1	Status of Data from Digital Input Option Board in slot 4
(Modbus Register 0AE6H)		
13-0 (LSB)		Undefined

Digital Input Option Board Data Status –A bit value of 0 means that the data from this Digital Input option board is not yet valid; either the board is not present or has not yet been polled. A bit value of 1 means that the data from this Digital Input option board has been polled at least once and is valid.

Example:

Register 17DEH, Digital Input Option Board Data States, might contain the following data:

Addr (Hex)	17DEH															
Value	8000H															
Bytes	80H								00H							
Bits	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Point	0	1														
Digital Input Option Boards	1	2														
Status	OK	-	-	-												
Interpretation	Data from Digital Input Option Board in slot 3 (Register 0AD5H) are valid, data from Digital Input Option Board in slot 4 are not valid															

3.45: Type F45 is not used by the Nexus® 1500 meter

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 F48 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:

Address	06489
Value	0400H
Decimal	1024
Interpretation	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:

Address	06937
Value	0647H
Decimal	1607
VAh Secondary	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 0x00000 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. 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. The 16-bit integers have been constrained to the bounds of a signed 12-bit integer, +2047 through -2048.

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

Address	53250
Value (Hex)	0400H
12-bit Signed Integer (Hex)	400H
Most Significant Bit	0
12-bit Signed Integer (Decimal)	+1024

5/2048 A sec	2.500 A sec

Register 53256, Total Watt, might contain the following data:

Address	53256
Value (Hex)	FC00H
12-bit Signed Integer (Hex)	C00H
Most Significant Bit	1
12-bit Signed Integer (Decimal)	-1024
150-0/2048 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 MegaWatthour or Mega VARhour. The second register is in units of kilo Watthour or kilo VARhour. Combined, the pair of registers report up to 100 GWh primary of energy.

Example:
Registers 53267-53268, Positive Watthour, might contain the following data:

Address	53267				53268			
Value (Hex)	04D2H				162EH			
Value (Decimal)	1234				5678			
Digit	1	2	3	4	5	6	7	8
Unit	G		M		k			
kWH Primary	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:

Address	53250
Value (Hex)	0810H
12-bit Unsigned Integer (Hex)	810H
12-bit Unsigned Integer (Decimal)	+2058
30/4096 A sec	15.073 Hz
+45 Hz Offset	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 Nexus® meter's Device Profile. It uses the multiplier from the Nexus® meter's 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:

Address	05834	05835	05836	05837
Value (Hex)	0000H	0000H	0001H	2345H
8 byte Signed Integer (Hex)	000000000001245H			
Most Significant Bit	0			
Decimal	+74565			
Accumulated Transitions	+74,565 Units			

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

Address	05834	05835	05836	05837
Value (Hex)	FFFFH	FFFFH	FFFEH	DCBBH
8 byte Signed Integer (Hex)	FFFFFFFFFFFEDCBBH			
Most Significant Bit	1			
Complement	0000000000012345H			
Increment	0000000000012345H			
Decimal	-74565			
Accumulated Transitions	-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 106 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 (106). 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:

Address	06912	06913
Value	075BH	CD15H
4-byte Hex	075HCD15H	
Decimal	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

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

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:

- 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, 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	VAh, 10^0	0	xxxVAh	000003	789	789VAh
8BxxH	100 01 011	6	kVAh, 10^3	3	xxx.xxx kVAh	0006F855H	456789	456.789 kVAh
88xxH	100 01 000	6	kVAh, 10^3	0	Xxxxxx kVAh	0001E240H	123456	123,456 kVAh
93xxH	100 10 011	6	MVAh, 10^6	3	xxx.xxx MVAh	0001E240H	123456	123,456 MVAh
72xxH	011 10 010	5	MVAh, 10^6	2	xxx.xx MVAh	00003039H	12345	123.45 MVAh
C2xxH	110 00 010	8	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 F66 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:

Address	36607
Value	0002H
Decimal	2
Meaning	TOU Calendar Upload Window is Locked to Port 2.

b3.67: Type F67 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:

Address	00390
Value (Hex)	08BBH
Most significant bit	0
Decimal	+2235
K-Factor	+22.35

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

Address	00390
Value (Hex)	F745H
Most significant bit	1
Complement	08BAH
Increment	08BBH
Decimal	-2235
K-Factor	-22.35

3.68: Type F68 Secondary 1 Cycle RMS Voltage and Current

- Length: 2 Registers (4 bytes)
- Range: 4,294,967,295 V, A / 0 V, A
- Unit: 1/65536 V, A

These registers form a 4-byte unsigned integer in which the first register contains the LSB word.

Example:

Address	0x005D	0x005E
Value	0xE6D7	0x0077
4-byte unsigned integer(Hex)	0x0077E6D7	
4-byte unsigned integer (Decimal)	7,857,879	
1/65536 V secondary	119.902	

3.69: Type F69 Angle

- Length: 1 Register (2 Bytes) - unsigned integer
- Order: Most significant byte first
- Range: -327.67 / +327.67
- Unit: 0.01 degree

3.70: Type F70 Harmonic Over Threshold Flag

- Length: 4 Register (8 Bytes)
- Order: Least significant word first
- Range: N/A
- Unit: N/A

A bit value of 1 means harmonic over threshold event.

Word	Word 0	Word 1	Word 2	Word 3
Harmonic Order	Bit 0 = Order 0 Bit 1 = Order 1 Bit 2 = Order 2 Bit 3 = Order 3 Bit 4 = Order 4 Bit 5 = Order 5 Bit 6 = Order 6 Bit 7 = Order 7 Bit 8 = Order 8 Bit 9 = Order 9 Bit 10 = Order 10 Bit 11 = Order 11 Bit 12 = Order 12 Bit 13 = Order 13 Bit 14 = Order 14 Bit 15 = Order 15	Bit 0 = Order 16 Bit 1 = Order 17 Bit 2 = Order 18 Bit 3 = Order 19 Bit 4 = Order 20 Bit 5 = Order 21 Bit 6 = Order 22 Bit 7 = Order 23 Bit 8 = Order 24 Bit 9 = Order 25 Bit 10 = Order 26 Bit 11 = Order 27 Bit 12 = Order 28 Bit 13 = Order 29 Bit 14 = Order 30 Bit 15 = Order 31	Bit 0 = Order 32 Bit 1 = Order 33 Bit 2 = Order 34 Bit 3 = Order 35 Bit 4 = Order 36 Bit 5 = Order 37 Bit 6 = Order 38 Bit 7 = Order 39 Bit 8 = Order 40 Bit 9 = Order 41 Bit 10 = Order 42 Bit 11 = Order 43 Bit 12 = Order 44 Bit 13 = Order 45 Bit 14 = Order 46 Bit 15 = Order 47	Bit 0 = Order 48 Bit 1 = Order 49 Bit 2 = Order 50 Bit 3 = Order 51 Bit 4-15 = N/A

3.71: Type F71 Out of Range Status

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Normal
1	Out

3.72: Type F72 Time Stamp (Packed BCD)

- Length: 4 Register (8 Byte)
- Order: Least significant byte first
- Range: 12/31/9999 23:59:59.99
- Unit: 10 msec

Each register contains 2 bytes. Each byte contains 2 nibbles. Each nibble represents a decimal digit from 0-9.

Byte	0		1		2		3		4		5		6		7	
Nibble	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	Year				Month		Day		Hour		Minute		Seconds		Centiseconds	

3.73: Type F73 Magnitude

- Length: 2 Register (4 Byte)
- Order: Least significant word first
- Range: -32767.999/+32767.999
- Unit: Volts/Degree/Hz

Word	0	1
	Fraction	Integer

3.74: Type F74 Number 4 Bytes – Unsigned Integer

- Length: 2 Register (4 Byte) – unsigned integer
- Order: Least significant word first
- Range: 0/+4294967295
- Unit: 1

3.75: F75 Flagging

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Normal
1	Flagging

3.76: Type F76 Valid Status

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0x55AA	Valid
Others	Invalid

3.77: Type F77 Voltage Flag

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

A bit value of 1 means:

- Either Waveform Voltage RMS Sag event occurs
- Or Waveform Voltage RMS Swell event occurs
- Or Voltage Waveshape Pre-Trigger event occurs
- Or Transient Positive Side Over-Range Pre-Trigger event occurs
- Or Transient Negative Side Over-Range Pre-Trigger event occurs
- Or Interruption event occurs
- Or Waveform Voltage RMS Sag State Transition
- Or Waveform Voltage RMS Swell State Transition
- Or Interruption transition
- Or Waveform Voltage RMS Sag Valid
- Or Waveform Voltage RMS Swell Valid'
- Or Voltage Waveshape Pre-Trigger Valid
- Or Transient Map waveform mask(transient trigger set will lead waveform/PQ trigger set)
- Sliding reference Usr sag/swell enable for voltage

A bit value of 0 means:

- Either Waveform Voltage RMS Sag event does not occurs
- Or Waveform Voltage RMS Swell event does not occurs
- Or Voltage Waveshape Pre-Trigger event does not occurs
- Or Transient Positive Side Over-Range Pre-Trigger event does not occurs
- Or Transient Negative Side Over-Range Pre-Trigger event does not occurs
- Or Interruption event does not occurs
- Or Waveform Voltage RMS Sag State not change
- Or Waveform Voltage RMS Swell State not change
- Or Interruption State not change
- Or Waveform Voltage RMS Sag not Valid
- Or Waveform Voltage RMS Swell not Valid
- Or Voltage Waveshape Pre-Trigger not Valid

- Or Transient Map waveform mask(transient trigger set will not lead waveform/PQ trigger set)
- Sliding reference Usr sag/swell disable for voltage

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Channels	N/A				Vne	Vce	Vbe	Vae	Vne	Vxn	Vca	Vbc	Vab	Vcn	Vbn	Van

3.78: Type F78 Current Flag

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

A bit value of 1 means:

- Either Waveform Current RMS Sag event occurs
- Waveform Current RMS Swell event occurs
- Waveform Current RMS Sag State Transition
- Waveform Current RMS Swell State Transition
- Current RMS Change of Rate Over-Range Valid
- Sliding reference Usr sag/swell enable for current

A bit value of 0 means:

- Waveform Current RMS Sag event does not occurs
- Waveform Current RMS Swell event does not occurs
- Waveform Current RMS Sag State Transition
- Waveform Current RMS Swell State Transition
- Current RMS Change of Rate Over-Range Valid
- Sliding reference Usr sag/swell disable for current

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Channels	N/A												Ix	Ic	Ib	Ia

3.79: Type F79 General Readings (RMS, ...)

- Length: 2 Register (4 Byte)
- Order: Least significant word first
- Range: +65535.65535/0
- Unit: Volts/Amps

Word	0	1
	Fraction	Integer

3.80: Type F80 High Speed Input Delta

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

The bits in least significant byte are associated with 8 High Speed Inputs. The least significant byte contains delta information about High Speed Input. A bit value of 1 means one more delta were noticed in this input. A bit value of 0 no changes were noticed on this input.

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
High Speed Input	N/A								7	6	5	4	3	2	1	0

3.81: Type F81 High Speed Input State

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

The bits in least significant byte are associated with 8 High Speed Inputs. The least significant byte contains states about High Speed Input. A bit value of 1 means the input is open, a bit value of 0 means the input is closed.

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
High Speed Input	N/A								7	6	5	4	3	2	1	0

3.82: Type F82 Point Update Flag

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

A bit value of 1 means that an event occurs.

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reference Channels	N/A											5th	4th	3rd	2nd	1st

3.83: Type F83 Phase Sequence

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0xABC0	ABC sequence
0xCBA1	ACB sequence

3.84: Type F84 Positive Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: +65535/0
- Unit: 1800/255

3.85: Type F85 Negative Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: +65535/0
- Unit: -1800/255

3.86: Type F86 18.18 nsec Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: +65535/0
- Unit: 18.18 nsec

3.87: F87 10 usec Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: +65535/0
- Unit: 10 usec

3.88: Type F88 Default Reference Channel

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	A
1	B
2	C
0	N
4	Aux

3.89: Type F89 Polyphase Voltage Interruption Flag

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Normal State
1	Interruption State

3.90: Type F90 16.7 usec Counter

- Length: 2 Register (4 Byte) – unsigned integer
- Order: Least significant word first
- Range: + 4294967295/0
- Unit: 16.7 usec

3.91: Type F91 Polyphase Sag/Swell Flag

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Normal State
1	Sag/Swell trigger

3.92: Type F92 Polyphase Sag/Swell Transition

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	State not change
1	State change

3.93: Type F93 Over Voltage Between P-E Flags

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

A bit value of 1 means either an event or state transition occurs.

Byte	Byte 1								Byte 0							
Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Channels	N/A												Vce	Vbe	Vae	Vne

3.94: Type F94 Microsecond Counter

- Length: 2 Register (4 Byte) – unsigned integer
- Order: Most significant byte first
- Range: + 4294967295/0
- Unit: 1 usec

3.95: Type F95 Seconds Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: + 65535/0
- Unit: 1 sec

3.96: Type F96 Hundreds Microseconds Counter

- Length: 1 Register (2 Byte) – unsigned integer
- Order: Most significant byte first
- Range: + 65535/0
- Unit: 0.1 msec

3.97: Type F97 Hookup Configuration

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	4-Wire Wye
1	3-Wire Delta 3 CT
2	3-Wire Delta 2 CT
3	4-Wire Wye 2.5 Element
4	4-Wire Delta Ground

3.98: Type F98 Transient Type

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Bits	Description
0	0 = enable 1 = disable
1	0 = VPN 1 = VPP
2~7	Not defined
8	Va
9	Vb
10	Vc
11~15	Not define

3.99: Type F99 Frequency Type

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	50 Hz
1	60 Hz

3.100: Type F100 Waveform Sample Rate

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Full sample rate
2	½ of full sample rate
4	½ of full sample rate
…	…
64	1/64 of full sample rate

3.101: Type F101 High Resolution Clock

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Bits	Description
0~14	1 count = 100us = 0.1ms, range up to 9999 = 0.9999second
15	1 means IRIG_B synchronized, 0 means IRIG_B lost

3.102: Type F102 Calibration Gain

- Length: 2 Register (4 Byte)
- Order: Least significant word first
- Range: +16.999999996/0
- Unit: N/A

The calibration gain number is a 32 bit number where 4 most significant bits are unsigned integer and the others 28 bits are fractional of this number.

Example:

0x10539783 = 1.020408164
0x10000000 = 1.000000000
0x0FD7720F = 0.990099009

3.103: Type F103 Other Percentage

- Length: 2 Register (4 Byte)
- Order: Least significant word first
- Range: 0 / 65535.9999
- Unit: (1/65536*100)%

	0	1
Word	Fraction	Integer

Example:

Address (Modbus Input Registers)	8618H	8619H
Value (Fraction and Integer, Hex)	2000H	0001H
4 bytes (LSB first, Hex)	20000001H	
Value (Integer and Fraction, Hex)	0001H	2000H
4 bytes (MSB first, Hex)	00012000H	
4 bytes Integer (Decimal)	73728	
(1/65536*100)%	112.5%	

3.104: Type F104 Transient Gain

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

The transient gain number is a 16 bit number where 9 most significant bits integer and the others fraction.

3.105: Type F105 RTC Status

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Bits	Description
0~1	Not defined
2	DST fails
3	DST spring date
4	Active cold load
5	Active line sync
6	Active DST
7	Active GPS
8~15	Not defined

3.106: Type F106 Line Synch Mode

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Bits	Description
0	0=disable 1=enable
1	0=50Hz 1=60Hz
2~15	Not defined

3.107: Type F107 Day-light Saving Time Mode

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Disable
1	Use on-board chip
2	User programmable: 16 bytes, Most significant byte first. Settings #1 Byte 15-14: Reserved Byte 13: Month Byte 12: Date Byte 11: Hour Byte 10: Minute Byte 9: Seconds Byte 8: Reserved Settings #2 Byte 7-6: Reserved Byte 5: Month Byte 4: Date Byte 3: Hour Byte 2: Minute Byte 1: Seconds Byte 0: Reserved
3	Use new standard (US, 2005)
4	Use Shark Format: 8 bytes, Most significant byte first. Settings #1 Byte 7: Month Byte 6: Week Byte 5: Day Byte 4: Hour Settings #2 Byte 3: Month Byte 2: Week Byte 1: Day Byte 0: Hour
5	Use new user programmable: 10 bytes, Most significant byte first. Settings #1 Byte 9: Month Byte 8: Week Byte 7: Day Byte 6: Hour Settings #2 Byte 5: Month Byte 4: Week Byte 3: Day Byte 2: Hour Settings #3 Byte 5: Shift hour for settings #1 Byte 4: Shift hour for settings #2

3.108: Type F108 Threshold Enable Channel

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: N/A
- Unit: N/A

Value	Description
0	Enable Threshold for Phase A-N Voltage channel
1	Enable Threshold for Phase B-N Voltage channel
2	Enable Threshold for Phase C-N Voltage channel
3	Enable Threshold for Phase A-B Voltage channel
4	Enable Threshold for Phase B-C Voltage channel
5	Enable Threshold for Phase C-A Voltage channel
6	Enable Threshold for Phase X-N Voltage channel
7~12	Not defined
13	Enable Threshold for Phase N-E Voltage channel
14	Enable Threshold for Phase A Current channel
15	Enable Threshold for Phase B Current channel
16	Enable Threshold for Phase C Current channel
17	Enable Threshold for Phase X Current channel
18~255	Not defined
256	Cover all voltages
257	Cover all Currents
258	Cover all voltages and Currents
259~65535	Not defined

3.109: Type F109 8 Bits

- Length: 1 Byte
- Order: N/A
- Range: N/A
- Unit: N/A

3.110: Type F110 8 Bits (High)

- Length: 1 Byte (High byte or MSB byte in a Modbus register)
- Order: N/A
- Range: N/A
- Unit: N/A

3.111: Type F111 8 Bits (Low)

- Length: 1 Byte (Low byte or LSB byte in a Modbus register)
- Order: N/A
- Range: N/A
- Unit: N/A

3.112: Type F112 16 Bits

- Length: 2 Bytes
- Order: N/A
- Range: N/A
- Unit: N/A

3.113: Type F113 32 Bits

- Length: 4 Bytes
- Order: N/A
- Range: N/A
- Unit: N/A

3.114: Type F114 64 Bits

- Length: 8 Bytes
- Order: N/A
- Range: N/A
- Unit: N/A

3.115: Type F115 4 Byte Counter

- Length: 2 Register (4 Byte)
- Order: Least significant word first
- Range: +4294967295/0
- Unit: 1

Word	0	1
	LSW	MSW

Value = MSW * 65536 + LSW

3.116: Type F116 Milliseconds

- Length: 1 Register (2 Byte)
- Order: Most significant byte first
- Range: +9ms/0
- Unit: 1ms

Chapter 4
Modbus Register Map Notes

4.1: Modbus Register Map Notes

The information in this chapter refers to the Modbus Register Map's "Notes" column. Chapter 2 contains the Modbus Map.

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® 1500 meter's DSP2 Processor, as part of the Waveform Capture function. These values are only calculated if the 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) Not used.

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 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) Not used.

Chapter 5
Logs, Port Control and Updating Programmable Settings (For Serial Download of Historical Logs)

5.1: Downloading Logs - Overview

■ There are three methods for downloading logs from the Nexus®1500 meter: non-increment index, auto-increment index and file system access.

■ Each of the Nexus® meter's ports act independently, allowing multiple Modbus Masters access to all the retrievable data in a Nexus® meter Slave.

■ Log Memory Allocation (Quotas): The log storage area on the file system is restricted to a pre-defined size. Within that pre-defined size, files of a fixed size (1MByte) are built. The user is able to assign how many files each log will get; however, the System Events log, and Historical logs 1 and 2 have a maximum size of 1 and 8 MBytes, respectively, in order to maintain backwards compatibility. A log with no file assigned to is disabled and will not run.

■ Memory Gap Engine: To avoid the oldest record being overwritten during the download log process when the log is in pause mode, %5 of the memory allocated for the log will be empty (unused) during the normal operation. When the download process starts in a paused log, that reserved memory is used to save new records. If the process is fast enough, the download process can finish without dropping any records. On the other hand, if the download process is slow, the gap can be completely filled and then new records will be dropped (not saved).

■ 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 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. (This action should be performed automatically by Communicator EXT software.)
- Either via the Reset screen on the display, or the Reset Device Parameters screen from Communicator EXT software. If Password Protection has been enabled, a second level password is required for performing the reset.

■ 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® 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 cannot 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.

5.1.1 Log Download Using Non-increment Index Method

- Backwards Compatibility: This method is applied only to the System Event log and Historical logs 1 and 2. Downloading the backwards compatible logs involves the following types of Registers.

- A Modbus Master uses a Log window consisting of 64 Registers to retrieve logs from a Nexus® 1500 meter Slave. A log is divided into numbered sections called Indexes, which are transferred through the Log Window in sequence.

- 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. 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.

- 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 accesses 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.

5.1.1.1: Steps for Downloading a Log

■ The following steps outline the process for downloading a log. Details and examples for downloading time stamps and records follow in Sections 5.1.1.2 and 5.1.1.3.

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.

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

3. Read and store the Historical Log 1 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 = Int([8 x First Index]/128).
   Starting Window Offset = (8 x First Index) % 128.
   Example:
   Starting Window Index: Int (8 x 501/128) = Int (31.3125) = 31.
   Starting Window Offset: (8 x 501) % 128 = 40.

5. Determine the largest Window Index and the largest Window Offset using these formulas:
   Largest Window Index = Int ([8 x Max Records]/128).
   Largest Window Offset = (8 x Max Records) % 128.
   Example:
   Largest Window Index = Int([8 x 28928]/128) = Int(1808) = 1808
   Largest Window Offset = (8 x 28928) % 128 = 0

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

Ending Window Offset = (8 x [Last Index +1]) % 128
Example:
Ending Window Index = Int([8 x {500 + 1}]/128 = Int(31.3125) = 31
Ending Window Offset = (8 x [500 + 1]) % 128 = 40

7. Set the Window Mode to Download Mode by writing the Timestamp Mode code (0001H) to the Log Window Mode Register.
Example:
Write the value 0001H 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 Interval 1 Log 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.

5.1.1.3: 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 Log 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 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 = Int([Record Size x First Index]/128).
   Starting Window Offset = (Record Size x First Index) % 128.
   Example:
   Starting Window Index: Int(64 x 501/128) = Int (250.5) = 250.
   Starting Window offset: (64 x 501) % 128 = 64.

5. Determine the largest Window Index and the largest Window Offset using these formulas:
   Largest Window Index = Int([Record Size x Max Records]/128).
   Largest Window Offset = (Record Size x Max Records) % 128.
   Example:
   Largest Window Index = Int([64 x 28928]/128) = Int(14464) = 14464.
   Largest Window Offset = (64 x 28928) % 128 = 0.

6. Determine the ending Window Index and the ending Window offset using these formulas:
   Ending Window Index = Int([Record Size x {Last Index + 1}]/128).

Ending Window Offset = (Record Size x [Last Index +1]) % 128.
Example:
Ending Window Index = Int([64 x {500 + 1}]/128 = Int(250.5) = 250.
Ending Window Offset = (64 x [500 + 1]) % 128 = 64.

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 250 (00FAH) 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 + (64/2) = 38305.
Read from 38305 – 38356.

10. Increment the Window Index.
Example:
Write the value 251 (00FBH) 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 = 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.

5.1.2: Log Download Using Auto-Increment Index Method

- Auto Incrementing Interface
- Auto Increment Configuration (Register 39423, 0x099FE)
  When read, this register returns the configuration in use (shown on the next page) by the Auto Increment Log Window to access logs on this port. When written, this register sets the configuration used by the Auto Increment Log Window 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, as shown below:

0x000	Historical Log 1
0x001	Historical Log 2
0x00A	System Event 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 to access logs on this port. When written, this register sets the index used by the Auto Increment Log Window 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.

  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 ports time-out.

- 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).

■ 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.

5.1.3: Log Download Using File System Access

- This method applies to all logs. It uses the modbus customized function code 0x45 where a series of defined command can be sent to retrieve the log. During the download log process, the log is paused when a paused dummy file is read. Each log has its own paused dummy file. To set the log back to run, a running dummy file should be read. Each log has its own running dummy file. See Chapter 6 for additional details on downloading logs.

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 meter. For example, software on a computer connected to one port of a Nexus® meter might need to change settings on an external device connected to another port of the meter. To accommodate this need, the following steps allow a Master to control the Transmit and Receive buffers of another port.

- To prevent contention, only 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 beore 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

1. Build the binary programmable settings block to update to the meter. All 32k of programmable settings must be updated.

    1. The programmable settings are broken into two blocks, Block 1 and Block 2, each 16384 bytes in size.
    2. Compute the CRC16 on the first 16382 bytes of Block 1. We do not include the last two bytes, as this is where the checksum is stored.
    3. Continue computing the checksum (using the previously computed checksum as the seed), on all 16384 bytes of Block 2.
    4. Place the computed checksum into the last two bytes of Block 1.

2. If Level 2 Password Protection is enabled, send the Level 2 password to allow updating the Programmable Settings. If Sealing switch is enabled, press the Sealing switch.

3. If any changes were made to the Programmable Settings which affect the logs, the logs should be cleared.

    1. Lock the logs to prevent them from being updated until the meter is reset. Write 0xABCD to register 0xE052.
    2. Write 0xFFFF to the register listed below to reset that log.

All Logs	0xE000
Historical 1	0xE035
Historical 2	0xE036
Sequence of Events	0xE037
Digital Input	0xE038
Digital Output	0xE039
Flicker	0xE03A

Waveform	0xE03B
PQ	0xE03C
Historical 3	0xE04A
Historical 4	0xE04B
Historical 5	0xE04C
Historical 6	0xE04D
Historical 7	0xE04E
Historical 8	0xE04F
Event Triggered	0xE050
Transient	0xE051

4. Write the Programmable Settings Data. Note: All 32k of data must be written for the Programmable Settings to be updated.

    1. Write Block 1 for 16384 bytes starting at register 0xB000.
    2. Write Block 2 for 16384 bytes starting at register 0x6000.

5. Wait for the meter to finish storing the Programmable Settings.

    1. Read the Programmable Settings Update Status registers. 7 registers starting at 0xFFE0.

offset	0	1	2	3	4	5	6	7
0x00	Match (MSB)	Mode (LSB)	Error Code		Time Stamp			
0x08	Time Stamp				Checksum			

    - Match — Indicates if the RAM and Stored programmable settings match. 0 indicates a match, 1 indicates no match.
    - Mode — Indicates if the meter is in the process of updating the programmable settings. 0 indicates the process is idle, otherwise an update is in progress.
    - Error Code

0	No Error
1	Internal Global Flag not set
2	Buffer not ready
3	Bad Checksum
4	Internal Checks Failed
5	Could not write file header
6	Data Write Error

    - Timestamp — Nexus 8 byte timestamp
    - Checksum — Checksum of the stored programmable settings.

    2. If the Status Mode indicates that the update is idle, check that Match indicates that the ram and file copies match, and that Error Code indicates No Error. If so, Programmable Settings have successfully been updated, and you may continue.
    3. Otherwise, check the Status Error Code.
        1. If an error is indicated, exit the update.
        2. If no error is indicated, continue waiting.

6. If logs were reset at the beginning of the process, wait for all logs to finish resetting before continuing.

    1. Query the Log Status register for each of the Logs.

Historical 1	0x9012
Historical 2	0x9052
Historical 3	0x9E17

Historical 4	0x9E57
Historical 5	0x9E97
Historical 6	0x9ED7
Historical 7	0x9F17
Historical 8	0x9F57
Event Triggered	0x9F97
Sequence of Events	0x9097 (aka, Limits, Alarms)
Digital Inputs	0x9117
Digital Outputs	0x9197
Flicker	0x9217
Waveform	0x9242
PQ	0x9317
System Events	0x9295
Transient	0x92C2

2. Wait until all status registers read 0.

7. Send the command to Reset the meter. Programmable Settings do not take effect until the Meter has been Reset. The Reset command is protected by Level 2 password and the Sealing switch, if those are enabled. The meter will not process Reset command if it's in the middle of processing a programmable settings update.

    1. Send 0x0001 to register 0xFFFA.
    2. Wait at least 30 seconds for the device to restart.

NOTE: See the Programming flowchart beginning on page 5-19.

5.4: Modifications to Time of Use for Nexus® 1500 meter

■ In the past, Time of Use has provided delta values computed at two time rates - Monthly and Seasonally. The following modifications are provided in the Nexus® 1500 meter.

- The functionality of what had been the Current Season/Prior Season registers is being altered to provide the options of Seasonal, Monthly, Weekly, Daily or Hourly behavior. As such, the registers will no longer be 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:

Register	Meaning
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).

Value	Meaning
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 caliabration 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.

Through 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**

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

As Stored (LSB)	MSB	Decimal	Scaled	Meaning
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	$+0.02^0$ PF Shift
0x0FEFF	0x0FFFE	-2	-0.02	-0.02^0 PF Shift

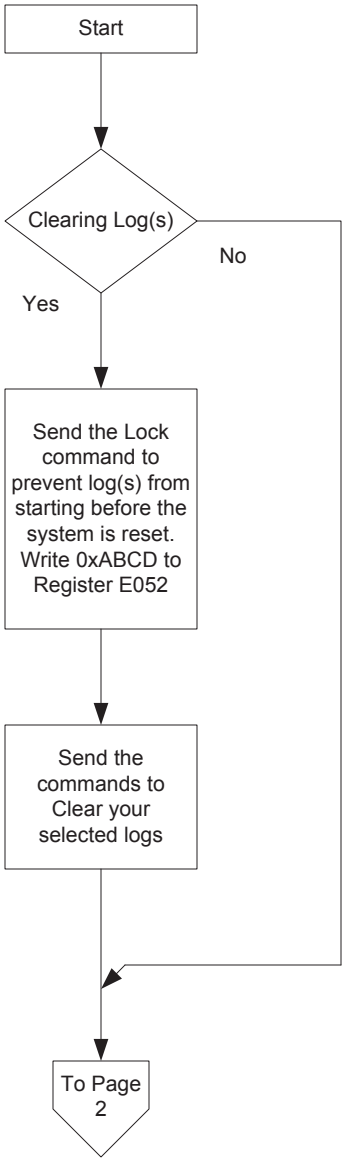
- To increase/decrease power at 600 in Quadrant 1 by y percent, **modify the Phse Compensation by**

$$60^0 - \cos^{-1}\left[\frac{50}{100+y}\right]$$

Change by	y	Modified by
Increase 2%	+2	60^0-$\cos^{-1}$ (50/102) = 60^0-$\cos^{-1}$ (0.49020) = 600-60.65 ^{0} = -0.65^0
Decrease 5%	-2	60^0-$\cos^{-1}$ (50/95) = 60^0-$\cos^{-1}$ (0.52632) =600-58.24 ^{0} = $+1.76^0$

This is the flowchart of the procedure used to place updated programmable settings into the device using standard Modbus Holding register functions.

Note: For this document all Modbus Registers are Holding Registers



To Clear or Reset all logs excluding the System Event Log:

Write 0xFFFF to Holding Register 0xE000

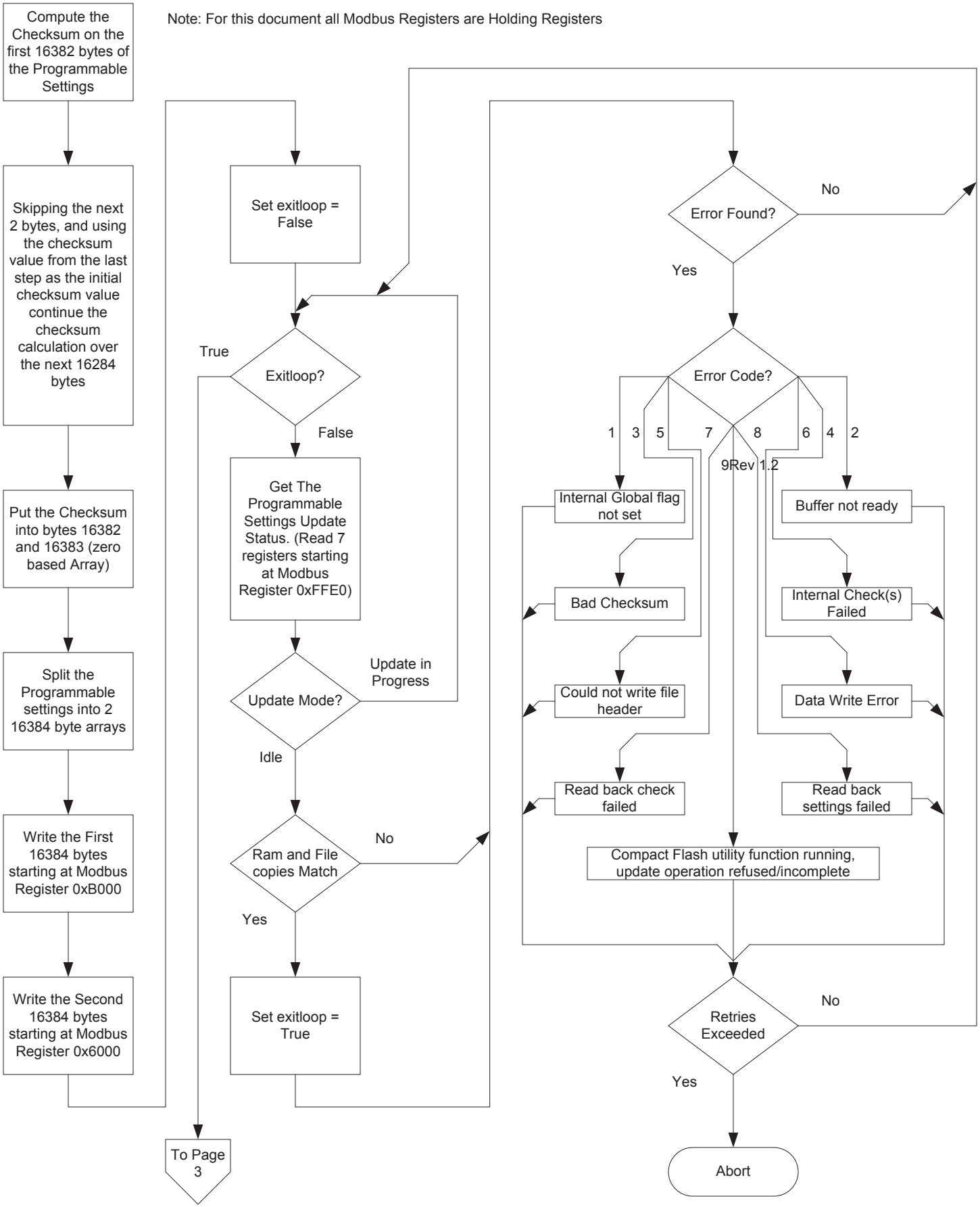
To Clear or Reset a specific Log:

Write 0xFFFF to the Holding Register associated with the Log shown in the table below:Rev 1.2

Log	Holding Register
Historical 1	0xE035
Historical 2	0xE036
Sequence of Events	0xE037
Digital Input	0xE038
Digital Output	0xE039
Flicker	0xE03A
Waveform	0xE03B
PQ	0xE03C
Historical 3	0xE04A
Historical 4	0xE04B
Historical 5	0xE04C
Historical 6	0xE04D
Historical 7	0xE04E
Historical 8	0xE04F
Event Triggered	0xE050
Transient	0xE051

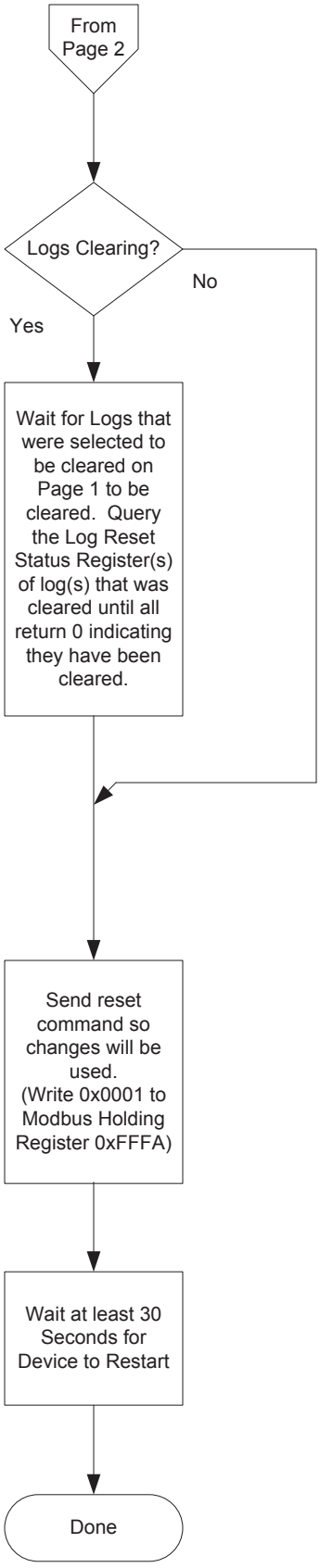
Nexus 1500 Programmable Settings Update (Page 2)

Note: For this document all Modbus Registers are Holding Registers



Nexus 1500 Programmable Settings Update (Page 3)

Note: For this document all checksums use CRC-16 as defined in the Modbus RTU Protocol



Programmable Settings Update Status Registers (0xFFE0 to 0xFFE6)		
Holding Registers	Description	
0xFFE0	Ram and File Match(MSB)	Mode(LSB)
0xFFE1	Error Code	
0xFFE2 - 0xFFE5	Time Stamp	
0xFFE6	FileChecksum	

Ram and File Match(MSB):

0: File and RAM copies match

1: File and RAM copies do not match

Mode(LSB):

0: Idle, update not in progress

Not 0: Update in progress

Error Code:

0: No Error

1: Internal Global flag not set

2: Buffer not ready

3: Bad Checksum

4: Internal Check(s) Failed

5: Could not write file header

6: Data Write Error

7: Read back check failed. Ask Wei Wang for a real definition.

8: Read back settings failed. Ask Wei Wang for a real definition.

9: CF Utility function running, update operation refused / incomplete. Ask Wei Wang for a real definition.

Greater than 9 not defined

Time Stamp:

See Nexus Time Stamp format in the Modbus Manual.

FileChecksum:

Checksum of the file containing the programmable settings stored on the compact flash.

Log Reset Status Register(s)

Historical 1 = 0x9012
Historical 2 = 0x9052
Historical 3 = 0x9E17
Historical 4 = 0x9E57
Historical 5 = 0x9E97
Historical 6 = 0x9ED7
Historical 7 = 0x9F17
Historical 8 = 0x9F57
Event Triggered = 0x9F97
Sequence Of Events = 0x9097 'Limits
Digital Inputs = 0x9117
Digital Outputs = 0x9197
Flicker = 0x9217
Waveform = 0x9242
PQ = 0x9317
System Events = 0x9295
Transient = 0x92C2

Chapter 6:
Large Data Access (LDA) and Downloading Logs

6.1: Overview

This chapter explains how to access large amounts of data from the Nexus® 1500 meter. Such large amounts of data can consist of a file or files from a file system, file or files stored in RAM or any kind of flash memory device, or dynamic data generated by the Modbus device. A set of specific commands must be used to download large amounts of data. These commands are referred to as Large Data Access, or LDA.
In addition to explaining LDA, this chapter explains how to download Nexus® 1500 meter logs using LDA.
NOTE: This is the recommended procedure for downloading logs from the Nexus® 1500 meter. All of the logs except for the System Event log and Historical logs 1 and 2 must be downloaded using this procedure. For backward compatibility, you can still download the System Event log and Historical logs 1 and 2 with the serial method (see Chapter 9). We recommend you use the LDA procedure, though, as it is faster and able to handle larger amounts of data than the serial method.

6.1.1. Reference Documents

You may find it useful to refer to the following documents:

- Modicon Modbus Protocol Reference Guide: PI-MBUS-300 Rev. J
- Modbus-IDA MODBUS Application Protocol Specification V1.1b
- The Nexus® 1500 Meter Modbus Register Map (in this manual)
- Communicator EXT 3.0 User Manual

6.2: LDA Overview

The Modbus protocol was designed for use with discrete values, not files. The Modbus protocols supported by LDA are:

- Modbus ASCII
- Modbus RTU
- Modbus TCP

6.2.1: Modbus Interface for LDA

Standard Modbus Exception Response is supported by LDA. For example, if a device has an exception response, such as the device does not support this LDA request at function code 0x45, the response message will be:

Device Address	Custom Function Code with msb bit set	Exception Code	Checksum

The base Modbus message format for Large Data Access via Modbus Protocols is:

Frame Header									
Device Address	Custom Function Code	Frame Length	User Flags	User Command Code	User Sub-Command Code	Status Code	User Data Length	User Data	Checksum (optional)
1 Byte	1 Byte, 0x45	2 Bytes (MSB format)	4 Bytes (MSB format)	4 Bytes (MSB format)	4 Bytes (MSB format)	4 Bytes (MSB format)	4 Bytes (MSB format)	X Bytes	1 Byte for LRC in Modbus ASCII, 2 Bytes for CRC in Modbus RTU, none for Modbus TCP

Since the user data section is optional, the minimum frame length is 1+1+2+4+4+4+4+4=24 bytes.

The request and response message format are the same for the first 24 bytes. The user data section is optional and only used for certain commands. For example, the user data section could contain readable text messages, a firmware file for firmware updates, or a file from the file system.

Field Descriptions

Device Address
Standard Modbus device address

Custom Function Code
A designated Modbus Function Code to identify this message; contains custom data and format. Use 0x45 in hex, 69 in decimal.

Frame Length
Length of this Modbus message - it's the sum of 1+1+2+4+4+4+4+4+4+[user data length in this frame]. The maximum user data length in a frame is 1408 bytes.

User Flag Details
Bits 31 to 0, where bit 31 is the most significant bit.

Flag Bits	Description
31	ACK flag. Used when user data needs to be transferred in multiple frames. For sender, the first frame with user data transferred does not set the ACK flag, but additional frames transferred with user data will need the ACK flag set. For the receiving party, the request command with this ACK flag set must be sent to the sender.
30	Last user data transfer. Set by sender in the last user data transfer frame.
29	Indicates file or directory for command code 34, 35, 36. 0=file, 1=directory.
28	File read cache status. When set, file read is cached by the device which can improve performance. Current implementation has only one cached channel on Modbus TCP connection on a first come, first served basis.

User Command Code Details
Primary user defined command code. An enumeration of user defined features and functions.

Command Code	Description	
1	Device ID	Device returned ID string in user data field.
2	Device Reset, meter hardware reset.	User must log on first.
4	Firmware Update	For request message, user sends firmware file in the user data field for up to 1408 bytes; user sets the firmware file total length in the user data length field. For response message, ACK flag will be set. For additional requests, user sets the ACK flag; user set additional user data in user data field (up to 1408 bytes).
5	Abort transmission	Terminate multi-framed data transfer.
6	Get current data output transfer window size	Data output transfer window size is configurable by user. The default value is 1408.
7	Set current data output transfer window size	User configurable. Valid value ranges from 64 to 1408, in increments of 64.
10	User Security Status	User log on sequence is Username first, followed by Password. Wrong sequence will terminate the logon process.
11	Send Username	XOR masked username with 0x45, 'E', in user data field.
12	Send Password	XOR mask for password with 0x49, 'I', in user data field.
13	Logoff	Device will clear security privileges for the current connection.
20	Firmware update status	With current status code and text message.
21	Firmware info	Firmware information in text.
30	Change Directory	Allows the changing of the current directory to a different one.
31	Get Current Directory	Returns the complete path and the current directory.
32	List Directory Contents	Returns the contents of the current directory.
33	Create Directory	Creates a directory in the file system in a writeable directory.
34	Delete File/Directory	Deletes a file or an empty directory from the file system.
35	Rename File/Directory From	Renames a file or a directory from.
36	Rename File/Directory To	Renames a file or a directory to.
37	Read File	Reads bytes from a file.
38	Write File	Writes bytes to a file.
39	Get File Details	Returns the file details (Size, Date & Time, and file attributes).
40	Close File	Closes the file.
41	Get a file's CRC32 checksum	Gets a file's CRC32 checksum.
65536	Reserved	
65537	Reserved	
65538 .. 65600	Reserved	

User Sub-Command Code
When sending data in a multi-framed process, sequence number will be used and placed in the user sub-command code field. The sequence number for the first frame in a multi-framed transfer will be 0 and additional frame sequence numbers will be 1 and so on.

User Sub-Command Code
Sequence Number, 4 Bytes, MSB.

Status Code

Set by the receiving end of data transfer. User should always check the status code when processing a response message.

Status Code	Description
0	Device did not respond, this is an error condition.
0x00AA	Completed Successfully.
0x00BB	Busy or in process.
0x00FA	Failed.
0x00FF	Not Authorized.
0x0100	Data Not found.
0x0101	Command Code not supported.
0x0102	Invalid frame length.
0x0103	Invalid user data length.
0x0104	User data length larger than set.
0x0105	User data receive buffer not ready.
0x0106	User data receive error.
0x0107	Firmware update data transfer done.
0x0108	Firmware update data transfer failed.
0x0109	User logged on.
0x010A	User logged off.
0x010B	Firmware update in process.
0x010C	Firmware update failed.
0x010D	Firmware update done.
0x010E	Firmware update idle.
0x010F	User security privilege restricted.
0x0110	User security setting was changed, need to log on again.
0x0111	File or Directory does not exist.
0x0112	Already in the root.
0x0113	Directory already exists.
0x0114	Permission denied.
0x0115	Name is invalid.
0x0116	File in use by another process.
0x0117	Directory is not empty.
0x0118	Handle does not exist.
0x0119	Invalid Handle.
0x011A	File Seek invalid.
0x011B	Byte count invalid.
0x011C	Handle in use.
0x011D	Disk full.
0x011E	File Open Error.
0x011F	File size is 0.
0x0120	Missed write frame with sequence number 1.
0x0121	Invalid write sequence number.
0x0122	Invalid command between read write file operation.
0x0123	File access error while processing file checksum command.
0x0124	File read error while processing file read command.
0x0125	File write error while processing file write command.

User Data Length

Exact size of user data in number of bytes. If there is no user data in the message, this number is 0.

User Data
Contains user specific data. If User Data Length field value is 0, then user data section does not exist. For multi-framed data transfers, the user must send the data in the fixed length window except for the last frame. For example, if the user data is 4096 bytes and the transfer window size is 1408 byte, the user could send it in 3 frames, in the sizes of 1408+1408+1280, respectively.

Checksum
Contains the checksum for this Modbus message: 1 Byte for LRC in Modbus ASCII, 2 Bytes for CRC in Modbus RTU, none for Modbus TCP.

6.3: LDA Programming Examples

6.3.1: Example 1 - Update Firmware

a) Software sends request device ID command

```
01 45 00 18 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00
```

Device should return

```
01 45 00 2E 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 AA [xx.xx.xx.xx, 4
bytes, Device ID string length] [n bytes, actual Device ID string]
```

b) Software should verify the returned message for correct device ID.
c) Software sends username command with XOR encoded username to device.
d) Software sends password command with XOR encoded password to device.
e) Software sends user security status command to device. In addition, software should verify the returned message for user logged on status code.
f) Software sends the first frame with user data in the user data field. Software should determine what the user data transfer window size is and then fill the user data field up to that number. For example, if the firmware data is 4096 bytes and the transfer window size is 1408 byte, software could send it in 3 frames, in the sizes of 1408+1408+1280, respectively.
Software should set the following:
   - clear bit 31 in the user flags field.
   - clear bit 30 in the user flags field.
   - Set user command code 4, for firmware update.
   - Set user sub-command field to 0.
   - Set the total firmware length in the user data length field.

   Device will return the following, with a success status code.

```
01 45 00 18 80 00 00 00 00 00 00 04 00 00 00 00 00 00 00 AA 00 00 00 00
```

g) Software then sends the additional frames with additional user data in the user data field. Software should set the following:
   - set bit 31 in the user flags field, ACK bit.
   - set bit 30 in the user flags field only if the frame is the last frame.
   - Set user command code 4, for firmware update.
   - Set a sequence number in the user sub-command field, starting with 1, then incrementing for each additional frame sent.
   - Set the user data size in the user data length field. Using above example with firmware data of 4096 and transfer window size of 1408, the value in user data length field will be 1408 and 1280 for transfer frames with sequence numbers 1 and 2.

Device will return the following, with a success status code and user send sequence number.

```
01 45 00 18 80 00 00 00 00 00 00 04 00 00 00 01 00 00 00 AA 00 00 00 00
```

for frame with sequence 1.

```
01 45 00 18 80 00 00 00 00 00 00 04 00 00 00 02 00 00 00 AA 00 00 00 00
```

for frame with sequence 2.

h) When the user has sent all the firmware data to the device and the device has correctly received all the data, usually on the last frame the device returns with the "Firmware update data transfer done" status code. Then the device starts parsing, checking and updating the firmware process.

i) Software should send the Firmware update status command to the device and check the returned firmware update status code.

j) After the firmware status code is changed to Firmware update done, software should send the Firmware info command to the device and show the returned firmware information to the user for confirmation.

k) If everything is OK, the software should give the user the option to reset the device by sending the Device Reset command.

6.3.2: Example 2 - Read a Log File from the Nexus® 1500 Meter's File System

a) Software sends username command with XOR encoded username to the device, assuming a user name of 9 characters.

```
01 45 00 21 00 00 00 00 00 00 00 0B 00 00 00 00 00 00 00 00 00 00 00 09
[xx..(total 9 bytes)]
```

Device Response if the request is valid:

```
01 45 00 18 00 00 00 00 00 00 00 0B 00 00 00 00 00 00 00 AA 00 00 00 00
```

b) Software sends password command with XOR encoded password to device, assuming a password of 9 characters.

```
01 45 00 21 00 00 00 00 00 00 00 0C 00 00 00 00 00 00 00 00 00 00 00 09
[xx..(total 9 bytes)]
```

Device Response if the request is valid:

```
01 45 00 18 00 00 00 00 00 00 00 0C 00 00 00 00 00 00 00 AA 00 00 00 00
```

c) Software sends user security status command to the device. In addition, software should verify the returned message for "user logged on" status code.

User Request:

```
01 45 00 18 00 00 00 00 00 00 00 0A 00 00 00 00 00 00 00 00 00 00 00 00
```

Device Response: User logged On.

```
01 45 00 27 00 00 00 00 00 00 00 0A 00 00 00 00 00 00 01 09 00 00 00 0F
55 73 65 72 20 6C 6F 67 67 65 64 20 4F 6E 2E
```

d) Software sends Read File command with '\C\LOGS\00000000.BIN' in the user data field.

```
01 45 00 2D 00 00 00 00 00 00 00 25 00 00 00 00 00 00 00 00 00 00 00 15
5C 43 5C 4C 4F 47 53 5C 30 30 30 30 30 30 30 30 2E 42 49 4E 20
```

e) Assuming use of default transfer size of 1408 bytes, the device responds with the following:

- Set the first 1408 bytes of the file in the user data field.

- Set sequence 0 in the user sub-command field.
- Set 1024*1024 in the user data length field.
- Set 0xAA in the status code field.
- Clear bit 30 in the user flags field, last frame bit.

```
01 45 05 98 80 00 00 00 00 00 00 25 00 00 00 00 00 00 00 AA 00 10 00 00
[xx.. (total 1408 bytes of data)]
```

f) Software sends additional Read File commands with the following:
- Set bit 31 in the user flags field, ACK bit.
- Set sequence 1 in the user sub-command field.

```
01 45 00 18 80 00 00 00 00 00 00 25 00 00 00 01 00 00 00 00 00 00 00 00
```

g) The device responds with the following:
- Set the additional 1408 bytes of the file in the user data field.
- Set user requested sequence number in the user sub-command field.
- Set 1408 in the user data length field.
- Set 0xAA in the status code field.
- Clear bit 30 in the user flags field, last frame bit.

```
01 45 05 98 80 00 00 00 00 00 00 25 00 00 00 01 00 00 00 AA 00 00 05 80
[xx.. (total 1408 bytes of data)]
```

h) Repeating the process in step (f) and step (g), software increments the sequence number by 1. When the device responds for the last frame, the device returns the following:
- Set the last 1024 byte of the file in the user data field.
- Set user requested sequence number in the user sub-command field, which should be 744.
- Set 1024 in the user data length field.
- Set 0xAA in the status code field.
- Set bit 30 in the user flags field, last frame bit.

Last Device Response:

```
01 45 04 18 C0 00 00 00 00 00 00 25 00 00 02 E8 00 00 00 AA 00 00 04 00
[xx.. (total 1024 bytes of data)]
```

i) Software should receive a total of 1024*1024 bytes file.

j) Software should send close file command to device.

User Request:

```
01 45 00 18 00 00 00 00 00 00 00 28 00 00 00 00 00 00 00 00 00 00 00 00
```

Device Response:

```
01 45 00 18 00 00 00 00 00 00 00 28 00 00 00 00 00 00 00 AA 00 00 00 00
```

6.4: Notes on User Security Implementation

The Nexus® 1500 meter has its own security features, in particular the multi-level access code, which can be accessed via Modbus function codes 0x03, 0x06 and 0x010. It also has the extended password features with 8 additional user accounts with configurable access privileges. The user security features addressed in this document are only for accessing the areas set by the user access privileges. For more information on meter security features, see the *Nexus® 1500 Installation and Operation Manual* and the *Communicator EXT User Manual*.

6.5: File Access Command Details

Change Directory

Software should set the following in the frame sent to the device:

- Set user command code 30.
- Set the desired directory name in user data field, such as LOGS or .. for changing one directory level up.
- Set the directory name length in user data length field

Software receives a status code in the returned frame. If the command was processed successfully by the device, the current directory and path in the device for this connection is changed accordingly.

Get Current Directory

Software should set the following in the frame sent to the device:

- Set user command code 31.
- Clear the user data field and user data length field.

Software receives a status code in the returned frame. If the command was processed successfully by the device, the current directory name is in the user data field with the directory name length set in the user data length field.

List Directory Contents

Software should set the following in the frame sent to the device:

- Set user command code 32.
- Clear the user data field and user data length field.

Software receives a status code in the returned frame. If the command was processed successfully by the device, the directory contents are in the user data field with the content length set in the user data length field. If the directory content's size is larger than the data output transfer window size, then the data needs to be transferred in multiple frames.

To request additional frames, software should set the following in the frame sent to the device:

- Set bit 31 in the user flags field.
- Set user command code 32.
- Clear the user data field and user data length field.

In response to software's additional request, the device will set and send the following:

- Set bit 31 in the user flags field.
- Set bit 30 only if the frame is the last frame to hold user data.
- Set user command code 32.
- A sequence number starting at 1 and incremented by 1 for each additional frame in user sub-command code field.
- A status code.

The format for directory contents is as follows:

```
          11111111112222222222333333333344444444445555555
01234567890123456789012345678901234567890123456789012345678901234567
```

```
[Acc  RWX] [Fileln] YYYY-MM-DD HH:mm:ss [Fname  8.3]{CR}{LF}

[Acc  RWX]     File Permissions:

               The permissions have 4 flags:
               d : The entry is a directory.
               r : The entry has read permissions.
               w : The entry has write permissions.
               x : The entry has executed permissions.

               As a reference, the rwx's are clustered into 3 groups:
               -rwx------ :   The permissions for the owner of this file.
               ----rwx--- :   The permissions for the group of the owner of this
                              file. (Nexus 1500 will display ----r-----).
               -------rwx :   The permissions for everyone else. (Nexus 1500 will
                              only display -------r--).


[Fileln]       File length: Fixed number of characters, 8 digits, space padded,
           right justified.

[Fname  8.3]   Filename conforming to the 8.3 file naming convention

{CR}{LF}       Line terminator
```

Create Directory

Software should set the following in the frame sent to the device:

- Set user command code 33.
- Set the desired new directory name in the user data field, such as UserData.
- Set the directory name length in the user data length field.

Software receives a status code in the returned frame.

Delete File/Directory

Software should set the following in the frame sent to the device:

- Set user command code 34.
- Set the desired file name or directory name to delete in the user data field, such as UserData.
- Set the file name or directory name length in the user data length field.

Software receives a status code in the returned frame.

Rename File/Directory

Rename From

Software should set the following in the frame sent to the device:

- Set user command code 35.
- Set the desired file name or directory name to rename in the user data field, such as UserData.
- Set the file name or directory name length in the user data length field.

Software receives a status code in the returned frame.

Rename To

Software should set the following in the frame sent to the device:

- Set user command code 36.
- Set the desired new file name or directory name in the user data field, such as UserData.
- Set the file name or directory name length in the user data length field.

Software receives a status code in the returned frame.

Read File

Software should set the following in the frame sent to the device:
- Set user command code 37.
- Set the desired file name in the user data field, such as UserFile.txt.
- Set the file name length in the user data length field.

Software receives a status code in the returned frame. If the command was processed successfully by the device, the file contents will be in the user data field with the total file length set in the user data length field. If the file content's size is larger than the data output transfer window size, then the data needs to be transferred in multiple frames. A sequence number starting at 0 in the user sub-command code field for the first frame.

To request additional frames, software should set the following in the frame sent to the device:
- Set bit 31 in the user flags field.
- Set user command code 37.
- Clear the user data field and the user data length field.
- A sequence number starting at 1 and incremented by 1 for each additional frame in user sub-command code field.

In response to software's additional request, the device will set and send the following:
- Set bit 31 in the user flags field.
- Set bit 30 only if the frame is the last frame to hold user data.
- Set user command code 37.
- A sequence number set in the user sub-command code field, which should match the sequence number in the request frame.
- A status code.

To perform the equivalent of a File Seek operation, the user should use the sequence number in the read request for additional frames. By setting a different sequence number in the read request, the user could randomly access any part of the file after the first read request, in chunks the size of the Data Output Transfer Window.

Write File

Software should set the following in the frame sent to the device:
- Clear bit 31 in the user flags field.
- Set user command code 38.
- Set the desired file name in the user data field, such as UserFile.txt.
- Set the file name length in the user data length field.
- A sequence number 0 in the user sub-command code field.

Software will receive a status code in the returned frame. If the command was processed successfully by the device, then the software should set the following in the frame sent to the device:
- Set bit 31 in the user flags field.
- Set bit 30 only if the frame is the last frame to hold user data.
- Set user command code 38.

- A sequence number starting at 1 and incremented by 1 for each additional frame in the user sub-command code field.
- Set the desired file data in the user data field, for up to the 1408 bytes.

For recovery during a write operation, if the returned status code is 0x121 (Invalid write sequence number), the user can resend the command. For all other status code with errors, the user should attempt to send the close file command, pause, and then send the write file command again as a whole new operation.

File Details

A comma separated text block holds the file detail information; the format is:

[Size], [Modified Time Stamp, YYYY-MM-DD HH:MM:SS], [Attributes]

For example:

```
3743, 2008-05-04 15:12:27, False
```

Property	Description
Size	Actual size of the file in bytes
Modified Time Stamp	Time file was last modified
Attributes	Read only

File Close

Software should send this file close command at the beginning of a new read/write and at the end of the current read/write. For write, we only support sequential write, which means no jumping between each write. For read, non-sequential read is also supported, which means after the first request, the software could ask for any part of the file. Because of this, firmware needs the file close command to signal a termination of the read/write process.

Software should set the following in the frame sent to the device:

- Set user command code 40.

Software receives a status code in the returned frame.

Get a File's CRC32 checksum

This command causes the device to compute a given file's CRC32 checksum and return the result to the user. Software should send this command with the specified file name in the user data field and set the file name length in the user data length field. The file name can contain the full path, or just the file name if the Change Directory command is sent separately, before this command is sent. On successful completion of the task, the computed CRC32 checksum is returned in the return message's user data section with the user data length field set to 4, for a 4 bytes unsigned long value in MSB format. The returned status code could be 0x00AA, 0x010F, 0x011E, 0x011F.

In addition, when the user send this command, the user could also set a working buffer size value in User Sub-Command Code field for the meter to use. The valid value range for the Nexus® 1500 meter is from 128 (if the setting is below 128) to 1048576 (if the setting is above 1048576). The recommended value is 4096.

6.6: Data Input and Output Transfer Window Size

This window's default size is 1408 bytes, which allows the user to set a window for receiving larger data from the device. For example, if the data size if 4k(4-1024) bytes, with a default transfer window size of 1408 bytes, the data needs to be transferred out in 3 frames in the size of 1408, 1408, and 1280 bytes, respectively. If the transfer window size is set at 64, then the data needs to be transferred out in 64 frames in the size of 64 bytes each.

Get current data output transfer window size

Software should set the following in the frame sent to the device:

- Set user command code 6.
- Clear user sub-command code field.

Software receives a status code in the returned frame and the current data output transfer window size will be in the user sub-command code field.

Set current data output transfer window size

Software should set the following in the frame sent to the device:

- Set user command code 7.
- Set the current data output transfer window size in the user sub-command code field. Valid values for Nexus® 1500 are 64 to 1408 bytes, in increments of 64 bytes.

Software receives a status code in the returned frame and the current data output transfer window size will be in the user sub-command code field.

Limitation with Modbus ASCII protocol

Because the communication buffer size in the Nexus® 1500 meter used with Modbus ASCII protocol is about 1500 ASCII characters, the maximum size of the data in the user data field should be limited to 704 bytes, or 1408 ASCII characters.

Input Transfer Window Size

Input Transfer Window Size is dictated in the first sent frame's data size, and the maximum data size for each additional frame cannot be larger than the data size in the first frame. The maximum data size is 1408 bytes. We recommended using the data size window in increments of 64 bytes.

For example, the sender has the option to send the data using the following options.

Total Size (Bytes)	Send Data Size in the 1st Frame (Bytes)	Send Data Size in the Additional Frames (Bytes)	Total Transfers
2816	1408	1408	2
2816	704	704, 704, 704.	4
2816	640	640, 640, 640, 256.	5
2816	64	64, 64, …., 64.	44
1024	1024	Not Applicable	1
12	12	Not Applicable	1

NOTE: Because the communication buffer size in a Nexus® 1500 meter with Modbus ASCII protocol is about 1500 ASCII characters, the maximum size for user data to be put in to the user data field is 704 bytes, or 1408 ASCII characters.

6.7: Access Timeout

A general access timeout is applied to commands that require log on. The timeout value is fixed at 5 minutes. The timeout value is initiated at the time a user logs on via Modbus LDA and refreshed each time a valid Modbus LDA request is received while the user is logged on.

In Modbus LDA, a timeout expires when the following occurs:
a) The meter security setting is changed.
b) The user logs off.

6.8: Downloading Logs using LDA

6.8.1: Log Interface Files

All settings, states, and data records related to logging are accessible as files through the Modbus LDA interface. The files which are important to log retrieval and interpretation are as follows:

6.8.1.1: Programmable Settings

\C\SYSTEM\NX1500.nps

The programmable settings file contains most of the configurable settings used for retrieving the logs and interpreting them. The important ones for retrieval are listed here, as well as a quick overview of the settings useful for log interpretation. See Chapter 7 for more details.

6.8.1.1.1: Log Block Assignments

The amount of memory assigned to any particular log is configurable by the user, and affects where in the file system the log retrieval looks for the log's records. See Chapter 7 for details of using these settings with the logs. Each log is assigned a number of 'blocks', which controls the number of files used to store the records, and which exact files are used for each log.

6.8.1.1.2: Log Item Assignments

Each of the Interval logs, as well as the Digital Input, Digital Output, and Limit logs, store a configurable set of log items with their records. Each item has the following sub-items, used to determine its format:
- Line, Point : Combined, line and point describe which of the meter's items is being stored in the log.
- Size : The number of bytes used by this item. This will be used later to determine where in the log record each item is.
- FType : The data type of the item. See Chapter 3 for a description of FTypes.

Each log has its own log item configuration list, with the exception of the Digital Input and Output logs. The Digital Input log uses Interval 1's items, and the Digital Output log uses the Limit log's items.

6.8.1.1.3: Waveform Settings

See Chapter 7 for details of these settings.

6.8.1.2: Meter ID File

\I\METERID.BIN

The Meter ID file contains information about the meter, including current state info, and configurations.

Field	Size	Description	Setting
Header	16	ASCII, padding with space	"METER ID FILE "
Version	2	The version number.	Major – Minor (1.7)
Log status	4	Indicates if the logs are paused/running.	0 means log are running otherwise logs are paused. Bit 0[LSB] = Historical 1 Bit 1 = Historical 2 Bit 2 = Sequence of Event (Limit) Bit 3 = Digital Input Bit 4 = Digital Output Bit 5 = Flicker Bit 6 = Waveform Bit 7 = System Events Bit 8 = Transients Bit 9 = PQ Bit 10 = Interval Log 3 Bit 11 = Interval Log 4 Bit 12 = Interval Log 5 Bit 13 = Interval Log 6 Bit 14 = Interval Log 7 Bit 15 = Interval Log 8 Bit 16 = Event Triggered
Log drop record	4	Indicates if the logs stop logging allowing dropping records because the download process is slow than saving record process.	0 means does not drop record otherwise drop records. The sequence is the same as Log Status.
Dummy	1	This enumeration indicates the path in our system where the pause/running dummy files, which are used during the log download process, are saved.	0 = \C\SYSTEM\LOGS\RUNNING\ \C\SYSTEM\LOGS\PAUSED\ 1 = \I\RUNNING\ \I\PAUSED\ 2 = \vf\RUNNING\ \vf\PAUSED\
Reserved	5		
Meter ID	16	ASCII	

Meter Serial Number	8		
Comm Boot Version	4	ASCII	
CF size	8	Compact size in byte, the MSB byte first	
CF serial Number	20	serial number in ASCCI, right justified, with no null string terminator	
CF FAT type	8	the file system type, with no null string terminator	
Comm Run Version	4	ASCII	
Comm Run Build	4	ASCII	
Comm state	2		
DSP1 Boot	4	ASCII	
DSP1 Run	4	ASCII	
DSP1 State	2		
DSP2 Run type	2		
DSP2 Run	4		
DSP2 Run ID	4		
FPGA Version	2		
Time	8	Nexus 12xx time stamp definition. The time that the file was generated/updated	
Log Reset Status	4	Informs if a specific log will be reset.	The sequence is the same as Log Status.
Reserved	6		
Current Range	1		0x000 - Standard Nexus 1500 (Class 20, Nominal 20Amp) 0x001 - Class 2 Nexus 1500 (Nominal 1Amp) 0x002-0x0FF Undefined, treated as Standard Nexus 1500
Reserved	1		
Sealing Switch	1		0x000 No Sealing Switch 0x001 Sealing Switch installed 0x002-0x0FF Undefined, treated as No Sealing Switch
Reserved	1		

OEM Model	1		0x000 Standard Nexus identification 0x001 OEM Model String 0x002-0x0FF Undefined, treated as Standard Nexus identification.
Reserved	1		
Temperature sensor type	1		0x000 Resolution at 0.5 °C. 0x001 Resolution at 0.0625 °C. 0x002-0x0FF Undefined treated as Resolution at 0.5 °C.
Reserved	19		
OEM Model String	16	ASCII	
Reserved	80		
V-switch	2		
Option board: State	4	Indicates if the slot has some board installed. If the installed board has good bio-byte checksum and it is in proper slot, the board is recognized otherwise it is not recognized.	Bit 00-07[LSB] = slot 1 Bit 08-15 = slot 2 Bit 16-23 = slot 3 Bit 24-31 = slot 4 = 0x00 – No Board installed = 0x01 – Board Installed and Recognized = 0x02 – Board Installed and Not Recognized
Option board: Type	16	Indicates the board type if it is installed and recognized	Bit 00-31[LSB] = slot 1 Bit 32-63 = slot 2 Bit 64-95 = slot 3 Bit 96-127 = slot 4 = 00 – 2 – N/A = 03 – RS485-2/Pulso Out-4 = 04 – Ether2/TP = 05 – Ether2/Fiber = 06 – Ether2/Wi-Fi = 07 – N/A = 08 – Relay Out = 09 – N/A = 10 – Ether2/Combo = 11 – Digital Input Option board = 12 – Analog Input Option Board
Reserved	16090		
Footer		ASCII	“**ID”

6.8.1.3: Log Headers

\I\INT1.BIN
\I\INT2.BIN
\I\INT3.BIN
\I\INT4.BIN
\I\INT5.BIN
\I\INT6.BIN
\I\INT7.BIN
\I\INT8.BIN
\I\ET.BIN
\I\LIMIT.BIN
\I\DIGIN.BIN
\I\DIGOUT.BIN
\I\FLICKER.BIN
\I\SYSEVENT.BIN
\I\WAVEFORM.BIN
\I\PQ.BIN
\I\TRANS.BIN

The Log Header files contain statistics on each of the individual logs, including oldest and newest records, number of records, record sizes, and memory allocated. It's primary use is for determining the validity of the data being retrieved, and for finding the position of each record in the log files.

Field	Size	Description
Record Size	4 [uint]	The size of a record in bytes. All records must have the same size.
Oldest Timestamp	8 [nexus8_time]	The timestamp of the oldest record.
Reserved	4	
Oldest External Index	4 [uint]	The external index of the oldest record.
Oldest Internal Index	4 [uint]	The internal index of the oldest record.
Newest Timestamp	8 [nexus8_time]	The timestamp of the newest record.
Reserved	4	
Newest External Index	4 [uint]	The external index of the newest record.
Newest Internal Index	4 [uint]	The internal index of the newest record.
Record Count	4 [uint]	The number of records stored in this log.
Memory Allocated	4 [uint]	The amount of memory allocated to this log, in bytes.
Valid Bitmap	8	Bitmap indicating the validity of each item in the log. Only useful for logs which contain a configurable number of items, such as Interval 1.

6.8.1.4: Paused/Running Files

The log paused files are command files which signal to the device that the user is beginning a log retrieval session, and that the log indexes should be frozen for the specified log. This does not prevent the recording of new records, which continues until the physical maximum number of records is reached. At this point logging for that log is stopped, until the log retrieval session is concluded. This is done to prevent records from being overwritten while they are being retrieved, which results in log corruption.

Likewise, the log running files are command files which signal to the device that the user is ending a log retrieval session, and that the log indexes should be unfrozen for the specified log. If the running file is never triggered for a paused log, after a period of inactivity the device will automatically un-pause the log.

Paused/Running commands are triggered by just reading the respective file for that log. They have no actual content.

The location of the paused and running files is dependent on the firmware, but can be determined from the 'Dummy' field of the MeterID file. The root locations will be one of the following:

0	\C\SYSTEM\LOGS\RUNNING, PAUSED
1	\I\RUNNING, PAUSED
2	\vf\RUNNING, PAUSED

The file locations would then be:

[ROOT]\INT1.BIN
[ROOT]\INT2.BIN
[ROOT]\INT3.BIN
[ROOT]\INT4.BIN
[ROOT]\INT5.BIN
[ROOT]\INT6.BIN
[ROOT]\INT7.BIN
[ROOT]\INT8.BIN
[ROOT]\ET.BIN
[ROOT]\LIMIT.BIN
[ROOT]\DIGIN.BIN
[ROOT]\DIGOUT.BIN
[ROOT]\FLICKER.BIN
[ROOT]\SYSEVENT.BIN
[ROOT]\WAVEFORM.BIN
[ROOT]\PQ.BIN
[ROOT]\TRANS.BIN

6.8.1.5: Log Data Files

The files allocated for the logs are located in the \C\Logs directory, and are named XXXXXXXX.bin, where x is the file index, and is (left) zero padded. So for example, file 172 would be **\C\Logs\00000172.BIN**.

6.8.1.5.1: File Format

Each log record is formatted specifically to that log, however the overall format of each file is generic across all logs. Each record is fixed at the same size, for that log. Each log contains R records, of which each file contains N log records, each of size M. Each record in the file is packed towards the start of the file,

such that the I^{th} record in the file is M*I bytes from the beginning of the file. If N*M < 1MB, such that the remaining space is < M, that space is ignored, and the next sequential record is placed at the beginning of the next sequential file.
In other words, when a record is written to the file, it is placed directly after the previous record. If writing the entire record would push the record off the end of the file, then the record is started at the beginning of the next file: This assures that no records cross file boundaries.

When all records allocated for this log have been written to, the number of records equals the max number of records and the log is considered full. At this point, the log "rolls over", and the next record is written at the beginning of the log. Logging then continues from that point in the files, overwriting old records.

The records of each log are identified by two indices: The external index, and the internal index.
The external index is the record's physical location in the files. The first record of the first file is always external index 0, the next record is 1, and so on. This is significant because the external indices are used to locate the first and last records to retrieve in the files.
The internal index is the unique id for each record. This index always increments when a record is stored, even if the log has rolled over, or been reset. This allows each record to be identified sequentially relative to each other. However, since this value is stored in the record itself, it is only useful once you've actually retrieved the record.

6.8.1.5.2: Record Format

Each record is composed of two parts: A record header, and a record data part. The record header is 8 bytes, and has the following format:

Field	Size	Description
Internal Index	4 [int]	The internal index of the record. Note this value rolls over at 2^{31}.
Time Delta	2 [short]	Delta in centiseconds of the given timestamp from when the record was actually recorded.
Reserved	2	

Records can sometimes be recorded up to a second after they were triggered for recording. This can result in a record timestamp which is not exactly when it is expected to be. For interval logs, the timestamp of each record is adjusted to the proper interval: this is done to support record parsing which requires that the record timestamps be when they are expected to be. However, to maintain the accuracy of the timestamp, the time delta provides the number of centiseconds the timestamp was adjusted.

The record data part is unique to each log. Below is a list of rules which are unique to each log. Details for the logs are given later in the chapter.

System Event: The System Event log is fixed at 1 log file, to be backward compatible with Modbus log retrieval (see Chapter 9). The System Event is always the first log file, as it should never be reset, and must always be available to diagnose issues with the system.

Interval 1,2: The first two interval logs are constrained to be backward compatible with Modbus log retrieval (see Chapter 9). These logs are capped at 8 log files or 8MB. Additionally, to maintain backward compatibility, the number of records is capped at 32767: Note that this affects how record indices and the max number of records is computed. The size of the record is the configured size for that log, in the programmable settings.

Interval 3-8, Event Triggered: The size of the record is the configured size for that log, in the programmable settings.

Limit: The Limit record contains the limit details, followed by N log items, taken from the Limit profile. The size of the record is the sum of the details size and the size of each of the log items.

Digital Input: The Digital Input record contains the Digital Input details, followed by N log items, taken from Interval 1's profile. The size of the record is the sum of the details and all the log items.

Digital Output: The Digital Output record contains the Digital Output details, followed by N log items, taken from the Limit profile. The size of the record is the sum of the details and all the log items.

Waveform: The Waveform record contains a record header, followed by the samples, and RMS details. Because the number of sample blocks is dynamic, the record size is fixed at the max size, determined from the log header. The actual size of the data in the record is determined by the record's header.
Additionally, note that due to the 1MB size limitation on records, sampling rates greater than 128 have a reduced maximum number of records.

PQ: No special details.

Transient: The Transient record contains a record header, followed by samples, and RMS details. This works the same as the Waveform record.

6.8.1.5.3: Record Location

To determine the location of a record given its external index, you must determine the arrangement of records in the files. To do this, you need to determine the first file for that log, then the record in the file, and the offset from that. Below is the basic algorithm:

```
file_size = 1MB;
//the number of records which fit into a single file.  Since records must
//  evenly fit into a file, any extra space is discarded
records_per_file = file_size / header.record_size;
//get the file number which contains the first record.  This is a sum of the
//  previous log sizes.
first_file_num = sum_log_blocks(log);
//the number of files in use by this log.  This should agree with the block
//  allocation.
num_files = header.memory_allocated / file_size;
//maximum number of records we can record given our allocation.
```

```
max_records = records_per_file * num_files;
//special case for the Interval 1 and 2 logs, which are capped at 32k, and
//  thus don't follow the above rule.
if(log == INT1 || log == INT2)
   if(max_records > 32767)
       max_records = 32767;

//The results.  file_num is the file which contains the record,
//  and file_offset is the byte offset in that file.
file_num = (external_index / records_per_file) + first_file_num;
file_offset = (external_index % records_per_file) * record_size;
```

To determine the first file, you sum the blocks allocated to each of the logs prior to it:

```
//determine which file contains the first record of a specified log
int sum_log_blocks(log)
{
 //sum each of the log sizes.  The sizes come from the block allocation in
 //  the programmable settings
 sum[0] = 0;                                  //system event
 sum[1] = system_events + sum[0];             //hist 1
 sum[2] = hist_1 + sum[1];                    //hist 2
 sum[3] = hist_2 + sum[2];                    //hist 3
 sum[4] = hist_3 + sum[3];                    //hist 4
sum[5] = hist_4 + sum[4];                     //hist 5
sum[6] = hist_5 + sum[5];                     //hist 6
sum[7] = hist_6 + sum[6];                     //hist 7
sum[8] = hist_7 + sum[7];                     //hist 8
sum[9] = hist_8 + sum[8];                     //event
sum[10] = evt_triggered + sum[9];             //limit
sum[11] = limit_log + sum[10];                //di
sum[12] = di_log + sum[11];                   //do
sum[13] = do_log + sum[12];                   //flicker
sum[14] = flicker_log + sum[13];              //waveform
sum[15] = waveform_log + sum[14];             //pq
sum[16] = pq_log + sum[15];                   //transient

return sum[log];
}
```

6.8.2: Additional Data Types

Fraction Integer
A 4 byte value used to represent a fractional number. To compute the value, take the integer portion as a signed 2 byte integer (short), and the fractional part as an unsigned integer (ushort). Divide the fractional part by 65536, and add it to the integer part. For example:

0x03260078
Fractional: 0x0326 = 806

Integer: 0x0078 = 120
Result: 120 + (806/65536) = 120.012298

Nexus µs Time
A 10 byte timestamp, where the first 8 bytes are the standard Nexus® meter 8 timestamp. The centisecond field is ignored, and bytes 8 and 9 are a ushort that describes the milliseconds, where 9999 = 999.9ms. For example:

0x200C01010A2100001357
2012/01/01 10:33:00.4951

6.8.3: Log Retrieval Procedure

6.8.3.1: Overview

Log Retrieval is done in three steps:
1. The status of the logs is retrieved to determine what records can be, and need to be, retrieved. This information will also help in determining how to retrieve the logs later.
2. The logs are downloaded, using the information gathered in step 1. This involves logging on to the meter, pausing each log in question, retrieving the files for those logs, un- pausing the logs, and logging out.
3. The logs which have been retrieved are interpreted. This can be done at the same time as retrieval, but many logs require multiple records to understand what is going on (e.g., PQ). Additionally, since the entire file needs to be downloaded via Modbus LDA, waiting to interpret them till the end is more convenient. See Section 6.8.5 for details on log interpretation.

6.8.3.2: Procedure

The following procedure assumes that the specific logs, and the range of records in them, has already been determined.
1. Connect
A single connection should be maintained for the entire length of a single log retrieval session. This is because the meter maintains state information tied to the connection, and when the connection is dropped, so is the state information. This primarily applies to log retrieval via network (TCP).
Because of this, if the connection is dropped during a log retrieval session, the entire retrieval procedure must be restarted, including logon and status retrieval. Records which have already been retrieved successfully do not need to be retrieved again however.
Because serial (RS485) connections are connectionless, they are a special case. On serial connections, you must **always** un-pause and logout when done with log retrieval.
2. Logon
Before any Modbus LDA commands will allow retrieving files, you must log on to the meter. You must use one of the 8 usernames and passwords configured through the meter's Extended Security if security is enabled.
If security is disabled, you must still logon, using the username 'anonymous' and the password 'anonymous'. Note that the username and password are case sensitive.
3. Retrieve Status Files
   - Programmable Settings

The first file to retrieve is the programmable settings. You will use this later to determine what files to retrieve, and how to interpret the records. If the blocks assigned to the log in question is zero, then it cannot be retrieved.

- Meter ID

  Next retrieve the meter ID file. You will use this to determine how to retrieve the files.

4. Retrieve Each Log

   The procedure for retrieving the records for a log is the same for most logs (with the exception of EN50160 - see Section 6.8.4). The only difference is in the interpretation of the records.

   a. Retrieve Log Header:

      For each log, the log header file is retrieved first, to determine the layout of the records in the files, and the size of the records for interpretation.

      After retrieving the file, the following values should be checked for error conditions. If any error condition is found, then log retrieval for that log should be stopped, and continued with the next log.

      - Number of Records : If the number of records is zero, then there is nothing to retrieve, and any files retrieved will only contain garbage.
      - Time Range : If retrieving for a range of time, and the oldest and newest timestamps do not contain the range of time requested, then there is no reason to retrieve the files.
      - Internal Index Range : If retrieving for a fixed range of internal indices, and the internal index range does not contain the range of indices requested, then there is no reason to retrieve the files.
      - Record Size : If the record size does not match the expected size, then this indicates that there may be a problem with the programmable settings for that log. This can be confirmed for the Interval, Limit, and Digital Input/Output logs by comparing the valid bitmap to the list of log items from the programmable settings.
      - Memory Allocated : If the memory allocated is zero, then there is nothing to retrieve. If the memory allocated does not agree with the blocks allocated (adjusted for scale), then there may be a problem with the configuration. Log Retrieval should be aborted, and the programmable settings verified: if the blocks allocated do not agree with the actual allocation, you will be unable to successfully determine which files contain which log.

5. Pause Log

   Once you determine that you want to retrieve the log, pause log recording by reading the pause file. This prevents log recording from changing the indices during retrieval, and prevent records from being overwritten while you retrieve them.

   NOTES:

   - The meter employs an extra log buffering space, used when the log is paused. This allows log recording to actually continue while the log is paused: only the indices are kept static. Once this buffer space is used up however, no more records are logged until the log is un-paused. For this reason, it is important to keep log retrieval sessions as short as possible, and to always un-pause the log when done.
   - It is possible, especially for fast recording logs, that between retrieving the log header and pausing the log, the header has changed. In these cases it helps to retrieve the header a second time after you pause the log to have the most up to date values.

6. Retrieve each log file

   The first step in retrieving the log files is determining what files to actually retrieve. The simplest way to do this is just to retrieve every file for that log. This however, is inefficient when you don't want every record, or the log is not yet full.

   - By External Record Index

     To retrieve logs by external record index, first determine what file contains that index, using the method given for Record Location (p. 6-20). Retrieve that file, and copy out the record. To optimize this, you can keep track of what files you've retrieved during this retrieval session. If the record you want is contained in one of the files you've already retrieved, use that file. Repeat this for each record you want to retrieve.

     Following is the basic algorithm for retrieving by record index:

```
for(i=first_index;          i<last_index; i++)
        {
        get file_num and file_offset, where i is the external index
        //if we already have the file local, just get the record from there
        if(retrieved_files.Contains(file_num))
                record = get_record(retrieved_files[file_num], file_offset);
         else
        {
                //otherwise, we need to retrieve the specified log file
                file = retrieve_file(file_num);
               //store it for later
               retrieved_files[file_num] = file;
               record = get_record(retrieved_files[file_num], file_offset);
        }

        do something with the record
        }
```

7. Un-pause Log

   As soon as you are done retrieving the log files, the log must be un-paused by reading the running file. This allows log recording to continue normally, preventing any gaps in the data.

   NOTE: Pausing and un-pausing logs adds log retrieval entries to the System Event log. For this reason, logs should not be paused if no records are to be retrieved (thus the reason you check the log header **before** pausing the log).

8. Logout

   When you are done retrieving all the logs, you need to log out from the meter. This cleans up any resources associated with log retrieval.

6.8.4: EN50160 Information

The EN50160 weekly and yearly data is stored in a different format than the other log's data. Each week and year is stored in its own XML file, named after the week and the year it describes. Retrieval of this log is as simple as just downloading the file in question.
NOTE: The week and year files are only generated once the meter's current time has passed the end of that period. All of the currently collected information is kept in the 'current' files. Once the end of the period has passed, the current data is stored, and a new set of current data is begun. The side effect of this is that changing the meter's time can result in a week or year file containing less or more intervals than expected. The total counts and date ranges should always be checked when interpreting the EN50160 data files.

6.8.4.1: EN50160 Week Filename

Each EN50160 week file is named by the year, and the week of that year, of the data it contains. The format of the filename is '**YYYY_W##.XML**', where '**YYYY**' is the year (for example '**2012**'), and '**##**' is the week of that year. So for example, the 3rd week of 2012 would be '**2012_W03.XML**'.

To compute the week and year number for any given day, month, and year, use the following algorithm:

```
//Obtain Julian day number: with year, month and day values
Const_a = (14 - month)/12
Const_y = year + 4800 - Const_a
Const_m = month + 12 * Const_a - 3
julian_day = day + (153 * Const_m + 2) / 5 + Const_y * 365 +
    Const_y / 4 - Const_y / 100 + Const_y / 400 – 32045

//Obtain week number
Obtain julian_day with year, month and day values
Const_1 =  (((julian_day + 31741 -
      (julian_day mod 7)) mod 146097) mod 36524) mod 1461
Const_2 = Const_1 / 1460
Const_3 = ((Const_1 - Const_2) mod 365 ) + Const_2
week_num = Const_3 / 7 + 1
set initial year adjust flag=0
if week_num >=2 AND month=1 AND (week_num=52 OR week_num=53) then
      set year adjust flag = -1
if week_num <2 AND month=12 then
      set year adjust flag to = +1

//Adjustment for First Day of Week (FDOW) is Sunday, WN=week number
if current day of week (CDOW) is Sunday
      if year adjust flag = -1
         if month=1 and day are 1, 2, or 3, then
            set WN=1, set year adjust flag = 0
      if year adjust flag = 0
         if month=12 and day are 29, 30, or 31, then
            set WN=1, set year adjust flag = +1
         else
            set WN=WN+1
```

```
if current day of week (CDOW) is not Sunday
  if month=12
    if day=30 and CDOW=Mon OR
       day=31 and CDOW=Mon OR Tue Then
         set WN=WN+1, set year adjust flag = +1
    if day=29 and CDOW=Mon OR
      day=30 and CDOW=Tue OR
      day=31 and CDOW=Wed Then
        set WN=53, set year adjust flag = 0
  if month=1
    if day=1 and CDOW=Fri OR Sat OR
      day=2 and CDOW=Sat Then
        set year adjust flag = -1
    if day=1 and CDOW=Thr OR
      day=2 and CDOW=Fri OR
      day=3 and CDOW=Sat Then
        set WN=53, set year adjust flag = -1
```

Final year value = year + (year adjust flag)

6.8.4.2: EN50160 Year Filename

Each EN0160 year file is named by the year of the data it contains. The format of the filename is '**YYYY.XML**', where '**YYYY**' is the year. So for example, 2012 would be '**2012.XML**'.

6.8.4.3: List Week and Year Files

\C\EN50160

All of the EN50160 files are stored in the '**\\C\EN50160**' directory. To retrieve all of the weeks and years generated, simply list all of the files contained within the directory, and retrieve each one.

NOTE: The 'current' files, and files with a 0000 year, can be ignored.

6.8.5: Log Interpretation

6.8.5.1: System Events Log

The System Events Log stores events which affect the operation of the meter, including power events, time changes, log retrieval, settings changes, and firmware changes.

Record Format

Field	Size	Description
Record Index	4 (uint)	The internal index of the record.
Reserved	4	
Timestamp	8 [nexus8_time]	The time of the event.
Record Type	1	The type of the event.
Record Details	7	Data about the event. Note that some records require more than one record, and data may be split across multiple records.

When an event is paired with a second record (such as the log retrieval event, via Ethernet), the sequence of the records will be indicated by a record sequence field. For example, in the Log Retrieval record, byte 12 (byte 3 of the record details) will be set to 0 for the first half of the record, and 1 for the second. The second record should always be the record sequentially after the first record; however, always check that the event type and record sequence numbers concur.

6.8.5.2: Interval Logs 1-8, Event Triggered

Record Format

Field	Size	Description
Record Index	4 (uint)	The internal index of the record.
Reserved	4	
Timestamp	8 [nexus8_time]	The time of the event.
Record Data	N	A list of the log items configured in the programmable settings.

The exact size of the record is determined by the configuration of the log in the programmable settings. The size includes the 8 bytes for the timestamp.
NOTE: The size follows the size configuration for the log, not the sum of the items configured. Any space which is not filled by log items will be garbage, and should be ignored. For Interval logs 1 and 2, this size is an enumerator, so the records will always be a power of two in size (see Chapter 9). For Interval logs 3-8 and the Event Triggered logs, the size can be specified as any size greater than 8 (to account for the timestamp), up to a maximum size of 512 bytes.

Item Interpretation
To interpret the contents of the record data, first determine the list of items configured in the programmable settings. While the location of the settings is different for each log, they all use the same settings types.

Each log item is composed of 4 values: Line (Pointer), Point (Index), Size, and FType. Size and FType can be determined from Line and Point, but are included in the programmable settings for convenience during log interpretation.

The list of log items is determined by looking at each item in the programmable settings. Any 'invalid' items are set with a Line value of 0 or 0xFFFF.
For example, if there are the following items:

Line	Point	Size	FType	Name (Not part of prog.set.)
34	0	4	7	One Sec Volts A-N
34	1	4	7	One Sec Volts B-N
34	2	4	7	One Sec Volts C-N
0xFFFF	0	0xFF	0xFF	Invalid Item
36	0	4	7	One Sec Current A

The record will contain 4 log items: Volts A, B, C, and One Sec Current A. The invalid item is ignored.

Next, determine what record items are valid, by comparing each item against the matching position in the valid bit flags from the log header. If the valid flags say that it is not valid, then the item cannot be parsed, and should be ignored.

The size and offset in the record data is determined by summing the previous items. So for example, Volts A-N will be at offset 0, Volts B-N will be at offset 4, Volts C-N will be at offset 8, and One Sec Current A will be offset at 12.

See Chapter 3 for details on converting FType items.

6.8.5.3: Limit Log

The Limit Log records an entry every time limit values monitored by the meter change their state. The log records information about the limits, such as the specific limit which was triggered, and a snapshot of the items configured in the programmable settings for the Limit Log.

Record Format

The Limit Log is composed of two parts: A details header, followed by the snapshot of log items. The details header is fixed in size (40 bytes), and has the following values:

Field	Size	Description
Record Index	4 (uint)	The internal index of the record.
Reserved	4	
Timestamp	8 (nexus8_time)	The time of the limit event. Note that the MSB bit (bit 7) is used to indicate that this record is not continuous with the previous record, and state changes may be missing. This will primarily happen during a reset or power loss.
Current States for Value 1	4 (bitmap)	The current states of each of the 32 limits for Value 1. Limits are left to right, so the 31st bit is limit 1, and the 0th bit is limit 32. If the bit is set to 1, then the limit is exceeded.
Current States for Value 2	4 (bitmap)	The current states of each of the 32 limits for Value 2. Bit order is the same as current states for value 1. If the bit is set to 1, then the limit is exceeded.
Delta States for Value 1	4 (bitmap)	The change of the states for each of the 32 limits for Value 1, since the last limit event. Bit order is the same as current states for value 1. If the bit is set to 1, then the limit has changed.
Delta States for Value 2	4 (bitmap)	The change of the states for each of the 32 limits for Value 2, since the last limit event. Bit order is the same as current states for value 1. If the bit is set to 1, then the limit has changed.
Current States for Comparison	4 (bitmap)	The combination of the current states of Value 1 and 2, for each of the 32 limits. Bit order is the same as current states for value 1. If the bit is set to 1, then the combination is true.
Delta States for Comparison	4 (bitmap)	The change of the states for each of the comparison states, for each of the 32 limits. Bit order is the same as current states for value 1. If the bit is set to 1, then the state has changed.

The remaining data in the record is the snapshots for the limits. These follow the same format and rules as the Interval records, using the Limit Items from the programmable settings as its item list.

Item Interpretation

The item descriptions are from the meter's programmable settings, Limit Items.

Limit Event Analysis

The Limit Records only indicate a change in state of the limits. To determine information about the overall limit events, you have to analyze the sequence of the limit records.

To determine the pair of records which match for an event, defined as the limit going out, then coming back in, start with a record that indicates that the limit in question is going out. This is a record in which the delta state for the limit is 1, and the current state is 1. To find the matching event end record, search forward in time in the records until a record is found where the delta state for the limit is 1, and the current state is 0. Note that you need to check the continuous bit in the timestamp of each record: If any record is found to be non-continuous, then the state changes may be lost, and any end record found may not match with the original record.

6.8.5.4: Digital Input Log

The Digital Input log records an entry every time the digital inputs change state. The log records the states of each input at the time of the record, along with a snapshot of the items configured in the programmable settings for the limit log.

The digital inputs monitored by this log include the built-in inputs, as well as the two optional digital input cards.

Record Format

The Digital Input log is composed of two parts: A details header, followed by the snapshot of the log items. The details header is fixed in size (16 bytes), and has the following values:

Field	Size	Description
Record Index	4 (uint)	The internal index of the record.
Reserved	4	
Timestamp	8 (nexus8_time)	The time of the event. Note that the MSB bit (bit 7) is used to indicate that this record is not continuous with the previous record, and state changes may be missing. This will primarily happen during a reset or power loss.
Built-in Input States	1 (bitmap)	The states of the built-in digital inputs. Inputs are mapped MSB, so bit 7 is input 8, and bit 0 is input 1.
Option Board 1 input states 1-8	1 (bitmap)	The states of option board 1's digital inputs 1-8. Inputs are mapped MSB, so bit 7 is input 8, and bit 0 is input 1.
Option Board 1 input states 9-16	1 (bitmap)	The states of option board 1's digital inputs 9-16. Inputs are mapped MSB, so bit 7 is input 16, and bit 0 is input 9.
Option Board 2 input states 1-8	1 (bitmap)	The states of option board 2's digital inputs 1-8. Inputs are mapped MSB, so bit 7 is input 8, and bit 0 is input 1.
Option Board 2 input states 9-16	1 (bitmap)	The states of option board 2's digital inputs 9-16. Inputs are mapped MSB, so bit 7 is input 16, and bit 0 is input 9.
Valid Flags	1 (bitmap)	Indicates which of the input states are valid. Bit 7 – Option Board 1 Bit 6 – Option Board 2 If the bit is not set, ignore the states.

The remaining data in the record is the snapshots for the digital inputs. These follow the same format and rules as the Interval records, using the Limit log items from the programmable settings as its item list.

Item Interpretation
Parsing the snapshot items is the same as the Interval log items. See the Item Interpretation section for the Interval logs.

Digital Input Event Analysis
The Digital Input records only store the current states of the inputs. To determine information about overall input events, you have to analyze the sequence of the digital input records. This may not be necessary, as the inputs can be used just for state changes, rather than 'in' and 'out' conditions.
As the Digital Input record does not indicate state change information (deltas), sequential records must be compared to determine when the state changed. Note that you need to check the continuous bit in the timestamp of each record: If any record is found to be non-continuous, then the exact time of the state changing may be lost.
To determine the pair of records which match for an event, defined as the digital input entering a state, then transitioning back to the original state, start with a record that has just entered the desired state. This is a record for which the input state is in the desired 'out' state, and the previous record has the input in the opposite state.
To find the matching event return record, search forward in time in the records until a record is found where the input state is the opposite of the start record. Remember to check the continuous bit in the timestamp.

The Option Board states should be ignored if the valid flags indicate they are invalid.

6.8.5.5: Digital Output Log

The meter's Digital outputs (Relays) can be made up of options boards and external module relays. The meter can accept up to 2 relay option boards. There are 6 relays on each relay board, for a total of 12 relays if both boards are installed. Relay indices 1 to 6 are for the relays in the first relay board. Relay indices 7 to 12 are for the relays in the seconds relay board. The meter can accept just one external module which has 4 relays. The meter can be configured to handle up to 16 relays total, between relay option boards and the external module. The table below shows the possible arrangements.

Arrangements	Options boards	External Module
1	No option board	Relays 13 to 16 (Module 4)
2	1st Option Board (Slot 3): Relays 1 to 6	Relays 13 to 16 (Module 4)
3	2nd Option Board (Slot 4): Relays 7 to 12	Relays 13 to 16 (Module 4)
4	1st and 2nd Option Boards: Relays 1 to 12	Relays 13 to 16 (Module 4)
5	1st and 2nd Option Boards: Relays 1 to 12	No external relay module

The Digital Output State Log stores records in order to document the stages used when changing states of Digital outputs (Relays). Records are recorded 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 a relay lock or unlock; when the command is transmitted to the external device; and when the response is returned from the external device.

Record Format

Field	Size	Description
Record Index	4 (uint)	The internal index of the record.
Reserved	4	
Timestamp	8 (nexus8_time)	The time of the event.
Stage	1	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 one or multiple relay. 0x003, Stage 3, Confirmation has been received from a command that was sent.
Relay Valid	2	Indicates whether information about a relay is valid or not. Option boards or module, which are unused, or which are not responding to communication, are not valid. 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. Bit 15 is the most significant bit. The bits are formatted as following bits: 15 to 10: 1st Option Card, relay index 1 to 6 9 to 4: 2nd Option Card, relay index 7 to 12 3 to 0: External Relay Module, relay index 13 to 16
Relay Logic Trees Inputs States	16	Each byte represents the inputs in a Relay Logic Tree for one relay. Byte 1 to 16 represent for relay 1 to 16. Each bit represents the state of an input into a Relay Logic Tree. The bits 7 to 0, represent the input 1 to 8 for each relay. Bit 7 is the most significant bit. A bit value of 0 indicates a false input value; a bit value of 1 indicates a true input value. These values are retrieved before the possible NOT on inputs that are a possible programmable setting.
Relay Logic Trees Gates Output	16	Each byte represents the gate outputs in a Relay Logic Tree for one relay. Byte 1 to 16 represent for relay 1 to 16. Each bit represents the state of a gate output in a Relay Logic Tree. The bits 7 to 0, represent the Gate A to Gate G. A bit value of 0 indicates a false output value; a bit value of 1 indicates a true output value.

Current Relays Locked	2	Each bit indicates whether a relay is locked or unlocked. A bit value of 0 indicates the relay is not locked; a bit value of 1 indicates the relay is locked. Bit 15 is the most significant bit. The bits are: 15 to 10: 1st Option Card, relay index 1 to 6 9 to 4: 2nd Option Card, relay index 7 to 12 3 to 0: External Relay Module, relay index 13 to 16
Previous Relays Locked	2	Each bit indicates whether a relay was previously locked or unlocked. A bit value of 0 indicates the relay was not locked; a bit value of 1 indicates the relay was locked. Bit 15 is the most significant bit. The bits are: 15 to 10: 1st Option Card, relay index 1 to 6 9 to 4: 2nd Option Card, relay index 7 to 12 3 to 0: External Relay Module, relay index 13 to 16
Desired Relay States	2	Each bit indicates the desired state of the relay. If the relay is locked, as indicated in the previous 2 bytes, then this is the state the relay should be locked to. If the relay is unlocked, then this is the state that the relay should be in 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. Bit 15 is the most significant bit. The bits are: 15 to 10: 1st Option Card, relay index 1 to 6 9 to 4: 2nd Option Card, relay index 7 to 12 3 to 0: External Relay Module, relay index 13 to 16
Command Sent	2	Indicates that a command has begun to be sent to an option board/external module to change the state of a relay The first byte indicates which relay the command is being sent to: 0x000-0x005 1st Option Board, Relay 1-6 0x006-0x00B 2nd Option Board, Relay 7-12 0x00C-0x00F External Module, Relay 13-16 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.
Change Success	2	Each bit indicates successfully changed relay states, as recorded by the reception of the response from the relay option board or external 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 connected to Normal Open. Bit 15 is the most significant bit. The bits are: 15 to 10: 1st Option Card, relay index 1 to 6 9 to 4: 2nd Option Card, relay index 7 to 12 3 to 0: External Relay Module, relay index 13 to 16
Reserved	13	
Snapshot	n bytes	The remaining data in the record is the snapshots for the digital output. These follow the same format and rules as the Limit log record, using the Limit Items from the programmable settings as its item list.

Item Interpretation
Parsing the snapshot items is the same as the Limit log items. See the Item Interpretation section for the Limit log.

Digital Output Event Analysis
Each Digital Output record only stores one type of event/command for one or multiple digital outputs (relays) at one of the 3 possible stages. To determine information about overall digital output events, you have to analyze the sequence of the digital output records.

A relay channel should be ignored if the valid flag indicates it's invalid.

A complete cycle of a relay change event should include records for all 3 stages. The duration of such event can be computed from the time difference between stage 1 and stage 3 records.

6.8.5.6: Waveform Log

The Waveform Log records the RMS details of the input channels when a configured waveform limit is exceeded, if an input state changes, or if a capture was manually triggered. The details include the analysis of the RMS data, the states during that cycle, and the samples on the input channels.
NOTE: Different versions of the waveform record have different formats. The version field of the header should always be checked before parsing the rest of the record.

Record Format
The Waveform record is composed of 4 parts: A details header, the samples block, the RMS info block, and the footer. Every capture can be a different size record, so the details header is used to determine how to parse the rest of the record. The footer is used to confirm that record has been properly parsed.
The details header is fixed in size (1024 bytes), and v8 has the following fields:

Waveform Header Details

Fields	Size	Description
Record Index	4 (uint)	The internal index of the record.
Record Format Version	2 (uint)	The record format version. The format documented here is v8.
Header Size	4 (uint)	The size of the header.
Record Total Size	4 (uint)	The total size of the record. Note that this is the used size, not the reserved size, so may be smaller than the record size specified in the header. This value – 16 should be the beginning of the footer.
Sample Section Offset	4 (uint)	Offset from the beginning of the record to the samples block.
RMS Section Offset	4 (uint)	Offset from the beginning of the record to the RMS block.
Digital Input Mask	2 (bitmap)	The digital inputs which have been configured in the programmable settings to trigger waveform captures.
Capture Number	4 (uint)	The index of the record in the capture when waveform is configured to record multiple records per capture. This number will be recorded sequentially decreasing, so for 5 records per capture, the first will be 5, the second 4, down to 1.
First RMS block Timestamp	8 (nexus8_time)	The timestamp of the first RMS block in the capture.
Reserved	12	
U_{sr} Voltage Flags	2 (bitmap)	The list of voltage channels which have been configured in the programmable settings to trigger waveform captures according to the U_{sr} rules.
U_{sr} Current Flags	2 (bitmap)	The list of current channels which have been configured in the programmable settings to trigger waveform captures according to the U_{sr} rules.
Sample Reduction Factor	2 (ushort)	At sample rates lower than 1024 samples per cycle, samples are interlaced together. This factor indicates how to de-interlace them.
Sample Block Size per Channel	4 (uint)	The size of a sample block for a single channel. This is used to parse the sample data.
RMS Block Size	4 (uint)	The size of the RMS block.
Number of Sample Blocks per Channel	2 (ushort)	The number of sample blocks. This is used to compute the overall number of samples.
Number of RMS Blocks	2 (ushort)	The number of RMS blocks.
Contiguous	1 (byte)	A value of 1 indicates that this waveform is contiguous with the previous record. This will often happen when a waveform trigger occurs while a previous waveform is still being recorded. When this happens, the trigger will be in the previous record.
Reserved	3	
Manual Triggered	2 (ushort)	A value of 1 indicates this capture was manually triggered, and not because of a waveform limit or input event.
Reserved	4	
Trigger Sample Block Time Counter	4 (uint)	The time counter of the RMS Block which contains the trigger for this waveform. Used to determine which samples

		and RMS block contains the trigger.
Trigger block Timestamp	10 (nexus_µs_time)	The timestamp of the *end* of the RMS block that contains the trigger.
Reserved	2	
Trigger RMS Block	196 (RMS Data Block)	Contains information on the waveform states at the time of the trigger. See below for details on the block.
Waveform Setup Info	316 (Waveform Setup Block)	Describes how the waveform triggers and captures were configured, as well as providing information about the meter. See below for details on the block.
Firmware Ids	148 (Firmware Info Block)	Contains identification information from the firmware that describes what features are supports. See below for details on the block.

RMS Data Block

Fields	Byte	Size	Description
1cycle Logical Van RMS	0	4 (fraction integer)	V_{an} RMS computed from the physical RMS.
1cycle Logical Vbn RMS	4	4 (fraction integer)	
1cycle Logical Vcn RMS	8	4 (fraction integer)	
1cycle Logical Vab RMS	12	4 (fraction integer)	
1cycle Logical Vbc RMS	16	4 (fraction integer)	
1cycle Logical Vca RMS	20	4 (fraction integer)	
1cycle Logical Vxn RMS	24	4 (fraction integer)	
1cycle Logical Vres RMS	28	4 (fraction integer)	
1cycle Logical Ires RMS	32	4 (fraction integer)	
1cycle Physical Vae RMS	36	4 (fraction integer)	Raw V_{ae} RMS computed directly from the inputs.
1cycle Physical Vbe RMS	40	4 (fraction integer)	
1cycle Physical Vce RMS	44	4 (fraction integer)	
1cycle Physical Vxe RMS	48	4 (fraction integer)	
1cycle Physical Vne RMS	52	4 (fraction integer)	
1cycle Physical Ia RMS	56	4 (fraction integer)	
1cycle Physical Ib RMS	60	4 (fraction integer)	
1cycle Physical Ic RMS	64	4 (fraction integer)	
1cycle Physical Ix RMS	68	4 (fraction integer)	
1cycle Physical Van Mean	72	2 (ushort)	
1cycle Physical Vbn Mean	74	2 (ushort)	
1cycle Physical Vcn Mean	76	2 (ushort)	
1cycle Physical Vab Mean	78	2 (ushort)	
1cycle Physical Vbc Mean	80	2 (ushort)	

1cycle Physical Vca Mean	82	2 (ushort)	
1cycle Physical Vxn Mean	84	2 (ushort)	
1cycle Physical Vres Mean	86	2 (ushort)	
1cycle Physical Ires Mean	88	2 (ushort)	
1cycle Physical Vae Mean	90	2 (ushort)	
1cycle Physical Vbe Mean	92	2 (ushort)	
1cycle Physical Vce Mean	94	2 (ushort)	
1cycle Physical Vxe Mean	96	2 (ushort)	
1cycle Physical Vne Mean	98	2 (ushort)	
1cycle Physical Ia Mean	100	2 (ushort)	
1cycle Physical Ib Mean	102	2 (ushort)	
1cycle Physical Ic Mean	104	2 (ushort)	
1cycle Physical Ix Mean	106	2 (ushort)	
Period Count	108	2 (ushort)	(60.000*1024)/ref_frequency. This is the number of samples used to compute the cycle data.
Cycle Count	110	2 (ushort)	Incrementing number of cycles, used for cycle identification.
reserved	112	2	
Reference Sample Index	114	2 (ushort)	Index of the specific sample in the matching sample block which is the last sample this RMS block describes. This sample is always assuming a 1024 sampling rate, and needs to be scaled appropriately when being applied to a sample block at a lower sampling rate.
Absolute Sample Index	116	2 (ushort)	Absolute index for the sample which marks the end of the RMS block. Rolls over at 65536.
High Speed Input Transitions	118	2 (bitmap)	Bit flag which indicate if the state of the high speed inputs have changed since the last RMS block, where a bit of 1 indicates a transition occurred. Bit 0 is channel 0, bit 1 is channel 1, and so on.
High Speed Input States	120	2 (bitmap)	Bit flag which indicate the current state of the high speed inputs, where a bit of 1 indicates open, and 0 indicates closed. Bit 0 is channel 0, bit 1 is channel 1, and so on.
DSP2 Firmware Type	122	2 (String)	‘DE' for debug, 'RE' for release
DSP2 Firmware Version	124	4 (String)	Byte 0 is version letter, bytes 1-3 are the

			version number.
DSP2 Firmware ID	128	4 (uint)	Debug id for the dsp2 firmware.
Waveform voltage RMS sag flags	132	2 (bitmap)	Bit flags which indicate if the Voltage RMS was below the waveform sag threshold during the period of the RMS Block. See Table 1 (Waveform Voltage Bit Flags) for bits.
Waveform voltage RMS swell flags	134	2 (bitmap)	Bit flags which indicate if the Voltage RMS was above the waveform swell threshold during the period of the RMS Block. See Table 1 (Waveform Voltage Bit Flags) for bits.
reserved	136	2	
Transient pos over-range flags	138	2 (bitmap)	Indicates a positive transient which exceeded the configured threshold occurred. See Table 2 (Transient Bit Flags) for bits.
Transient neg over-range flags	140	2 (bitmap)	Indicates a negative transient which exceeded the configured threshold occurred. See Table 2 (Transient Bit Flags) for bits.
Transient pos peak sample index ch1	142	2 (ushort)	The sample index of the peak positive transient to occur on channel 1 (Van or Vab).
Transient pos peak sample index ch2	144	2 (ushort)	The sample index of the peak positive transient to occur on channel 2 (Vbn or Vbc).
Transient pos peak sample index ch3	146	2 (ushort)	The sample index of the peak positive transient to occur on channel 3 (Vcn or Vca).
Transient neg peak sample index ch1	148	2 (ushort)	The sample index of the peak negative transient to occur on channel 1 (Van or Vab).
Transient neg peak sample index ch2	150	2 (ushort)	The sample index of the peak negative transient to occur on channel 2 (Vbn or Vbc).
Transient neg peak sample index ch3	152	2 (ushort)	The sample index of the peak negative transient to occur on channel 3 (Vcn or Vca).
Transient pos peak sample value ch1	154	2 (ushort)	The peak positive transient value to occur on channel 1 (Van or Vab). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample value ch2	156	2 (ushort)	The peak positive transient value to occur on channel 2 (Vbn or Vbc). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample value ch3	158	2 (ushort)	The peak positive transient value to occur on channel 3 (Vcn or Vca). Multiply by (1800/255) to get Secondary

			value.
Transient neg peak sample value ch1	160	2 (ushort)	The peak negative transient value to occur on channel 1 (Van or Vab). Multiply by (1800/255) to get Secondary value.
Transient neg peak sample value ch2	162	2 (ushort)	The peak negative transient value to occur on channel 2 (Vbn or Vbc). Multiply by (1800/255) to get Secondary value.
Transient neg peak sample value ch3	164	2 (ushort)	The peak negative transient value to occur on channel 3 (Vcn or Vca). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample duration ch1	166	2 (ushort)	Duration of the peak positive transient to occur on channel 1 (Van or Vab). Multiply by 18.18 nanoseconds to get time.
Transient pos peak sample duration ch2	168	2 (ushort)	Duration of the peak positive transient to occur on channel 2 (Vbn or Vbc). Multiply by 18.18 nanoseconds to get time.
Transient pos peak sample duration ch3	170	2 (ushort)	Duration of the peak positive transient to occur on channel 3 (Vcn or Vca). Multiply by 18.18 nanoseconds to get time.
Transient neg peak sample duration ch1	172	2 (ushort)	Duration of the peak negative transient to occur on channel 1 (Van or Vab). Multiply by 18.18 nanoseconds to get time.
Transient neg peak sample duration ch2	174	2 (ushort)	Duration of the peak negative transient to occur on channel 2 (Vbn or Vbc). Multiply by 18.18 nanoseconds to get time.
Transient neg peak sample duration ch3	176	2 (ushort)	Duration of the peak negative transient to occur on channel 3 (Vcn or Vca). Multiply by 18.18 nanoseconds to get time.
Waveform current RMS sag flags	178	2 (bitmap)	Bit flags which indicate if the Current RMS was below the waveform sag threshold during the period of the RMS Block. See Table 3 (Waveform Current Bit Flags) for bits.
Waveform current RMS swell flags	180	2 (bitmap)	Bit flags which indicate if the Current RMS was above the waveform swell threshold during the period of the RMS Block. See Table 3 (Waveform Current Bit Flags) for bits.
reserved	182	2	
Waveform voltage RMS	184	2 (bitmap)	Bit flag which indicates if the state of the

sag transitions			waveform voltage sags have changed since the last RMS block, where a bit of 1 indicates a transition has occurred. See Table 1 (Waveform Voltage Bit Flags) for bits.
Waveform voltage RMS swell transitions	186	2 (bitmap)	Bit flag which indicates if the state of the waveform voltage swells have changed since the last RMS block, where a bit of 1 indicates a transition has occurred. See Table 1 (Waveform Voltage Bit Flags) for bits.
Waveform current RMS sag transitions	188	2 (bitmap)	Bit flag which indicates if the state of the waveform current sags have changed since the last RMS block, where a bit of 1 indicates a transition has occurred. See Table 3 (Waveform Current Bit Flags) for bits.
Waveform current RMS swell transitions	190	2 (bitmap)	Bit flag which indicates if the state of the waveform current swells have changed since the last RMS block, where a bit of 1 indicates a transition has occurred. See Table 3 (Waveform Current Bit Flags) for bits.
reserved	192	4	

Waveform Setup Block

Name	Byte	Size	Description
Reference Frequency	0	4 (fraction integer)	0.2 second updated frequency at the time of capture, used as a reference for other calculations.
Meter Hookup	4	2 (ushort)	Hookup Configuration, from Programmable Settings. See T4 (Meter Hookup) for details.
Transient Type	6	2 (ushort)	Transient Configuration. bit 0: 0=enable, 1=disable bit 1: 0=VPN, 1=VPP
Frequency Type	8	2 (ushort)	The frequency mode the meter is configured for. 1: 60Hz 0: 50Hz
reserved	10	2	
Physical Vae Cal Gain value	12	2 (ushort)	The gain value for Vae. Calibration value.
Physical Vbe Cal Gain value	16	2 (ushort)	
Physical Vce Cal Gain value	20	2 (ushort)	
Physical Vxe Cal Gain value	24	2 (ushort)	

Physical Vne Cal Gain value	28	2 (ushort)	
Physical Ia Cal Gain value	32	2 (ushort)	
Physical Ib Cal Gain value	36	2 (ushort)	
Physical Ic Cal Gain value	40	2 (ushort)	
Physical Ix Cal Gain value	44	2 (ushort)	
Physical Vae Cal Offset value	48	2 (ushort)	The offset value for Vae. Calibration Value.
Physical Vbe Cal Offset value	50	2 (ushort)	
Physical Vce Cal Offset value	52	2 (ushort)	
Physical Vxe Cal Offset value	54	2 (ushort)	
Physical Vne Cal Offset value	56	2 (ushort)	
Physical Ia Cal Offset value	58	2 (ushort)	
Physical Ib Cal Offset value	60	2 (ushort)	
Physical Ic Cal Offset value	62	2 (ushort)	
Physical Ix Cal Offset value	64	2 (ushort)	
reserved	66	2	
Waveform Voltage Enabled	68	2 (bitmap)	Indicates which for which voltage channels waveform sag/swell comparison is enabled on. See Table 1 (Waveform Voltage Bit Flags) for details.
reserved	70	2	
Waveform Current Enabled	72	2 (bitmap)	Indicates which for which current channels waveform sag/swell comparison is enabled on. See Table 3 (Waveform Current Bit Flags) for details.
reserved	74	2	
Waveform Van RMS sag threshold	76	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vbn RMS sag threshold	80	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vcn RMS sag threshold	84	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vab RMS sag threshold	88	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vbc RMS sag threshold	92	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vca RMS sag	96	4 (fraction	Secondary voltage value used as the sag

threshold		integer)	threshold.
Waveform Vxn RMS sag threshold	100	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vne RMS sag threshold	104	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vae RMS sag threshold	108	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vbe RMS sag threshold	112	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vce RMS sag threshold	116	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Vxe RMS sag threshold	120	4 (fraction integer)	Secondary voltage value used as the sag threshold.
Waveform Van RMS swell threshold	124	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vbn RMS swell threshold	128	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vcn RMS swell threshold	132	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vab RMS swell threshold	136	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vbc RMS swell threshold	140	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vca RMS swell threshold	144	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vxn RMS swell threshold	148	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vne RMS swell threshold	152	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vae RMS swell threshold	156	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vbe RMS swell threshold	160	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vce RMS swell threshold	164	4 (fraction integer)	Secondary voltage value used as the swell threshold.
Waveform Vxe RMS swell threshold	168	4 (fraction integer)	Secondary voltage value used as the swell threshold.
reserved	172	48	
Waveform Ia RMS sag threshold	220	4 (fraction integer)	Secondary current value used as the sag threshold.
Waveform Ib RMS sag threshold	224	4 (fraction integer)	Secondary current value used as the sag threshold.
Waveform Ic RMS sag threshold	228	4 (fraction integer)	Secondary current value used as the sag threshold.
Waveform Ix RMS sag threshold	232	4 (fraction integer)	Secondary current value used as the sag threshold.
Waveform Ia RMS swell threshold	236	4 (fraction integer)	Secondary current value used as the swell threshold.
Waveform Ib RMS swell threshold	240	4 (fraction integer)	Secondary current value used as the swell threshold.

Waveform Ic RMS swell threshold	244	4 (fraction integer)	Secondary current value used as the swell threshold.
Waveform Ix RMS swell threshold	248	4 (fraction integer)	Secondary current value used as the swell threshold.
reserved	252	16	
Transient Channel Enables	268	2 (bitmap)	Bit flags which indicate which waveform channels are configured for transient capture. See Table 5 (Transient Channels).
reserved	270	2	
Number of waveform channels	272	2 (ushort)	Number of waveform channels configured for capture. Max 15. See Table 1 (Waveform Voltage Bit Flags) and Waveform channels table on page 6-46 for details.
Channel 1 ID	274	2 (ushort)	The waveform channel being stored.
Channel 2 ID	276	2 (ushort)	
Channel 3 ID	278	2 (ushort)	
Channel 4 ID	280	2 (ushort)	
Channel 5 ID	282	2 (ushort)	
Channel 6 ID	284	2 (ushort)	
Channel 7 ID	286	2 (ushort)	
Channel 8 ID	288	2 (ushort)	
Channel 9 ID	290	2 (ushort)	
Channel 10 ID	292	2 (ushort)	
Channel 11 ID	294	2 (ushort)	
Channel 12 ID	296	2 (ushort)	
Channel 13 ID	298	2 (ushort)	
Channel 14 ID	300	2 (ushort)	
Channel 15 ID	302	2 (ushort)	
Waveform Sample Rate	304	2 (ushort)	The sample rate divider. 0: full sample rate (1024) 2: 1/2 of full sample rate (512) 4: (256) 8: (128) 16: (64) 32: (32) 64: 1/64 of full sample rate (16)
reserved	306	10	

Firmware Info Block

Fields	Size	Description
Reserved	20	
Variation 0	16 (string)	Variation string, using to identify features of the current firmware.
Variation 1	16 (string)	Variation string, using to identify features of the current firmware.
Variation 2	16 (string)	Variation string, using to identify features of the current firmware.
Variation 3	16 (string)	Variation string, using to identify features of the current firmware.
Variation 4	16 (string)	Variation string, using to identify features of the current firmware.
Variation 5	16 (string)	Variation string, using to identify features of the current firmware.
Variation 6	16 (string)	Variation string, using to identify features of the current firmware.
Variation 7	16 (string)	Variation string, using to identify features of the current firmware.
Variation 8	16 (string)	Variation string, using to identify features of the current firmware.
Variation 9	16 (string)	Variation string, using to identify features of the current firmware.
Variation 10	16 (string)	Variation string, using to identify features of the current firmware.
Variation 11	16 (string)	Variation string, using to identify features of the current firmware.
Variation 12	16 (string)	Variation string, using to identify features of the current firmware.
Variation 13	16 (string)	Variation string, using to identify features of the current firmware.
Variation 14	16 (string)	Variation string, using to identify features of the current firmware.
Variation 15	16 (string)	Variation string, using to identify features of the current firmware.

Waveform Reference Tables

T1	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Waveform Voltage Bit Flags					Vxe	Vce	Vbe	Vae	Vne	Vxn	Vca	Vbc	Vab	Vcn	Vbn	Van

T2	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Transient Bit Flags														Vcn	Vbn	Van

NOTE: When Transient is configured for Phase to Phase, Van becomes Vab, Vbn becomes Vbc, and Vcn becomes Vca.

T3	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Waveform Current Bit Flags													Ix	Ic	Ib	Ia

T4 – Meter Hookup

Value	Hookup
0	4 Wire WYE
1	3 Wire Delta 3 CT
2	3 Wire Delta 2 CT
3	4 Wire WYE 2.5 element
4	4 Wire Delta Ground

T5	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Transient Channels											Vca	Vbc	Vab	Vcn	Vbn	Van

Samples Section

Fields	Byte	Size	Description
Section ID	0	16 (string)	Tag id for the block, to ensure you've parsed the record correctly. Must be "**WaveSample****"
Sample Blocks	16		The sample blocks, rotating through the channel list for each sample block time counter.

Sample Block

Fields	Byte	Size	Description
Sample Block Time Counter	0	4 (uint)	The time counter of this sample block. Each sample block gets a sequentially increasing index, used to cross reference with the RMS Data Blocks that describe it.
Reserved	4	12	
Sample 0	16	2 (short)	Each waveform sample is a signed 16bit raw value. See p. 6-48 and Appendix A for information on how to scale this value to secondary and primary.
Sample 1	18	2 (short)	
…			
Sample N	16 + (N*2)	2 (short)	The number of samples in a sample block is determined from the waveform details header.

Waveform RMS Data Block Section

Fields	Byte	Size	Description
Section ID	0	16 (string)	Tag id for the block, to ensure you've parsed the record correctly. Must be "**WaveRMS*******"
Waveform RMS Data Blocks	16		The RMS blocks.

Waveform RMS Data Block

Fields	Byte	Size	Description
Sample Block Time Counter	0	4 (uint)	The time counter of this RMS block. This is used to determine which sample block this RMS block describes. Note that this time counter is for the LAST sample block: It may also describe sample blocks before that (up to the previous RMS block).
Block Timestamp	4	10 (nexus_µs_time)	The time of the end of this RMS block. See p. 6-49 for instructions on determining the exact time of the RMS block.
Reserved	14	2	
RMS Data Block	16	196 (RMS data block)	Contains information on the waveform states and RMS values during this block.

Waveform Channels

The following channels can be used for waveform capture:

Channel Name	ID	Scale Factor
Volts AN	0	Logical Voltage
Volts BN	1	Logical Voltage
Volts CN	2	Logical Voltage
Volts AB	3	Logical Voltage
Volts BC	4	Logical Voltage
Volts CA	5	Logical Voltage
Volts XN	6	Logical Voltage
Volts Residual	7	Logical Voltage Residual
Current Residual	8	Logical Current Residual
Volts AE	32	Physical Voltage
Volts BE	33	Physical Voltage
Volts CE	34	Physical Voltage
Volts XE	35	Physical Voltage
Volts NE	36	Physical Voltage
Current A	37	Physical Current
Current B	38	Physical Current
Current C	39	Physical Current
Current X	40	Physical Current
Waveform Transient 0	77	Waveform Combine
Waveform Transient 1	78	Waveform Combine
Waveform Transient 2	79	Waveform Combine
High Speed Inputs	80	N/A

Samples
To parse the waveform samples, you must first extract the samples section of the record. The size of the section can be determined by:

Bytes_per_block = (512 / sample_reduction_factor) + 16
Num_blocks = Num_channels * num_blocks_per_channel
Size = (num_blocks * (bytes_per_block)) + 16

Next, break up each of the sample blocks using the bytes per block. Finally, assign the blocks to each channel sequentially, rotating through the channels. So:

```
WaveformSampleBlock sample_block;
//channel samples is a sequential list of samples for a channel
ChannelSamples[] channels;
int channel_index = 0;

//iterate over all the sample blocks
for(int i=0; i<num_blocks; i++)
{
	copy bytes_per_block to sample_block
	//add the samples to the channel
	channels[channel_index].AddBlock(sample_block);
	//rotate the channel index
	channel_index = (channel_index + 1) % num_channels;
}
```

For example, if there are 3 channels, the sample blocks would be arranged in the record as:

1A
1B
1C
2A
2B
2C
...

If two captures are contiguous, the samples can be combined to form a single waveform. This will occur when multiple record per capture is selected in the programmable settings, or if a trigger occurs while a waveform is already being captured. The time counters for the last sample block of the first capture, and the first sample block of the second, should be sequential. If they are not, then the captures are not continuous, and the samples lists cannot be combined.

Now, you have all the sequential samples for each channel. However, these samples are raw counts. They still need to be converted to secondary. For the voltage and current channels, this is done by multiplying the raw value by the associated scale factors for that channel. The scale factors are:

Factor Name	Scalar
Logical Voltage	0.098401062
Logical Voltage Residual	0.196802124
Physical Voltage	0.049200531
Logical Current Residual 20A	0.012363048
Logical Current Residual 2A	0.001960812
Physical Current 20A	0.003090762
Physical Current 2A	0.000495203
Peak Transient	14.0625
Waveform Combine	0.098401062

See the table in Appendix A for which factor applies to which channel.

Finally, you multiply by the CT/PT ratio to get primary. So, for example, if you are dealing with the Volts AN channel (which uses the Logical Voltage scalar), and have a PT ratio of 1440/120, you get the following results:

Raw	Secondary	Primary
407	40.04923	4805.908
1018	100.1723	12020.67
1487	146.3224	17558.69
1749	172.1035	20652.41
1693	166.593	19991.16
1361	133.9238	16070.86
851	83.7393	10048.72
215	21.15623	2538.747
-453	-44.57568	-5349.082
-1052	-103.5179	-12422.15
-1468	-144.4528	-17334.33
-1654	-162.7554	-19530.64
-1623	-159.7049	-19164.59
-1382	-135.9903	-16318.83
-888	-87.38014	-10485.62
-253	-24.89547	-2987.456

NOTE: The above information only applies to voltage and current. The high speed inputs (channel 80) are stored as a bitmap of the 8 inputs, where a bit value of 1 indicates open, and a bit value of 0 indicates closed. Bit 0 is input 1, bit 1 is input 2, and so on. So for example:

Raw	Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7	Input 8
0x7F	Open	Open	Open	Open	Open	Open	Open	Closed
0xBF	Open	Open	Open	Open	Open	Open	Closed	Open
0xDF	Open	Open	Open	Open	Open	Closed	Open	Open
0xEF	Open	Open	Open	Open	Closed	Open	Open	Open
0xF7	Open	Open	Open	Closed	Open	Open	Open	Open
0xFB	Open	Open	Closed	Open	Open	Open	Open	Open

Understanding the Data

Computing RMS Block Timestamps

The timestamp of the RMS blocks is the **end** of the sample block during which it occurs. Since the RMS block may be completed during the middle of a sample block, this time may not be the exact time of the RMS block. To compute the block's actual time, adjust the timestamp by the sample offset from the end of the block * the time per sample. Time per sample is always (1000ms / (60 * 1024)). For Example:

Block Timestamp:	2012/04/13 17:42:16.3044
Ref Sample Index:	218
Time Per Sample:	(1000ms / (60*1024)) = apx 0.016276ms
True End of Block Time:	Block Time – ((256-218) * 0.016276)
	304.4-0.618488
	2012/04/13 17:42:16.30378

You can then use the same method to determine the start time of the RMS block. This is how the time of the first sample in the capture is determined. All you do is subtract the time for 256 samples from the time of the RMS block. Using the above block as an example:

Beginning of Block Time:	Block Time – (256 * 0.016276)
	304.4-4.166656
	2012/04/13 17:42:16.30023

Trigger Causes

Waveform captures can be triggered off of multiple causes. When these causes happen in the same RMS block time, only one capture will be taken, but the RMS trigger block details indicate all of the causes.

When a trigger happens while another capture is currently being performed, (but after the initial triggering cycle), a second capture will be initiated after the first capture has finished. This capture will be considered 'contiguous', and the samples and RMS blocks between the two captures should be continuous. Additionally, the trigger in the second capture will refer to the **first** capture. This is done to ensure that the configured post-cycle's (in the programmable settings) are always captured.

Sag/Swell

Sags and Swells can be determined by comparing the current states and transitions in the triggering RMS block. If the transitions flags indicate that a change has occurred (set to 1), then the current state will tell you what kind of transition occurred. For example (Assuming looking at the voltage swells):

Current States	Transitions	Causes
0x0005	0x0001	Volts AN Swell
0xFFFE	0x0005	Volts CN Swell, Volts AN Return to Normal

While multiple captures, or just the states in the RMS blocks, could be analyzed for information about overall events, this information is duplicated in the PQ logs, and will be described there.

High Speed Input Trigger

Similar to the Sags/Swells, input triggers can be determined by comparing the High Speed Input current states and transitions in the triggering RMS block. If the transitions flags indicate that a change has occurred (set to 1), then the current state will tell you what kind of transition occurred.

- Manual Trigger: Waveform captures which have been manually triggered can be detected by looking at the Manual Triggered flag in the record header. If this is set, then the capture was due to a manual trigger, and the other causes can be ignored.
- Trigger Time: Waveform captures are triggered by the RMS block which detects a change in condition. As such, the time of the trigger is considered to be the time of the triggering RMS block.

Waveform Start Time

Most of the timestamps in the waveform capture are based on the RMS block times. However, a capture may have multiple sample blocks before the first RMS block. To determine the exact time of the first sample (the start of the waveform), determine the number of samples before the first RMS block, and multiply that by the time per sample. For example:

First Sample Block TTC: 5105
First RMS Block TTC: 5106
First RMS Block Time: 2012/04/13 17:42:16.3044
Time Per Sample: (1000ms / (60*1024)) = apx 0.016276ms
Samples to Offset: 256 * (First_RMS_Block – First_Sample_Block) + 1
256 * (5106 – 5105 + 1) = 512
Time of first sample: First RMS Block Time - (Samples to offset * time per sample)
2012/04/13 17:42:16.3044 – (512 * 0.016276)
2012/04/13 17:42:16.29607

NOTE: We offset by two sample blocks, because the first sample block was not the same as the first RMS block. Also, as the TTC (Time Counter) can rollover, keep that in mind

when computing the samples to offset: The first sample block time counter may be **greater** than the RMS block time counter in this case.

6.8.5.7: PQ Log

The PQ Log records in response to surges and sags of configured waveform channels, transient events, and digital input events. 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 event in waveform and transient captures.
NOTE: Different versions of the waveform record have different formats. The version field of the header should always be checked before parsing the rest of the record.

Record Format
The PQ record is composed of two sections: A details header, and the RMS block from the cycle of the PQ event. The details header contains a version field, to determine the format of the header. Version 4 of the PQ record is documented here, and is 572 bytes in size.

Details Header

Fields	Size	Description
Record Index	4 (uint)	The internal index of the record.
Contiguous	1 (Boolean)	Indicates if the record is possible to be contiguous with the previous record. Non-contiguous records indicate that some state changes may have been missed. The primary reason non-contiguous records is a meter restart. 0 Contiguous 1 Not Contiguous
Reserved	5	
Record Format Version	2 (ushort)	The record format version. The format documented here is v4.
Sample Block Time Counter	4 (ushort)	The time counter of the RMS Block in which this PQ event occurred. Used to synchronize between waveform captures and the PQ event.
Event Timestamp	10 (nexus_µs_time)	The timestamp of the end of the RMS block which contained this PQ event.
Reserved	2	
RMS Data Block	196 (RMS data block)	Contains information on the waveform states at the time of the PQ event. See pp. 6-45 - 6-46.
Digital Input Mask	2 (bitmap)	The digital inputs which have been configured in the programmable settings to trigger PQ events.
U_{sr} Voltage Flags	2 (bitmap)	The list of voltage channels which have been configured in the programmable settings to trigger PQ events according to the U_{sr} rules.
U_{sr} Current Flags	2 (bitmap)	The list of current channels which have been configured in the programmable settings to trigger waveform captures according to the U_{sr} rules.
Waveform Setup Info	316 (Waveform Setup Block)	Describes how the waveform triggers and captures were configured, as well as providing information about the meter.

Understanding the Data

PQ Event Timestamp

Trigger Cause

All triggers which occur during a single RMS block (apx. 4.1ms) will be combined into a single PQ record. To determine which events triggered the record, each of the conditions should be tested.

Waveform Sag/Swell Event

Waveform Sag/Swell events can be determined by comparing the current state and transitions for the sags and swells, across multiple PQ events. To determine information about the overall Sag/Swell event, you have analyze the sequence of PQ records.
To determine the pair of records which match for an event, defined as the Sag/Swell condition going out of limit, then coming back in, start with a record that indicates that the condition in question is going out. This is a record in which the Sag or Swell transition state is 1, and the current state is 1 for that channel.
The find the matching event end record, search forward in time in the records until a record is found where the delta state for the condition is 1, and the current state is 0.
NOTE: You need to check the contiguous flag in the header: if any record is found to be non-contiguous, then the state changes may be log, and any end record found may not match the original record.

High Speed Input Event

Input triggered events can be determined by comparing the High Speed Input current states and the transitions for the PQ event. If the transitions flags indicate that a change has occurred (set to 1), then the current state will tell you what kind of transition occurred.
If the duration a High Speed input is in a specific state is required, follow the same instructions as for sag/swell events.

Transient Event

Transient triggered events can be determined by checking the transient positive and negative over-range flags. If the flag indicates that a transient has occurred on that channel (set to 1), then a transient event occurred during the RMS block this PQ record covers.

Event Duration

The duration for an event requires first determining the start and end record for that event. Then, simply subtract the timestamp of the start record from the end record. For example:

Start Record Time:	2012/04/13 17:42:16.3044
End Record Time:	2012/04/13 17:42:17.8242
Duration:	1.5198 seconds

NOTE: This only applies to sag/swell events, and paired high speed input events. As transients never span more than one RMS block, duration of transient events is determined by the recorded duration value (see Transient Log section on the next page).

Linking to a Waveform

To link a PQ event to the waveform capture of the same event, compare the sample block time counter for the PQ event to trigger sample block time counters of the waveform captures. The matching time counter is the matching capture.

6.8.5.8: Transient Log

The Transient log takes a record when the raw voltage inputs exceed the configured transient limits. The record combines a PQ record of the transient event, and the waveform samples around the event.

Because the duration of a transient may be shorter than the sampling interval on the input (and thus not influence the actual value), the samples stored in the waveform data are replaced with the peak transient values.

While multiple transients may be detected during an RMS block, only the information about the peak positive, and peak negative, transients are stored.

NOTES:

- Different versions of the waveform record have different formats. The version field of the header should always be checked before parsing the rest of the record.
- When transients are enabled, the channels assigned to the waveform must be the transient equivalent channels. These channels replace the samples with the peak transient exception values (when they occur). The important thing to note about this is that both waveform captures and transient captures use the same channels, so all waveform captures with transients enabled will contain these sample replacements.
- Transients are triggered by comparing each value in the input against the configured threshold. This value should be configured high enough so as not to clip the top of the standard waveform samples.

Record Format

The Transient Record is composed of three sections: The details header, the waveform samples around the event, and the details of the transient event.

Fields	Byte	Size	Description
Record Index	0	4 (uint)	The internal index of the record.
Reserved	4	6	
Record Format Version	10	2 (ushort)	The record format version.
Sample Block Time Counter	12	4 (uint)	The time counter of the RMS Block in which this Transient event occurred. Used to synchronize between the samples and the RMS block.
Event Timestamp	16	10 (nexus_µs_time)	The timestamp of the end of the RMS block which contains this Transient Event.
Reserved	26	2	
Event RMS Block	28	196 (RMS data block)	Contains information on the waveform and transient states at the time of the event.
Digital Input Mask	224	2 (bitmap)	The digital inputs which have been configured in programmable settings to trigger waveform events.
Reserved	226	30	

Waveform Sample Block 0	256	516 (waveform sample block)	The waveform samples around the time of the transient event. 6 sample blocks are always captured, at a sampling rate of 1024 samples per cycle, which means each sample block has 256 samples. This is approximately 1.5 cycles at a nominal 60hz. NOTE: The samples for the transient events will be replaced with the peak exception value.
Waveform Sample Block 1	772	516 (waveform sample block)	
Waveform Sample Block 2	1288	516 (waveform sample block)	
Waveform Sample Block 3	1804	516 (waveform sample block)	
Waveform Sample Block 4	2320	516 (waveform sample block)	
Waveform Sample Block 5	2836	516 (waveform sample block)	
Transient Details Block 0	3352	64 (transient details block)	The transient details for each of the sample blocks captured. By comparing the time counter of these blocks against the event's time counter, you can determine which block triggered the event.
Transient Details Block 1	3416	64 (transient details block)	
Transient Details Block 2	3480	64 (transient details block)	
Transient Details Block 3	3544	64 (transient details block)	
Transient Details Block 4	3608	64 (transient details block)	
Transient Details Block 5	3672	64 (transient details block)	

Sample Block Time Counter	0	4 (uint)	The time counter of this transient block. This is used to determine which sample block this transient block describes.
Block Timestamp	4	10 (nexus_µs_time)	The tie of the end of this transient block.

Reserved	14	2	
Reserved	16	6	
Transient pos over-range flags	22	2 (bitmap)	Indicates a positive transient which exceeded the configured threshold occurred. See Table 2 (Transient Bit Flags) for bits.
Transient neg over-range flags	24	2 (bitmap)	Indicates a negative transient which exceeded the configured threshold occurred. See Table 2 (Transient Bit Flags)for bits.
Transient pos peak sample index ch1	26	2 (ushort)	The sample index of the peak positive transient to occur on channel 1 (Van or Vab).
Transient pos peak sample index ch2	28	2 (ushort)	The sample index of the peak positive transient to occur on channel 2 (Vbn or Vbc).
Transient pos peak sample index ch3	30	2 (ushort)	The sample index of the peak positive transient to occur on channel 3 (Vcn or Vca).
Transient neg peak sample index ch1	32	2 (ushort)	The sample index of the peak negative transient to occur on channel 1 (Van or Vab).
Transient neg peak sample index ch2	34	2 (ushort)	The sample index of the peak negative transient to occur on channel 2 (Vbn or Vbc).
Transient neg peak sample index ch3	36	2 (ushort)	The sample index of the peak negative transient to occur on channel 3 (Vcn or Vca).
Transient pos peak sample value ch1	38	2 (ushort)	The peak positive transient value to occur on channel 1 (Van or Vab). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample value ch2	40	2 (ushort)	The peak positive transient value to occur on channel 2 (Vbn or Vbc). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample value ch3	42	2 (ushort)	The peak positive transient value to occur on channel 3 (Vcn or Vca). Multiply by (1800/255) to get Secondary value.
Transient neg peak sample value ch1	44	2 (ushort)	The peak negative transient value to occur on channel 1 (Van or Vab). Multiply by (1800/255) to get Secondary value.
Transient neg peak sample value ch2	46	2 (ushort)	The peak negative transient value to occur on channel 2 (Vbn or Vbc). Multiply by (1800/255) to get Secondary value.
Transient neg peak sample value ch3	48	2 (ushort)	The peak negative transient value to occur on channel 3 (Vcn or Vca). Multiply by (1800/255) to get Secondary value.
Transient pos peak sample duration ch1	50	2 (ushort)	Duration of the peak positive transient to occur on channel 1 (Van or Vab). Multiply by 18.18 nanoseconds to get time.
Transient pos peak sample duration ch2	52	2 (ushort)	Duration of the peak positive transient to occur on channel 2 (Vbn or Vbc). Multiply by 18.18 nanoseconds to get time.
Transient pos peak sample duration ch3	54	2 (ushort)	Duration of the peak positive transient to occur on channel 3 (Vcn or Vca). Multiply by 18.18 nanoseconds to get time.
Transient neg peak sample duration ch1	56	2 (ushort)	Duration of the peak negative transient to occur on channel 1 (Van or Vab). Multiply by 18.18 nanoseconds to get time.

Transient neg peak sample duration ch2	58	2 (ushort)	Duration of the peak negative transient to occur on channel 2 (Vbn or Vbc). Multiply by 18.18 nanoseconds to get time.
Transient neg peak sample duration ch3	60	2 (ushort)	Duration of the peak negative transient to occur on channel 3 (Vcn or Vca). Multiply by 18.18 nanoseconds to get time.
Reserved	62	2	

Samples

Sample parsing is done the same as waveform record sample parsing. The major differences are that there are no contiguous captures, the sample rate is fixed at 1024 samples per cycle, and there are always 6 blocks.

NOTE: To see the transients in the waveform samples, the waveform channel ids need to be set to the transient channel id's. These samples have a much larger range then the standard waveform samples, which results in lower resolution in the waveform. However, each sample in which a transient occurred will be replaced with the peak (abs max of the positive and negative values) transient value.

Understanding the Data

Trigger Cause

Multiple transients that exceed the transient threshold for that channel may be detected during a single RMS block, but only the peak positive and peak negative sample are recorded.

Peak positive is defined as the max value; peak negative is defined as the min value.

NOTE: That means that this does not necessarily follow the wave-shape of the input. A positive peak may occur during the waveform trough, and a negative peak may occur during the waveform crest.

The cause of the transient event can be determined by looking at the over-range flags for the triggering RMS block. There may be multiple causes.

NOTE: Only one transient capture may occur every 200ms, so it is worth looking at the 6 transient details blocks to detect rapidly occurring transient events (apx 25ms).

Peak Transient Time

The time of each specific transient can be determined by modifying the RMS block timestamp (the event timestamp for the trigger) by the sample index of the transient For example:

Event Time:	2012/04/13 17:42:16.3044
Transient Event:	Volts AN Positive Peak
Sample Index:	73
Transient Time:	time - (256-73)* 0.016276ms
2012/	04/13 17:42:16.30142

Transient Duration

The duration of a specific transient can be determined by multiplying the duration value of the transient by the transient tick time (18.18 nanoseconds). For example:

Transient Tick Time:	18.18 nanoseconds
Transient Duration Value:	5

Transient Duration: 90.9 nanoseconds

NOTE: A transient's duration is limited to one sample's time (apx 16µs). Any transient which exceeds this is considered to be multiple transients.

Transient Value

The secondary value of a specific transient can be determined by multiplying the peak value of the transient by the Peak Transient scalar factor (See Appendix A for a Table of scaling factors).

Transient Scalar Factor: 14.0625
Transient Peak Value: 53
Transient Secondary Value: 745.3125 volts

6.8.5.9: EN50160

The Nexus® 1500 meter's EN50160 implementation is based on the official EN50160-2007 specification, with exceptions where the following items are not supported:
1) Transient over-voltages between live conductors and earth
2) Interharmonic voltage

EN50160 Reporting Items: Summary of EN50160-2007

Item #	Name	EN50160 Spec Ref 4.x.x/5.x.x
1	Power Frequency, sync	x.1
1	Power Frequency, no sync	x.1
2	Magnitude of supply voltage	x.2
3	Supply Voltage Variations	x.3.x
4	Single rapid voltage change(Low Voltage supply)/Magnitude of rapid voltage Changes(Medium Voltage supply)	x.4.1
5	Flicker	x.4.2
6	Supply Voltage Dips	x.5
7	Short Interruption of Supply Voltage	x.6
8	Long Interruption of Supply Voltage	x.7
9	Temporary power frequency over-voltages between live conductors and earth	x.8
10*	Transient over-voltages between live conductors and earth	x.9
11	Supply voltage unbalance	x.10
12	Harmonic voltage	x.11
13*	Interharmonic voltage	x.12
14	Mains signaling voltage on the supply voltage	x.13

*** Not supported by the Nexus® 1500 meter**

Archived Week/Year Data in XML Format

Each XML contains the report data for current week, past weekly and yearly.

Tags	Attributes	Descriptions	Reporting Item #	Examples
EN50160_REPORT		XML file start and end tags		<EN50160_ REPORT >, </EN50160_ REPORT >
Dev_Info	Name	User assigned meter name		<Dev_Info Name="Meter_1" Type="Nexus 1500" Serial_Number="1234567890 Runtime=0001.0002" />
	Type	Factory defined device names: Nexus 1500 or user defined device names		
	Serial_Number	Device serial number		
	Runtime	Device runtime firmware version, 4 digit version (major) and 4 digit build (minor)		
	HookUp	Wye, Delta 3 CTs, Delta 2 CTs, 2.5 Element 4 Wire Delta 45S: Wye, 2 CTs		
	Frequency	50Hz or 60Hz		
	Supply_Type	Low Voltage or Medium Voltage		
	Profile_DateTime	Last modified date/time in device profile		YYYY-MM-SS HH:MM:SS
	Profile_Key	Device profile check sum		
	Voltage_Full_Scale_PN	Phase to neutral full scale, shown in primary		
	Voltage_Full_Scale_PP	Phase to phase full scale, shown in primary		
	Nominal_Voltage	User set value, shown in secondary		
	Mains_Signaling_Threshold	User set threshold		
	Over_Voltage_AE_Threshold	User set threshold		
	Over_Voltage_BE_Threshold	User set threshold		
	Over_Voltage_CE_Threshold	User set threshold		
	Allowed_Long_Interruptions_In_Year	User set value		
	Rapid_Voltage_Change_Data_Source	1 cycle updated RMS 10/12 cycles updated RMS		
	Unbalance_Upper_Limit	2% 3%		
	Voltage_A_Dip_Concern	User set threshold		
	Voltage_B_Dip_Concern	User set threshold		
	Voltage_C_Dip_Concern	User set threshold		
	Synchronous_Connection	Yes or No		
	Allowed_Rapid_Voltage_Changes_In_Day	User set allowed Rapid Voltage Changes per day in devie profile		
	Allowed_Rapid_Voltage_Changes_In_Week	User set allowed Rapid Voltage Changes per day in devie profile * 7		
	Allowed_Rapid_Voltage_Changes_In_Year	User set allowed Rapid Voltage Changes per day in devie profile * [number of days in the year of the report start date/time]		
Data_Info	Version	File format version, single number		

	Type	Available types are: Current Week Current Year Weekly Yearly		
	Start	Report start date/time, local time, 24 hour, time zone. Day of week, "Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat" Month, "Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"		Thu, 27 May 2010 12:00:39 -0400
	End	Report end date/time, local time, 24 hour, time zone. Day of week, "Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat" Month, "Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"		Thu, 27 May 2010 12:00:39 -0400
	FDOW	First day of week. "Sun" or "Mon".		
	Start_V1	Report start date/time, short format		YYYY-MM-DD HH:MM:SS
	End_V1	Report end date/time, short format		YYYY-MM-DD HH:MM:SS
Report_Message	Code	Operation status in HEX format.		0x80000000
	Settings	Valid or Invalid. Based on operation status bit 12.		
	Messages	Any messages the meter provides regarding this report, such as warning messages.		
	Invalid_Setting_Code	Invalid setting code in HEX format.		
Report_Status	Sec_x1	NA, Pass or Fail, Power Frequency		
	Sec_x2	NA, Magnitude of supply voltage		
	Sec_x3	NA, Pass or Fail, Supply Voltage Variations		
	Sec_x4_1	NA, Pass, Fail, or Concern, rapid voltage changes		
	Sec_x4_2	NA, Pass or Fail, Flicker		
	Sec_x5	NA, Pass or Fail, Supply Voltage Dips		
	Sec_x6	NA, Pass or Fail, Short Interruption of Supply Voltage		
	Sec_x7	NA, Pass or Fail, Long Interruption of Supply Voltage		
	Sec_x8	NA, Pass or Fail, Temporary power frequency over-voltages between live conductors and earth		
	Sec_x9	NA, Transient over-voltages between live conductors and earth		
	Sec_x10	NA, Pass or Fail, Supply voltage unbalance		
	Sec_x11	NA, Pass or Fail, Harmonic Voltage		
	Sec_x12	NA, Interharmonic Voltage		
	Sec_x13	NA, Pass or Fail, Mains signaling voltage on the supply voltage		
Total_Count	Rapid_Voltage	Rapid Voltage Change Count	4	
	Mains_Frequency	Mains Frequency Count	1	
	Ten_min_Mean	10 Minute Mean RMS Count	3	

	Flicker_PLTs	Flicker PLT Count	5	
	Unbalance	Voltage unbalance count	11	
	THDs	THD/Harmonic count	12	
	Mains_Signaling	Mains signaling voltage count	14	
Ten_sec_Mean_Freq	Bin0	10Sec mean Freq Bin 0, f<42.5(51.0), 15%	1	<10sec_Mean_Freq Bin0="0" Bin1="1" Bin2="2" Bin3="3" Bin4="4" Bin5="5" Bin6="6" Bin7="7" Bin8="8" Bin9="9" Bin10="10" />
	Bin1	10Sec mean Freq Bin 1, 42.5(51.0)<=f<47(56.4), 15%-6%	1	
	Bin2	10Sec mean Freq Bin 2, 47(56.4)<=f<49(58.8), 6%-2%	1	
	Bin3	10Sec mean Freq Bin 3, 49(58.8)<=f<49.5(59.4), 2%-1%	1	
	Bin4	10Sec mean Freq Bin 4, 49.5(59.4)<=f<50(60), 1%-0%	1	
	Bin5	10Sec mean Freq Bin 5, 50(60)<=f<50.5(60.6), 0%-1%	1	
	Bin6	10Sec mean Freq Bin 6, 50.5(60.6)<=f<51(61.2), 1%-2%	1	
	Bin7	10Sec mean Freq Bin 7, 51(61.2)<=f<52(62.4), 2%-6%	1	
	Bin8	10Sec mean Freq Bin 8, 52(62.4)<=f<=57.5(69), 6%-15%	1	
	Bin9	10Sec mean Freq Bin 9, 57.5(69)<f, 15%	1	
Ten_min_Mean_Va_RMS	Bin0	10min mean Van/ab RMS Bin 0, <85%	3	
	Bin1	10min mean Van/ab RMS Bin 1, 85%<=V<90%	3	
	Bin2	10min mean Van/ab RMS Bin 2, 90%<=V<100%	3	
	Bin3	10min mean Van/ab RMS Bin 3, 100%<=V<=110%	3	
	Bin4	10min mean Van/ab RMS Bin 4, 110%<V	3	
Ten_min_Mean_Vb_RMS	Bin0	10min mean Vbn/bc RMS Bin 0, <85%	3	
	Bin1	10min mean Vbn/bc RMS Bin 1, 85%<=V<90%	3	
	Bin2	10min mean Vbn/bc RMS Bin 2, 90%<=V<100%	3	
	Bin3	10min mean Vbn/bc RMS Bin 3, 100%<=V<=110%	3	
	Bin4	10min mean Vbn/bc RMS Bin 4, 110%<V	3	
Ten_min_Mean_Vc_RMS	Bin0	10min mean Vcn/ca RMS Bin 0, <85%	3	
	Bin1	10min mean Vcn/ca RMS Bin 1, 85%<=V<90%	3	
	Bin2	10min mean Vcn/ca RMS Bin 2, 90%<=V<100%	3	
	Bin3	10min mean Vcn/ca RMS Bin 3, 100%<=V<=110%	3	
	Bin4	10min mean Vcn/ca RMS Bin 4, 110%<V	3	
Rapid_Voltage_Va	Bin0	Rapid Voltage Change Van/ab Bin 0, V<-10%	4	
	Bin1	Rapid Voltage Change Van/ab Bin 1, -10%<=V<-5%	4	
	Bin2	Rapid Voltage Change Van/ab Bin 2, -5%<=V<0%	4	
	Bin3	Rapid Voltage Change Van/ab Bin 3, 0%<=V<+5%	4	
	Bin4	Rapid Voltage Change Van/ab	4	

		Bin 4, +5%<=V<=+10%		
	Bin5	Rapid Voltage Change Van/ab Bin 5, +10%<V	4	
Rapid_Voltage_Vb	Bin0	Rapid Voltage Change Vbn/bc Bin 0, V<-10%	4	
	Bin1	Rapid Voltage Change Vbn/bc Bin 1, -10%<=V<-5%	4	
	Bin2	Rapid Voltage Change Vbn/bc Bin 2, -5%<=V<0%	4	
	Bin3	Rapid Voltage Change Vbn/bc Bin 3, 0%<=V<+5%	4	
	Bin4	Rapid Voltage Change Vbn/bc Bin 4, +5%<=V<=+10%	4	
	Bin5	Rapid Voltage Change Vbn/bc Bin 5, +10%<V	4	
Rapid_Voltage_Vc	Bin0	Rapid Voltage Change Vcn/ca Bin 0, V<-10%	4	
	Bin1	Rapid Voltage Change Vcn/ca Bin 1, -10%<=V<-5%	4	
	Bin2	Rapid Voltage Change Vcn/ca Bin 2, -5%<=V<0%	4	
	Bin3	Rapid Voltage Change Vcn/ca Bin 3, 0%<=V<+5%	4	
	Bin4	Rapid Voltage Change Vcn/ca Bin 4, +5%<=V<=+10%	4	
	Bin5	Rapid Voltage Change Vcn/ca Bin 5, +10%<V	4	
PLT_Va	Bin0	PLT Van/ab Bin 0, <=1	5	
	Bin1	PLT Van/ab Bin 1, >1	5	
PLT_Vb	Bin0	PLT Vbn/bc Bin 0, <=1	5	
	Bin1	PLT Vbn/bc Bin 1, >1	5	
PLT_Vc	Bin0	PLT Vcn/ca Bin 0, <=1	5	
	Bin1	PLT Vcn/ca Bin 1, >1	5	
Ten_min_Avg_Va_Harm	H2	10 min Ave Van/ab 2nd Harm bin, >2.0%	12	
	H3	10 min Ave Van/ab 3nd Harm bin, >5.0%	12	
	H4	10 min Ave Van/ab 4th Harm bin, >1.0%	12	
	H5	10 min Ave Van/ab 5th Harm bin, >6.0%	12	
	H6	10 min Ave Van/ab 6th Harm bin, >0.5%	12	
	H7	10 min Ave Van/ab 7th Harm bin, >1.5%	12	
	H8	10 min Ave Van/ab 8th Harm bin, >0.5%	12	
	H9	10 min Ave Van/ab 9th Harm bin, >1.5%	12	
	H10	10 min Ave Van/ab 10th Harm bin, >0.5%	12	
	H11	10 min Ave Van/ab 11th Harm bin, >3.5%	12	
	H12	10 min Ave Van/ab 12th Harm bin, >0.5%	12	
	H13	10 min Ave Van/ab 13th Harm bin, >3.0%	12	
	H14	10 min Ave Van/ab 14th Harm bin, >0.5%	12	
	H15	10 min Ave Van/ab 15th Harm bin, >0.5%	12	
	H16	10 min Ave Van/ab 16th Harm bin, >0.5%	12	
	H17	10 min Ave Van/ab 17th Harm bin, >2.0%	12	

	H18	10 min Ave Van/ab 18th Harm bin, >0.5%	12	
	H19	10 min Ave Van/ab 19th Harm bin, >1.5%	12	
	H20	10 min Ave Van/ab 20th Harm bin, >0.5%	12	
	H21	10 min Ave Van/ab 21st Harm bin, >0.5%	12	
	H22	10 min Ave Van/ab 22nd Harm bin, >0.5%	12	
	H23	10 min Ave Van/ab 23rd Harm bin, >1.5%	12	
	H24	10 min Ave Van/ab 24th Harm bin, >0.5%	12	
	H25	10 min Ave Van/ab 25th Harm bin, >1.5%	12	
Ten_min_Avg_Vb_ Harm	H2	10 min Ave Vbn/bc 2nd Harm bin, >2.0%	12	
	H3	10 min Ave Vbn/bc 3nd Harm bin, >5.0%	12	
	H4	10 min Ave Vbn/bc 4th Harm bin, >1.0%	12	
	H5	10 min Ave Vbn/bc 5th Harm bin, >6.0%	12	
	H6	10 min Ave Vbn/bc 6th Harm bin, >0.5%	12	
	H7	10 min Ave Vbn/bc 7th Harm bin, >1.5%	12	
	H8	10 min Ave Vbn/bc 8th Harm bin, >0.5%	12	
	H9	10 min Ave Vbn/bc 9th Harm bin, >1.5%	12	
	H10	10 min Ave Vbn/bc 10th Harm bin, >0.5%	12	
	H11	10 min Ave Vbn/bc 11th Harm bin, >3.5%	12	
	H12	10 min Ave Vbn/bc 12th Harm bin, >0.5%	12	
	H13	10 min Ave Vbn/bc 13th Harm bin, >3.0%	12	
	H14	10 min Ave Vbn/bc 14th Harm bin, >0.5%	12	
	H15	10 min Ave Vbn/bc 15th Harm bin, >0.5%	12	
	H16	10 min Ave Vbn/bc 16th Harm bin, >0.5%	12	
	H17	10 min Ave Vbn/bc 17th Harm bin, >2.0%	12	
	H18	10 min Ave Vbn/bc 18th Harm bin, >0.5%	12	
	H19	10 min Ave Vbn/bc 19th Harm bin, >1.5%	12	
	H20	10 min Ave Vbn/bc 20th Harm bin, >0.5%	12	
	H21	10 min Ave Vbn/bc 21st Harm bin, >0.5%	12	
	H22	10 min Ave Vbn/bc 22nd Harm bin, >0.5%	12	
	H23	10 min Ave Vbn/bc 23rd Harm bin, >1.5%	12	
	H24	10 min Ave Vbn/bc 24th Harm bin, >0.5%	12	
	H25	10 min Ave Vbn/bc 25th Harm bin, >1.5%	12	
Ten_min_Avg_Vc_ Harm	H2	10 min Ave Vcn/ca 2nd Harm bin, >2.0%	12	
	H3	10 min Ave Vcn/ca 3nd Harm bin, >5.0%	12	

	H4	10 min Ave Vcn/ca 4th Harm bin, >1.0%	12	
	H5	10 min Ave Vcn/ca 5th Harm bin, >6.0%	12	
	H6	10 min Ave Vcn/ca 6th Harm bin, >0.5%	12	
	H7	10 min Ave Vcn/ca 7th Harm bin, >1.5%	12	
	H8	10 min Ave Vcn/ca 8th Harm bin, >0.5%	12	
	H9	10 min Ave Vcn/ca 9th Harm bin, >1.5%	12	
	H10	10 min Ave Vcn/ca 10th Harm bin, >0.5%	12	
	H11	10 min Ave Vcn/ca 11th Harm bin, >3.5%	12	
	H12	10 min Ave Vcn/ca 12th Harm bin, >0.5%	12	
	H13	10 min Ave Vcn/ca 13th Harm bin, >3.0%	12	
	H14	10 min Ave Vcn/ca 14th Harm bin, >0.5%	12	
	H15	10 min Ave Vcn/ca 15th Harm bin, >0.5%	12	
	H16	10 min Ave Vcn/ca 16th Harm bin, >0.5%	12	
	H17	10 min Ave Vcn/ca 17th Harm bin, >2.0%	12	
	H18	10 min Ave Vcn/ca 18th Harm bin, >0.5%	12	
	H19	10 min Ave Vcn/ca 19th Harm bin, >1.5%	12	
	H20	10 min Ave Vcn/ca 20th Harm bin, >0.5%	12	
	H21	10 min Ave Vcn/ca 21st Harm bin, >0.5%	12	
	H22	10 min Ave Vcn/ca 22nd Harm bin, >0.5%	12	
	H23	10 min Ave Vcn/ca 23rd Harm bin, >1.5%	12	
	H24	10 min Ave Vcn/ca 24th Harm bin, >0.5%	12	
	H25	10 min Ave Vcn/ca 25th Harm bin, >1.5%	12	
Ten_min_Mean_THDs_Above	Va	10min mean Van/ab THD > 8%	12	
	Vb	10min mean Vbn/bc THD > 8%	12	
	Vc	10min mean Vcn/ca THD > 8%	12	
Freq_Sync	Bin0	Freq Bin 0, sync, -1%<=f<=+1%	1	
	Bin1	Freq Bin 1, sync, -6%<=f<=+4%	1	
	Bin0_pct	Bin 0, % of total count	1	
	Bin1_pct	Bin 1, % of total count	1	
Freq_NoSync	Bin0	Freq Bin 2, no sync, -2%<=f<=+2%	1	
	Bin1	Freq Bin 3, no sync, -15%<=f<=+15%	1	
	Bin0_pct	Bin 0, % of total count	1	
	Bin1_pct	Bin 1, % of total count	1	
Rapid_Voltage_5pct	Va	Rapid Voltage Change +/-5% Van/ab Bin 0	4	
	Vb	Rapid Voltage Change +/-5% Vbn/bc Bin 1	4	
	Vc	Rapid Voltage Change +/-5% Vcn/ca Bin 2	4	
Rapid_Voltage_10pct	Va	Rapid Voltage Change between +/-5% and +/-10% Van/ab Bin 0	4	
	Vb	Rapid Voltage Change between +/-5% and +/-10% Vbn/bc Bin 1	4	

	Vc	Rapid Voltage Change between +/-5% and +/-10% Vcn/ca Bin 2	4	
Voltage_Variations_10pct	Va	Supply Voltage Variations (10min mean) +/-10% Van/ab Bin 0	3	
	Vb	Supply Voltage Variations (10min mean) +/-10% Vbn/bc Bin 1	3	
	Vc	Supply Voltage Variations (10min mean) +/-10% Vcn/ca Bin 2	3	
	Va_pct	% of total count	3	
	Vb_pct	% of total count	3	
	Vc_pct	% of total count	3	
Voltage_Variations_15_10pct	Va	Supply Voltage Variations (10min mean) -15%/+10/% Van/ab Bin 0	3	
	Vb	Supply Voltage Variations (10min mean) -15%/+10/% Vbn/bc Bin 1	3	
	Vc	Supply Voltage Variations (10min mean) -15%/+10/% Vcn/ca Bin 2	3	
	Va_pct	% of total count	3	
	Vb_pct	% of total count	3	
	Vc_pct	% of total count	3	
Rapid_Voltage_4pct	Va	Rapid Voltage Change +/-4% Van/ab Bin 0	4	
	Vb	Rapid Voltage Change +/-4% Vbn/bc Bin 1	4	
	Vc	Rapid Voltage Change +/-4% Vcn/ca Bin 2	4	
Rapid_Voltage_6pct	Va	Rapid Voltage Change between +/-4% and +/-6% Van/ab Bin 0	4	
	Vb	Rapid Voltage Change between +/-4% and +/-6% Vbn/bc Bin 1	4	
	Vc	Rapid Voltage Change between +/-4% and +/-6% Vcn/ca Bin 2	4	
Supply_Voltage_Unbalance	Bin0	Supply voltage unbalance, bin 0, 0%<=n<=2%	11	
	Bin1	Supply voltage unbalance, bin 1, 2%<n<=3%	11	
	Bin2	Supply voltage unbalance, bin 2, 3%<n	11	
Mains_Signaling	Va_Below	3sec mains signaling voltage, Van/Vab, bin 0, <=threshold	14	
	Va_Above	3sec mains signaling voltage, Van/Vab, bin 1, >threshold	14	
	Vb_Below	3sec mains signaling voltage, Vbn/Vbc, bin 0, <=threshold	14	
	Vb_Above	3sec mains signaling voltage, Vbn/Vbc, bin 1, >threshold	14	
	Vc_Below	3sec mains signaling voltage, Vcn/Vca, bin 0, <=threshold	14	
	Vc_Above	3sec mains signaling voltage, Vcn/Vca, bin 1, >threshold	14	
Dips_Va_1sec	Bin0	Dips and interruptions, Van/Vab, bin 0, >=85% and <90%, <=1sec	6, 7, 8	
	Bin1	Dips and interruptions, Van/Vab, bin 1, >=70% and <85%, <=1sec	6, 7, 8	
	Bin2	Dips and interruptions, Van/Vab, bin 2, >=60% and <70%, <=1sec	6, 7, 8	
	Bin3	Dips and interruptions, Van/Vab, bin 3, >=50% and <60%, <=1sec	6, 7, 8	
	Bin4	Dips and interruptions, Van/Vab, bin 4, >=40% and <50%, <=1sec	6, 7, 8	
	Bin5	Dips and interruptions, Van/Vab, bin 5, >=30% and <40%, <=1sec	6, 7, 8	
	Bin6	Dips and interruptions, Van/Vab, bin 6, >=20% and <30%, <=1sec	6, 7, 8	
	Bin7	Dips and interruptions, Van/Vab, bin 7, >=15% and <20%, <=1sec	6, 7, 8	
	Bin8	Dips and interruptions, Van/Vab, bin 8, >=10% and <15%, <=1sec	6, 7, 8	

	Bin9	Dips and interruptions, Van/Vab, bin 9, >=1% and <10%, <=1sec	6, 7, 8	
	Bin10	Dips and interruptions, Van/Vab, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Va_180sec	Bin0	Dips and interruptions, Van/Vab, bin 0, >=85% and <90%, 1sec<=180sec	6, 7, 8	
	Bin1	Dips and interruptions, Van/Vab, bin 1, >=70% and <85%, 1sec<=180sec	6, 7, 8	
	Bin2	Dips and interruptions, Van/Vab, bin 2, >=60% and <70%, 1sec<=180sec	6, 7, 8	
	Bin3	Dips and interruptions, Van/Vab, bin 3, >=50% and <60%, 1sec<=180sec	6, 7, 8	
	Bin4	Dips and interruptions, Van/Vab, bin 4, >=40% and <50%, 1sec<=180sec	6, 7, 8	
	Bin5	Dips and interruptions, Van/Vab, bin 5, >=30% and <40%, 1sec<=180sec	6, 7, 8	
	Bin6	Dips and interruptions, Van/Vab, bin 6, >=20% and <30%, 1sec<=180sec	6, 7, 8	
	Bin7	Dips and interruptions, Van/Vab, bin 7, >=15% and <20%, 1sec<=180sec	6, 7, 8	
	Bin8	Dips and interruptions, Van/Vab, bin 8, >=10% and <15%, 1sec<=180sec	6, 7, 8	
	Bin9	Dips and interruptions, Van/Vab, bin 9, >=1% and <10%, 1sec<=180sec	6, 7, 8	
	Bin10	Dips and interruptions, Van/Vab, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Va_Above_180sec	Bin0	Dips and interruptions, Van/Vab, bin 0, >=85% and <=90%, >180sec	6, 7, 8	
	Bin1	Dips and interruptions, Van/Vab, bin 1, >=70% and <85%, >180sec	6, 7, 8	
	Bin2	Dips and interruptions, Van/Vab, bin 2, >=60% and <70%, >180sec	6, 7, 8	
	Bin3	Dips and interruptions, Van/Vab, bin 3, >=50% and <60%, >180sec	6, 7, 8	
	Bin4	Dips and interruptions, Van/Vab, bin 4, >=40% and <50%, >180sec	6, 7, 8	
	Bin5	Dips and interruptions, Van/Vab, bin 5, >=30% and <40%, >180sec	6, 7, 8	
	Bin6	Dips and interruptions, Van/Vab, bin 6, >=20% and <30%, >180sec	6, 7, 8	
	Bin7	Dips and interruptions, Van/Vab, bin 7, >=15% and <20%, >180sec	6, 7, 8	
	Bin8	Dips and interruptions, Van/Vab, bin 8, >=10% and <15%, >180sec	6, 7, 8	
	Bin9	Dips and interruptions, Van/Vab, bin 9, >=1% and <10%, >180sec	6, 7, 8	
	Bin10	Dips and interruptions, Van/Vab, bin 10, <1%, >180sec	6, 7, 8	
Dips_Vb_1sec	Bin0	Dips and interruptions, Vbn/Vbc, bin 0, >=85% and <90%, <=1sec	6, 7, 8	
	Bin1	Dips and interruptions, Vbn/Vbc, bin 1, >=70% and <85%, <=1sec	6, 7, 8	
	Bin2	Dips and interruptions, Vbn/Vbc, bin 2, >=60% and <70%, <=1sec	6, 7, 8	
	Bin3	Dips and interruptions, Vbn/Vbc, bin 3, >=50% and <60%, <=1sec	6, 7, 8	
	Bin4	Dips and interruptions, Vbn/Vbc,	6, 7, 8	

		bin 4, >=40% and <50%, <=1sec		
	Bin5	Dips and interruptions, Vbn/Vbc, bin 5, >=30% and <40%, <=1sec	6, 7, 8	
	Bin6	Dips and interruptions, Vbn/Vbc, bin 6, >=20% and <30%, <=1sec	6, 7, 8	
	Bin7	Dips and interruptions, Vbn/Vbc, bin 7, >=15% and <20%, <=1sec	6, 7, 8	
	Bin8	Dips and interruptions, Vbn/Vbc, bin 8, >=10% and <15%, <=1sec	6, 7, 8	
	Bin9	Dips and interruptions, Vbn/Vbc, bin 9, >=1% and <10%, <=1sec	6, 7, 8	
	Bin10	Dips and interruptions, Vbn/Vbc, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Vb_180sec	Bin0	Dips and interruptions, Vbn/Vbc, bin 0, >=85% and <90%, 1sec<=180sec	6, 7, 8	
	Bin1	Dips and interruptions, Vbn/Vbc, bin 1, >=70% and <85%, 1sec<=180sec	6, 7, 8	
	Bin2	Dips and interruptions, Vbn/Vbc, bin 2, >=60% and <70%, 1sec<=180sec	6, 7, 8	
	Bin3	Dips and interruptions, Vbn/Vbc, bin 3, >=50% and <60%, 1sec<=180sec	6, 7, 8	
	Bin4	Dips and interruptions, Vbn/Vbc, bin 4, >=40% and <50%, 1sec<=180sec	6, 7, 8	
	Bin5	Dips and interruptions, Vbn/Vbc, bin 5, >=30% and <40%, 1sec<=180sec	6, 7, 8	
	Bin6	Dips and interruptions, Vbn/Vbc, bin 6, >=20% and <30%, 1sec<=180sec	6, 7, 8	
	Bin7	Dips and interruptions, Vbn/Vbc, bin 7, >=15% and <20%, 1sec<=180sec	6, 7, 8	
	Bin8	Dips and interruptions, Vbn/Vbc, bin 8, >=10% and <15%, 1sec<=180sec	6, 7, 8	
	Bin9	Dips and interruptions, Vbn/Vbc, bin 9, >=1% and <10%, 1sec<=180sec	6, 7, 8	
	Bin10	Dips and interruptions, Vbn/Vbc, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Vb_Above_180sec	Bin0	Dips and interruptions, Vbn/Vbc, bin 0, >=85% and <90%, >180sec	6, 7, 8	
	Bin1	Dips and interruptions, Vbn/Vbc, bin 1, >=70% and <85%, >180sec	6, 7, 8	
	Bin2	Dips and interruptions, Vbn/Vbc, bin 2, >=60% and <70%, >180sec	6, 7, 8	
	Bin3	Dips and interruptions, Vbn/Vbc, bin 3, >=50% and <60%, >180sec	6, 7, 8	
	Bin4	Dips and interruptions, Vbn/Vbc, bin 4, >=40% and <50%, >180sec	6, 7, 8	
	Bin5	Dips and interruptions, Vbn/Vbc, bin 5, >=30% and <40%, >180sec	6, 7, 8	
	Bin6	Dips and interruptions, Vbn/Vbc, bin 6, >=20% and <30%, >180sec	6, 7, 8	
	Bin7	Dips and interruptions, Vbn/Vbc, bin 7, >=15% and <20%, >180sec	6, 7, 8	
	Bin8	Dips and interruptions, Vbn/Vbc, bin 8, >=10% and <15%, >180sec	6, 7, 8	
	Bin9	Dips and interruptions, Vbn/Vbc, bin 9, >=1% and <10%, >180sec	6, 7, 8	
	Bin10	Dips and interruptions, Vbn/Vbc, bin 10, <1%, >180sec	6, 7, 8	
Dips_Vc_1sec	Bin0	Dips and interruptions, Vcn/Vca,	6, 7, 8	

		bin 0, >=85% and <90%, <=1sec		
	Bin1	Dips and interruptions, Vcn/Vca, bin 1, >=70% and <85%, <=1sec	6, 7, 8	
	Bin2	Dips and interruptions, Vcn/Vca, bin 2, >=60% and <70%, <=1sec	6, 7, 8	
	Bin3	Dips and interruptions, Vcn/Vca, bin 3, >=50% and <60%, <=1sec	6, 7, 8	
	Bin4	Dips and interruptions, Vcn/Vca, bin 4, >=40% and <50%, <=1sec	6, 7, 8	
	Bin5	Dips and interruptions, Vcn/Vca, bin 5, >=30% and <40%, <=1sec	6, 7, 8	
	Bin6	Dips and interruptions, Vcn/Vca, bin 6, >=20% and <30%, <=1sec	6, 7, 8	
	Bin7	Dips and interruptions, Vcn/Vca, bin 7, >=15% and <20%, <=1sec	6, 7, 8	
	Bin8	Dips and interruptions, Vcn/Vca, bin 8, >=10% and <15%, <=1sec	6, 7, 8	
	Bin9	Dips and interruptions, Vcn/Vca, bin 9, >=1% and <10%, <=1sec	6, 7, 8	
	Bin10	Dips and interruptions, Vcn/Vca, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Vc_180sec	Bin0	Dips and interruptions, Vcn/Vca, bin 0, >=85% and <90%, 1sec<=180sec	6, 7, 8	
	Bin1	Dips and interruptions, Vcn/Vca, bin 1, >=70% and <85%, 1sec<=180sec	6, 7, 8	
	Bin2	Dips and interruptions, Vcn/Vca, bin 2, >=60% and <70%, 1sec<=180sec	6, 7, 8	
	Bin3	Dips and interruptions, Vcn/Vca, bin 3, >=50% and <60%, 1sec<=180sec	6, 7, 8	
	Bin4	Dips and interruptions, Vcn/Vca, bin 4, >=40% and <50%, 1sec<=180sec	6, 7, 8	
	Bin5	Dips and interruptions, Vcn/Vca, bin 5, >=30% and <40%, 1sec<=180sec	6, 7, 8	
	Bin6	Dips and interruptions, Vcn/Vca, bin 6, >=20% and <30%, 1sec<=180sec	6, 7, 8	
	Bin7	Dips and interruptions, Vcn/Vca, bin 7, >=15% and <20%, 1sec<=180sec	6, 7, 8	
	Bin8	Dips and interruptions, Vcn/Vca, bin 8, >=10% and <15%, 1sec<=180sec	6, 7, 8	
	Bin9	Dips and interruptions, Vcn/Vca, bin 9, >=1% and <10%, 1sec<=180sec	6, 7, 8	
	Bin10	Dips and interruptions, Vcn/Vca, bin 10, <1%, 1sec<=180sec	6, 7, 8	
Dips_Vc_Above_180sec	Bin0	Dips and interruptions, Vcn/Vca, bin 0, >=85% and <90%, >180sec	6, 7, 8	
	Bin1	Dips and interruptions, Vcn/Vca, bin 1, >=70% and <85%, >180sec	6, 7, 8	
	Bin2	Dips and interruptions, Vcn/Vca, bin 2, >=60% and <70%, >180sec	6, 7, 8	
	Bin3	Dips and interruptions, Vcn/Vca, bin 3, >=50% and <60%, >180sec	6, 7, 8	
	Bin4	Dips and interruptions, Vcn/Vca, bin 4, >=40% and <50%, >180sec	6, 7, 8	
	Bin5	Dips and interruptions, Vcn/Vca, bin 5, >=30% and <40%, >180sec	6, 7, 8	
	Bin6	Dips and interruptions, Vcn/Vca, bin 6, >=20% and <30%, >180sec	6, 7, 8	
	Bin7	Dips and interruptions, Vcn/Vca,	6, 7, 8	

		bin 7, >=15% and <20%, >180sec		
	Bin8	Dips and interruptions, Vcn/Vca, bin 8, >=10% and <15%, >180sec	6, 7, 8	
	Bin9	Dips and interruptions, Vcn/Vca, bin 9, >=1% and <10%, >180sec	6, 7, 8	
	Bin10	Dips and interruptions, Vcn/Vca, bin 10, <1%, >180sec	6, 7, 8	
Overvoltage_Vne_Above	Bin0	Overvoltage Vne, bin 0, >set%, <=1sec	9	
	Bin1	Overvoltage Vne, bin 1, >set%, 1sec<=5sec	9	
	Bin2	Overvoltage Vne, bin 2, >set%, >5sec	9	
Overvoltage_Vae_Above	Bin0	Overvoltage Vae, bin 0, >set%, <=1sec	9	
	Bin1	Overvoltage Vae, bin 1, >set%, 1sec<=5sec	9	
	Bin2	Overvoltage Vae, bin 2, >set%, >5sec	9	
Overvoltage_Vbe_Above	Bin0	Overvoltage Vbe, bin 0, >set%, <=1sec	9	
	Bin1	Overvoltage Vbe, bin 1, >set%, 1sec<=5sec	9	
	Bin2	Overvoltage Vbe, bin 2, >set%, >5sec	9	
Overvoltage_Vce_Above	Bin0	Overvoltage Vce, bin 0, >set%, <=1sec	9	
	Bin1	Overvoltage Vce, bin 1, >set%, 1sec<=5sec	9	
	Bin2	Overvoltage Vce, bin 2, >set%, >5sec	9	
Rapid_Voltage_Above_10pct	Va	Rapid Voltage change beyond +/-10% Van/ab Bin 0	4	Not part of the total rapid voltage change count
	Vb	Rapid Voltage change beyond +/-10% Vbn/bc Bin 1	4	Not part of the total rapid voltage change count
	Vc	Rapid Voltage change beyond +/-10% Vcn/ca Bin 2	4	Not part of the total rapid voltage change count
Rapid_Voltage_Above_6pct	Va	Rapid Voltage change beyond +/-6% Van/ab Bin 0	4	Not part of the total rapid voltage change count
	Vb	Rapid Voltage change beyond +/-6% Vbn/bc Bin 1	4	Not part of the total rapid voltage change count
	Vc	Rapid Voltage change beyond +/-6% Vcn/ca Bin 2	4	Not part of the total rapid voltage change count
Rapid_Voltage_Range_5pct	Va_pct	Rapid Voltage change +/-5% Van/ab Bin 0, % of total count	4	Not part of the spec
	Vb_pct	Rapid Voltage change +/-5% Vbn/bc Bin 1, % of total count	4	Not part of the spec
	Vc_pct	Rapid Voltage change +/-5% Vcn/ca Bin 2, % of total count	4	Not part of the spec
Rapid_Voltage_Range_10pct	Va_pct	Rapid Voltage change +/-10% Van/ab Bin 0, % of total count	4	Not part of the spec
	Vb_pct	Rapid Voltage change +/-10% Vbn/bc Bin 1, % of total count	4	Not part of the spec
	Vc_pct	Rapid Voltage change +/-10% Vcn/ca Bin 2, % of total count	4	Not part of the spec

Invalid Report Due to Conflicting Settings and Standards

When conflicting settings were present in meter's device profile, that may cause the EN50160 report file to be invalid. User should be aware of such settings and the result caused by them. A warning message is provided in the report file and a status bit is provided in the Operation Status Bits. The following settings in meter device profile could cause the report to be invalid. An invalid setting code is available in report file, with the corresponding bit set to indicate a problem.

- Fixed RMS was not enabled for voltage channels in meter's waveform capture setup, code bit 0x00000001.
- IEC 61000-4-30 Hysteresis set points were not 0, code bit 0x00000002. When user pressed the Auto Configure button in device profile setup for EN50160/IEC 61000-4-30, software may overwrite the setting to 0s in device profile. If users need to re-do the Auto Configuration, first they have to enable log 7 & 8 in EN50160/IEC 61000-4-30 setup, then press the Auto Configure button again. Any changes to the hysteresis settings after press Auto Configure button may cause these settings to be none 0s, such as visiting the PQ/waveform setup screen where software may overwrite the settings with a minimum of 2%.
- Below(sag) settings for voltage channels RMS in meter's Waveform capture were not at 90%. Code bit 0x00000004.
- Flicker long term PLT interval not set at 2 hours/120 minutes. Code bit 0x00000008. Meter may overwrite the PLT interval to 2 hours/120 minutes if the setting in device profile was not at 10/20/60/120 minutes, so you may not see meter reporting this as a problem.
- Mains Signaling Threshold is below or equal to 1%. Code bit 0x00000010. Any small percentage setting may cause meter to compute false value. Also, such small setting is invalid in this meter, based on the frequency and threshold values in EN 50160-2007 specification document, section 4.13 Figure 1 and section 5.13 Figure 2.

Data Maximum Value

The maximum value for data type F51(unsigned integer, 2 bytes) is 65535.
The maximum value for data type F53(unsigned integer, 4 bytes) is 4294967295.
Meter will not rollover the value when the maximum count is reached.

Criteria for Report Status: Pass, Fail, Concern, N/A

Power Frequency

Status: N/A (if Total Mains Frequency Count is 0), Pass or Fail.

The percentage value was computed internally when meter received new frequency value from DSP2.

Type	Values from XML File for Pass Status	
Synchronous	All of the following: (Freq_Sync, Bin0_pct) >= 99.5% (based on Freq_Sync, Bin0/ Total_Count, Mains_Frequency) (Freq_Sync, Bin1_pct) = 100% (based on Freq_Sync, Bin1/ Total_Count, Mains_Frequency)	
None Synchronous	All of the following: (Freq_NoSync, Bin0_pct) >= 99.5% (based on Freq_NoSync, Bin0 / Total_Count, Mains_Frequency) (Freq_NoSync, Bin1_pct) = 100% (based on Freq_NoSync, Bin1 / Total_Count, Mains_Frequency)	

Magnitude of supply voltage

Status: N/A

Software setups the meter to log the 10 minutes mean RMS values, later software downloads the trend data and displays the data in report.

Supply Voltage Variations

Status: N/A (if Total 10 Minute Mean RMS Count is 0), Pass or Fail.

	Values from XML File for Pass Status	
Low Voltage, <=1kV	All of the following: (Voltage_Variations_10pct, Va) / (Total_Count, Ten_min_Mean) >= 0.95 (Voltage_Variations_10pct, Vb) / (Total_Count, Ten_min_Mean) >= 0.95 (Voltage_Variations_10pct, Vc) / (Total_Count, Ten_min_Mean) >= 0.95 (Voltage_Variations_15_10pct, Va) = (Total_Count, Ten_min_Mean) (Voltage_Variations_15_10pct, Vb) = (Total_Count, Ten_min_Mean) (Voltage_Variations_15_10pct, Vc) = (Total_Count, Ten_min_Mean)	
Medium Voltage, 1kV<MV<35kV	All of the following: (Voltage_Variations_10pct, Va) / (Total_Count, Ten_min_Mean) >= 0.95 (Voltage_Variations_10pct, Vb) / (Total_Count, Ten_min_Mean) >= 0.95 (Voltage_Variations_10pct, Vc) / (Total_Count, Ten_min_Mean) >= 0.95	

Rapid Voltage Change

Status: N/A (if Total Rapid Voltage Count is 0), Concern, Pass or Fail.

A user added threshold value was used in addition to the EN50160-2007 docum ent.

	Values from XML File	
Low Voltage, <=1kV	**Fail**: any of the following (Rapid_Voltage_Above_10pct, Va) > 0 (Rapid_Voltage_Above_10pct, Vb) > 0 (Rapid_Voltage_Above_10pct, Vc) > 0 Week Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) > Allowed_Rapid_Voltage_Changes_In_Week Year Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) > Allowed_Rapid_Voltage_Changes_In_Year **Concern**: all of the following (Rapid_Voltage_Above_10pct, Va) = 0 (Rapid_Voltage_Above_10pct, Vb) = 0 (Rapid_Voltage_Above_10pct, Vc) = 0 Week Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) > 0 and <= Allowed_Rapid_Voltage_Changes_In_Week Year Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) > 0 and <= Allowed_Rapid_Voltage_Changes_In_Year **Pass**: all of the following (Rapid_Voltage_Above_10pct, Va) = 0 (Rapid_Voltage_Above_10pct, Vb) = 0 (Rapid_Voltage_Above_10pct, Vc) = 0 Week Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) = 0 Year Report: (Sum of Rapid_Voltage_10pct, Va, Vb, Vc) = 0	
Medium Voltage, 1kV<MV<35kV	**Fail**: any of the following (Rapid_Voltage_Above_6pct, Va) > 0 (Rapid_Voltage_Above_6pct, Vb) > 0 (Rapid_Voltage_Above_6pct, Vc) > 0 Week Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) > Allowed_Rapid_Voltage_Changes_In_Week	

	Year Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) > Allowed_Rapid_Voltage_Changes_In_Year **Concern**: all of the following (Rapid_Voltage_Above_6pct, Va) = 0 (Rapid_Voltage_Above_6pct, Vb) = 0 (Rapid_Voltage_Above_6pct, Vc) = 0 Week Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) > 0 and <= Allowed_Rapid_Voltage_Changes_In_Week Year Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) > 0 and <= Allowed_Rapid_Voltage_Changes_In_Year **Pass**: all of the following (Rapid_Voltage_Above_6pct, Va) = 0 (Rapid_Voltage_Above_6pct, Vb) = 0 (Rapid_Voltage_Above_6pct, Vc) = 0 Week Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) = 0 Year Report: (Sum of Rapid_Voltage_6pct, Va, Vb, Vc) = 0	

Flicker

Status: N/A (if Total Flicker PLTs Count is 0), Pass or Fail.

	Values from XML File for Pass Status	
	All of the following: (PLT_Va, Bin0) / (Total_Count, Flicker_PLTs) >= 0.95 (PLT_Vb, Bin0) / (Total_Count, Flicker_PLTs) >= 0.95 (PLT_Vc, Bin0) / (Total_Count, Flicker_PLTs) >= 0.95	

Supply Voltage Dips

Status: Pass or Fail.

A user added threshold value was used in addition to the EN50160-2007 docum ent.

	Values from XML File for Pass Status	
	All of the following: X=0 to 9, depends on the dip concern setting. For example, if dip concern is set to 90%, X would be 0, for range of >=1% and <90%. If dip concern is set to 15%, X would be 8, for range of >=1% and <15%. (Dips_Va_1sec, BinX to Bin9) = 0 (Dips_Va_180sec, BinX to Bin9) = 0 (Dips_Va_Above_180sec, BinX to Bin9) = 0 (Dips_Vb_1sec, BinX to Bin9) = 0 (Dips_Vb_180sec, BinX to Bin9) = 0 (Dips_Vb_Above_180sec, BinX to Bin9) = 0 (Dips_Vc_1sec, BinX to Bin9) = 0 (Dips_Vc_180sec, BinX to Bin9) = 0 (Dips_Vc_Above_180sec, BinX to Bin9) = 0	

Short Interruption of Supply Voltage

Status: Pass or Fail.

	Values from XML File for Pass Status	
	All of the follwing: (Dips_Va_1sec, Bin10) = 0 (Dips_Va_180sec, Bin10) = 0 (Dips_Vb_1sec, Bin10) = 0 (Dips_Vb_180sec, Bin10) = 0 (Dips_Vc_1sec, Bin10) = 0 (Dips_Vc_180sec, Bin10) = 0	

Long Interruption of Supply Voltage

Status: Pass or Fail.

A user added threshold value was used in addition to the EN50160-2007 docum ent.

	Values from XML File for Pass Status	
	All of the following: (Dips_Va_Above_180sec, Bin10) <= Allowed_Long_Interruptions_In_Year (max at 100) (Dips_Vb_Above_180sec, Bin10) <= Allowed_Long_Interruptions_In_Year (max at 100) (Dips_Vc_Above_180sec, Bin10) <= Allowed_Long_Interruptions_In_Year (max at 100)	

Temporary power frequency over-voltages between live conductors and earth

Status: Pass or Fail.

	Values from XML File for Pass Status	
	All of the following: (Overvoltage_Vae_Above, Bin0) = 0 (Overvoltage_Vae_Above, Bin1) = 0 (Overvoltage_Vae_Above, Bin2) = 0 (Overvoltage_Vbe_Above, Bin0) = 0 (Overvoltage_Vbe_Above, Bin1) = 0 (Overvoltage_Vbe_Above, Bin2) = 0 (Overvoltage_Vce_Above, Bin0) = 0 (Overvoltage_Vce_Above, Bin1) = 0 (Overvoltage_Vce_Above, Bin2) = 0	

Transient over-voltages between live conductors and earth

Status: N/A, not supported in meter.

Supply voltage unbalance

Status: N/A (if Total Unbalance Count is 0), Pass or Fail.

A user added threshold value was used in addition to the EN50160-2007 docum ent.

	Values from XML File for Pass Status	
	Unbalance Upper Limit = 2%: (Supply_Voltage_Unbalance, Bin0) / (Total_Count, Unbalance) >= 0.95	
	Unbalance Upper Limit = 3%: (Sum of Supply_Voltage_Unbalance, Bin0 and Bin1) / (Total_Count, Unbalance) >= 0.95	

Harmonic Voltage

Status: N/A (if Total THDs Count is 0), Pass or Fail.

	Values from XML File for Pass Status	
	All of the following: (Ten_min_Mean_THDs_Above, Va) = 0 (Ten_min_Mean_THDs_Above, Vb) = 0 (Ten_min_Mean_THDs_Above, Vc) = 0 (Ten_min_Avg_Va_Harm, H2 to H25) / (Total_Count, THDs) <= 0.05 (Ten_min_Avg_Vb_Harm, H2 to H25) / (Total_Count, THDs) <= 0.05 (Ten_min_Avg_Vc_Harm, H2 to H25) / (Total_Count, THDs) <= 0.05	

Interharmonic Voltage

Status: N/A, not supported in meter.

Mains signaling voltage on the supply voltage

Status: N/A (if Total Mains Signaling Count is 0), Pass or Fail.

	Values from XML File for Pass Status	
	All of the following: (Mains_Signaling, Va_Below) / (Total_Count, Mains_Signaling) >= 0.99 (Mains_Signaling, Vb_Below) / (Total_Count, Mains_Signaling) >= 0.99 (Mains_Signaling, Vc_Below) / (Total_Count, Mains_Signaling) >= 0.99	

Chapter 7
Nexus®1500 Meter Programmable Settings Blocks

■ Chapter 2 contains the Nexus® 1500 meter's Modbus Register Map. 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 meter, by specifying the Line Number and Point Number for a particular value. For example: to monitor 1 second VAN values, use Line 34, Point 0; 1 second VBN, use Line 34, Point 1; 1 second IA, use Line 36, Point 0; Thermal Average VAN, 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 VAN, 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 IA 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
01	= OR combination
10	= XOR combination
11	= Hysteresis combination
Bit 1	0 = Comparison 2 is below
1	= Comparison 2 is above
Bit 0	0 = Comparison 1 is below
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.

Poll-able 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 VBN. 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:
0x00004 = 16 byte records
0x00000 = 32 byte records
0x00001 = 64 byte records
0x00002 = 128 byte records
0x00003 = 256 byte records

7.4: 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)

7.5: Registers 45724-45728 are not used by the Nexus® 1500 meter

7.6: 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.

7.7: Registers 45809-45812 are not used by the Nexus® 1500 meter

7.8: 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.

7.9: 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:

7.10: 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.

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: 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.

7.12: 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.

7.13: Exception Profile Block (45953-45968)

This block is not yet defined.

7.14: 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.

7.15: 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 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 - Reserved for future use.
- The next 4 bytes are undefined.

7.16: Block Window Average External Synchronization Block (46017)

BWA Synch Enable - 1 byte.

Instead of using the time interval, the Nexus® 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

7.17: 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.

7.18: 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

7.19: Register 46020 is not used by the Nexus® 1500 Meter

7.20: Full Scale Block (46021-46036)

2 registers, 4 bytes - 2 bytes integers and 2 bytes fraction values.

7.21: 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
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	

7.22: 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)

7.23: 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.

7.24: 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.

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

Nexus® Meter Watt hour Selection - 1 byte unsigned integer.
Aggregation Assignment - 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

7.25: I^2t and V^2t 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.

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

7.26: Internal KYZ Settings Block (46330-46372)

Internal KYZ Enable Assignment	
Bit	Assignment
Bit 7	Relay 1/Pulse 1 LED
Bit 6	Relay 2/Pulse 2 LED
Bit 5	Relay 3
Bit 4	Relay 4

Internal KYZ Pulse Width - 1 byte, unsigned integer.

Internal KYZ Channel Assignment - 1 byte, unsigned integer.

Internal KYZ Watt Hour per pulse - 2 registers, 4 bytes, 2 byte integer, 2 byte fraction.

End of Interval Pulse			
	Byte		
Value	Enable	Relay	Width (milliseconds)
0	Disable Pulse	Internal Relay 1/Pulse 1 LED	5ms
1	Enable Pulse	Internal Relay 2/Pulse 2 LED	10ms
2		Internal Relay 3	15ms
3		Internal Relay 4	20ms
4-126			25ms-635ms

Internal KYZ Enable - 1 byte.
A bit value of 1 = KYZ is enabled.
A bit value of 0 = KYZ is disabled.

End of Interval Pulse - The meter can generate a pulse upon completion of a block window interva1. This pulse is generated on one of the relays and the pulse width is selectable.

7.27: 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.
Examples of Units: Gallons, BTUs, Liters, Wh, kWh, VAh, etc.

7:28: Registers 46421-46804 are not used by the Nexus® 1500 Meter.

7.29: Limit Profile Label Block (46805-47060)

8 registers, 16 bytes. 16 characters

7.30: 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 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

7.31: 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

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

7.32: 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% 327.6/ 8% -
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.

7.33: 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.

Class Assignments for Counter Change Event			
Bit 5	Bit 4	Bit 3	Class Assignment
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.

Class Assignments for Frozen Counter Events			
Bit 2	Bit 1	Bit 0	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: 7 bytes. Reserved for future use.

7.34: 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.

7.35: 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

7.36: Custom DNP Definition Block for Global Values (47459-47463)

When the master requests data from 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

7.37: Registers 48641-48768 are not used by the Nexus® 1500 Meter.

7.38: Registers 48769-49024 are not used by the Nexus® 1500 Meter.

7.39: Registers 49025-49792 are not used by the Nexus® 1500 Meter.

7.40: 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.

7.41: Registers 50177-50268 are not used by the Nexus® 1500 meter.

7.42: Customizable Modbus Map Settings Block.

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 Modbus Register Map. Those selections are used to create a customized grid of up to 256 readings in the Communicator EXT 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 Communicator Ext User Manual for details on the creation of your Customized Modbus Map.

7.43: Registers 50785-51154 are not used by the Nexus® 1500 Meter.

7.44: DNP LAN/WAN (51157-51195)

DNP LAN/WAN Bitmap							
7	6	5	4	3	2	1	0

- Mode - 1 byte unsigned integer.
- Bitmap Set - 8-bit bitmap.

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.
- Validate Connection Count - 1 byte unsigned integer.
- 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 datagram s.
- 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 datagram s.
- 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 ports 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. A value of 0 means respond to Client port. A value of 1 means respond to programmed UDP response port.

7.45: Registers 51196-51200 are not used by the Nexus® 1500 Meter.

7.46: 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® Modbus Register Map. Those selections are used to create a customized grid of up to 256 readings in the meter's Communicator EXT 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 *Communicator EXT User Manual* for details on creating a Customized Modbus Map.

7.47: Registers 51713-51738 are not used by the Nexus® 1500 Meter.

7.48: Waveform, Transient, and PQ Settings

RMS Set Points

The Set Points control at what RMS voltage or current above or below the Full Scale value a waveform capture or PQ event occurs. The values are given in percentage of Full Scale, where each count is equal to 0.01%. So for example:

Voltage P-N Full Scale:	120v
Set Point Value:	11070
Set Point Percentage:	110.70%
RMS Set Point:	132.84v

Each Set Point value is a 2 byte signed integer. The Below Set Point is used to configure sag detection, and the Above Set Point is used to configure swell detection.

Below is the table of Set Points:

Set Point	Modbus Address
Volts AN Below	0xB198
Volts BN Below	0xB199
Volts CN Below	0xB19A
Volts AB Below	0xB19B
Volts BC Below	0xB19C
Volts CA Below	0xB19D
Volts XN Below	0xB19E
Volts AN Above	0xB1A4
Volts BN Above	0xB1A5
Volts CN Above	0xB1A6
Volts AB Above	0xB1A7
Volts BC Above	0xB1A8
Volts CA Above	0xB1A9
Volts XN Above	0xB1AA
I_A Below	0xB1B0
I_B Below	0xB1B1
I_C Below	0xB1B2
I_N Below	0xB1B3
I_A Above	0xB1B4
I_B Above	0xB1B5
I_C Above	0xB1B6
I_N Above	0xB1B7

Note: registers 0x7928 – 0x7929 must be set to zero for the Set Points to work.

RMS Waveform Sag and Swell Limit Enables

Enables or disables waveform capture on the specified channel for sags and swells. A value of 1 enables capture for sags and swells, a value of 0 disables capture. Both sags and swells must be enabled together.

Voltage Enables (register 0xB1B8)

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
					XE	CE	BE	AE	NE	XN	CA	BC	AB	CN	BN	AN

Current Enables (register 0xB1BA)

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
													N	C	B	A

Waveform Capture Count (register 0x7570-0x7571)

Controls the number of records captured when a waveform event occurs. Since the maximum size of a single waveform record is 180 cycles (apx 3 seconds at a nominal 60hz), to perform a larger capture you need to capture multiple records. The value is + 1,

so a value of 0 results in 1 record, a value of 10 results in 11 records, and so on. The maximum number of captures is 65525.

Waveform Capture Sample Rate (register 0x7574)

Controls the number of samples per nominal 60hz cycle stored in the waveform capture. Decreasing this can decrease the size of the record, allowing more captures. Additionally, the maximum number of Cycles per Capture is affected by the sample rate, as shown below:

Value	Samples per 1/60th of a second	Maximum Cycles per capture
0	16	180
1	32	180
2	64	180
3	128	180
4	256	120
5	512	60
6	1024	40

Compression Factor (0x758C) must be set to match.

Pre-Trigger Cycles (register 0x7575 – High Byte)

The number of cycles to be included in the waveform capture from prior to the triggering cycle. Must be between 1 and 179, and the sum of pre and post triggers must be <= the Max Cycles controlled by Sample Rate.

Post-Trigger Cycles (register 0x7575 – Low Byte)

The number of cycles to be included in the waveform capture after the triggering cycle. Must be between 1 and the Max Cycles – Pre-Trigger.

Internal Input Trigger Enables (register 0x7576)

Enables or disables waveform and pq capture on internal input triggers. A value of 1 enables triggers on that input, a value of 0 disables triggers on that input.

Waveform Trigger Enable								Power Quality Trigger Enable							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8

Transient Set Points (register 0x7578 - 0x757A)

The Transient Set Points control at what voltage magnitude a Transient capture will be triggered. Note that Transients are triggered by the sample value, not the cycle RMS. As such, the minimum allowed value for WYE hookup is 250%, and for DELTA hookup is 144.2%. The values are given in percentage of Full Scale, where each count is equal to 0.1%. So for example:

Voltage P-N Full Scale:	120v
Set Point Value:	3100
Set Point Percentage:	310.0%
Voltage Set Point:	372v

Each Set Point value is a 2 byte signed integer. Set Points are applied to both Positive and Negative Triggers. Below is the table of Set Points:

Set Point	Modbus Address
Volts A	0x7578
Volts B	0x7579
Volts C	0x757A

Transient Enable Settings (register 0x757B)

Controls which channels Transients are triggered on.

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	Channel Enables								Modes							
						V_C	V_B	V_A							M1	M0

M1	Transient Mode
0	Phase to Neutral
1	Phase to Phase

M0	Transient Enable
0	Disabled
1	Enabled

Channel Enables controls which channels Transients are triggered on.

Transient Mode controls if the Phase to Neutral Voltages are used, or if the Phase to Phase voltages are used. Only one may be selected.

Transient Enable controls if Transient Capture is enabled at all. Note that if transients are enabled, the waveform channels selected (Waveform Channel List) must use the Transient Voltage channels (77-79).

Waveform Channel Selection Count (register 0x757C)

The number of channels to be included in a waveform capture. This doesn't have to be the same number of trigger channels.

Waveform Channel Selection List (register 0x757D - 0x758B)

The list of channels to be included in a waveform capture. Up to 15 channels may be selected, though the first channel must always be Channel 80 (High Speed Inputs). The list of channels do not have to be the same as the trigger channels. Each channel is a 2 byte ID, shown below:

Channel Name	Channel ID
High Speed Inputs	80
Volts AN	0
Volts BN	1
Volts CN	2
Volts AB	3
Volts BC	4
Volts CA	5
Volts XN	6
Volts NE	36
Volts AE	32
Volts BE	33
Volts CE	34
I_A	37
I_B	38
I_C	39
I_N	40
Volts Residual	7
I Residual	8
Transient Volts AN/AB	77
Transient Volts BN/BC	78
Transient Volts CN/CA	79

Note: If Transients are enabled, the Transient Voltage channels (77-79) must be selected over the regular Waveform Voltage channels (0-5).

Waveform Compression Factor (register 0x758C)

Must be set to match the Waveform Sample Rate.

Compression Factor Value	Samples per 1/60th of a second
0	16
1	32
2	64
3	128
4	256
5	512
6	1024

PQ Trigger Enables (register 0x758D - 0x758E)

Enables or disables PQ Event triggering on individual channels. A value of 1 enables triggering, a value of 0 disables triggering.

Voltage PQ Enables (register 0x758D)

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
					XE	CE	BE	AE	NE	XN	CA	BC	AB	CN	BN	AN

Current PQ Enables (register 0x758D)

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
													N	C	B	A

Transient Waveform Trigger Enables (register 0x758F)

Must match Transient Enable Settings.

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
											Vca	Vbc	Vab	Vcn	Vbn	Van

Return Hysteresis Set Points (register 0x7800 - 0x781F)

Configures when a sag or swell event is considered to have returned to normal. For PQ Events, this triggers the return to normal event, signifying the end of a PQ Event.

Hysteresis values are given as a percentage adjustment to the Set Point, where each count is equal to 0.01% of Full Scale, offset towards nominal from the Set Point. This Hysteresis value will always be closer to the full scale value then the Set Point. Negative values are not allowed. For example, with swells:

Swell Set Point:	110.0%
Swell Hysteresis:	2.0%
Return Point:	108.0%

For example, with sags:

Sag Set Point:	90.0%
Sag Hysteresis:	2.0%
Return Point:	92.0%

Each Set Point value is a 2 byte signed integer. A value of 0% disables Hysteresis.

Set Point	Modbus Address
Volts AN Below	0x7800
Volts BN Below	0x7801
Volts CN Below	0x7802
Volts AB Below	0x7803
Volts BC Below	0x7804
Volts CA Below	0x7805
Volts XN Below	0x7806
Volts AN Above	0x780C
Volts BN Above	0x780D
Volts CN Above	0x780E
Volts AB Above	0x780F
Volts BC Above	0x7810
Volts CA Above	0x7811
Volts XN Above	0x7812
I_A Below	0x7818
I_B Below	0x7819
I_C Below	0x781A
I_N Below	0x781B
I_A Above	0x781C
I_B Above	0x781D
I_C Above	0x781E
I_N Above	0x781F

U_{SR} Enables (register 0x7928 - 0x7929)

Both registers must be set to zero for Waveform Set Points to operate.

Chapter 8
Register Block Titles

- This chapter expands upon information listed in the Nexus® 1500 meter's Modbus Register Map (Chapter 2). "Register Block Titles" refers 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 Modbus Register Map and to Appendix A for the Channel/Scaling Factor table.

8.1: Device Indentification 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 on the next page.

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.)
  - Type F68 Secondary 1 Cycle RMS Voltage and Current
  - Length: 2 Register (4 bytes)
  - Range: 4,294,967,295 V,A / 0 V,A
  - Unit: 1/65536 V, A

  These registers together are a four-byte unsigned integer where the first register contains the LSB word.
  Example:
  - Address: 0x005D – 0x005E
  - Value: 0xE6D7 – 0x0077
  - 4-byte unsigned integer (Hex): 0x0077E6D7
  - 4-byte integer (decimal):7,857,879
  - 1/65536 V secondary: 119.902v

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 0th through 127th Harmonic Magnitude, Phase A, B, C Current for 0th through 127th 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 0th through 127th Harmonic Phase, Phase A, B, C Current for 0th through 127th 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: Registers 02774-02841 are not used by the Nexus® 1500 meter.

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^2t Phase A, B, C, V^2t 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's Internal Temperature Register is in this block. (See 3.33.)

8.38: Registers 05947-005978 are not used by the Nexus®1500 meter.

8.39: Limit Combination Block (05979-05980)

■ Description: Limit Combination Registers included in this block: Limit States, Combinations 1-16,17-32. (See 3.15.)

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 3.34).

8.41: Reset Time Block (06015-06038)

■ Description: Reset Time Registers included in this block: Time Stamp, Max Time Stamp, MinTime 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 Status1
4-1	1-14	Undefined
0 (LSB)	15	Undefined

NVRAM Battery Status

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 below.

Address	06039															
Value	8000H															
Bytes	80H								00H							
Bits	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Interpretation	NVRAM Battery is Low.															

8.43: Registers 06040-06096 are not used by the Nexus® 1500 meter.

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 Relay 1/Pulse 1 LED, KYZ Output Accumulation Relay 2/Pulse 2 LED, KYZ Output Accumulation Relay 3, KYZ Output Accumulation Relay 4. (See 3.3, 3.18.)

8.45: Registers 06111-06113 are not used by the Nexus® 1500 meter.

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+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 (06393-006488)

■ 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, I^2t Phase A, B, C in the Interval Primary, V^2t Phases A, B, C in the Interval Primary, Pulse Accumulation Internal Inputs 1-8 in the Interval Scaled, Pulse Accumulation 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, Pulse 1 and 2 LEDs. (See 3.3, 3.18, 3.57.)

8.52: Flicker Countdown Block (06489-006490)

■ Description: Flicker Countdown Registers included in this block: Short Term Flicker Countdown, Long Term Flicker Countdown. (See 3.56.)

8.53: Cumulative Demand Block (06491-006502)

■ 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 (06503-006538)

■ 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 (06539-006574

■ 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 readigns 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® meters have scaled energy readings. This scale can be modified using Communicator EXT software.

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 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^{-7}) to no decimal places of MWh (10^{6}). 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, VAR 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 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 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: Registers 37697-37714 are not used by the Nexus® 1500 Meter

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 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 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).

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).

Register 38209 is currently not used..

External Device Info Block (38223) - Currently not used.
External Device Programming Block (38224) - Currently not used.
Device History Block (38225) - Currently not used.
Direct Memory Access (38226) - Currently not used.

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. The particular 128-bytes that are accessed are dependent on the Historical Log 1 window index.

Historical Log 2 (38337-38400): These Registers are a 128-byte window into the Historical Log 2. The particular 128-bytes that are accessed are dependent on the Historical Log 2 window index.

Limit Trigger Log (38401-38464): These Registers are a 128-byte window into the Limit Trigger Log. The particular 128-bytes that are accessed are dependent on the Limit Trigger Log window index.

Limit Snapshot Log (38465-38528): These Registers are a 128-byte window into the Limit Snapshot Log. The particular 128-bytes that are accessed are dependent on the Limit Snapshot Log window index.

Digital Input Log (38529-38592): These Registers are a 128-byte window into the Digital Input Log. The particular 128-bytes that are accessed are dependent on the Digital Input Log window index.

Digital Input Snapshot Log (38593-38656): These Registers are a 128-byte window into the Digital Input Snapshot Log. The particular 128-bytes that are accessed are dependent on the Digital Input Snapshot Log window index

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Digital Output Log (38657-38720): These Registers are a 128-byte window into the Digital Output Log. The particular 128-bytes that are accessed are dependent on the Digital Output Log window index.

Digital Output Snapshot Log (38721-38784): These Registers are a 128-byte window into the Digital Output Snapshot Log. The particular 128-bytes that are accessed are dependent on the Digital Output Snapshot Log window index.

Flicker Log (38785-38848): These Registers are a 128-byte window into the Flicker Log. The particular 128-bytes that are accessed are dependent on the Flicker Log window index.

Waveform Trigger Log (38849-38912): These Registers are a 128-byte window into the Waveform Trigger Log. The particular 128-bytes that are accessed are dependent on the Waveform Trigger Log window index.

System Event Log Window (38913-38976): These registers are a 128-byte window into the System Events Log. The particular 128-bytes that are accessed are dependent on the System Events Log window index.

Waveform Samples Log (38977-39040): These Registers are a 128-byte window into the Waveform Samples Log. The particular 128-bytes that are accessed are dependent on the Waveform Samples Log window index.

PQ Log (39041-39104): These Registers are a 128-byte window into the PQ Log. The particular 128-bytes that are accessed are dependent on the PQ Log window index.

External Device Info Block Window (39169-39232): These Registers are a 128-byte window into the External Device Info Blocks. The particular 128-bytes that are accessed are dependent on the External Device Info Blocks window index. (See Chapter 5.)

External Device Info Block Window (39233-39296): These Registers are a 128-byte window into the External Device Programming Blocks. The particular 128-bytes that are accessed are dependent on the External Device Programming Blocks window index. (See Chapter 5.)

Device History Block (39297-39360) - Currently not used.

Direct Memory Access (39361-39424) - Currently not used.

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-0x0FF	Undefined

The most significant byte defines the following modes: Paused Download Mode (0x000) and Running Download Modde (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) 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) 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 Communicator Ext 3.0 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: Registers 53249-53348 are not used by the Nexus® 1500 meter

8.98: Action Block - Resetting Meter Registers (57345-57393)

Most of the Registers in the Action Block are used to perform an action or reset a 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 meter's Main Unit. An accurate and stable 60Hz sinusoial 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		
Meter Model	**Input**	**RMS**
1500 Meter	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 meter's Main Unit. An accurate and stable 60Hz sinusoial 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		
Meter Model	**Input**	**RMS**
1500 Meter	Standard (5Amp) Current Input	5A 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: Registers 65041-65042 are not used by the Nexus® 1500 meter

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 Command (65328)

- Description:This Register contains and 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 - Set Network User 1 User Name and Password
  0x00007 - Set Network User 2 User Name and Password
  0x00008 - Set Network User 3 User Name and Password
  0x00009 - Set Network User 4 User Name and Password
  0x0000A - Set Network User 5 User Name and Password
  0x0000B - Set Network User 6 User Name and Password
  0x0000C - Set Network User 7 User Name and Password
  0x0000D - Set Network User 8 User Name and Password
  0x0000E - Set Network User 1 Privileges
  0x0000F - Set Network User 2 Privileges
  0x00010 - Set Network User 3 Privileges
  0x00011 - Set Network User 4 Privileges
  0x00012 - Set Network User 5 Privileges
  0x00013 - Set Network User 6 Privileges
  0x00014 - Set Network User 7 Privileges
  0x00015 - Set Network User 8 Privileges
  0x00016 - Read Network User 1 user Name and Privileges
  0x00017 - Read Network User 2 user Name and Privileges
  0x00018 - Read Network User 3 user Name and Privileges
  0x00019 - Read Network User 4 user Name and Privileges 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)

  For setting Level 1 & Level 2 passwords:

  These registers are written to in order to set the Level 1 or Level 2 Password. 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 filling in both sets of registers, the Password Command register should be written with the command indicating which password is being updated.

  Passwords must be 10 bytes long - consistent padding with extra characters must be performed.

  Acceptable Passwords should consist of the ASCII characters ' ' (0x020), '0'-'9' (0x030-0x039), 'A'-'Z' (0x041-0x05A). Attempts to set a password with illegal characters will fail. If a password is shorter than 10 bytes should be padded with SPACE (0x020) characters at the end.

  For setting network user name, password and privileges:

  For setting network user name and password, software should send user name to New Password A field, and password to New Password B field. Software should always set none-zero length to user name and password fields. If username or password is shorter than 10 bytes, then software should padded it with NULL (0x0) characters at the end.

  For setting network user privileges, software should send it to New Password A field, with undefined bit fields set to 0s.

  For reading network user name and privileges, the user must gain Level 2 password access to the meter and then issue the read network username & privileges command. Tthe meter will place the user name in New Password A field and user privileges in New Password B field for software to read. The user cannot read the network password. The byte values in New Password A and New Password B fields are encoded. If the user does not have sufficient access rights or if the password command sequence entered is not correct, the user will read 0's for New Password A and New Password B fields.

8.107: Registers 65345-65349 are not used by the Nexus® 1500 meter

8.108: Registers 65361-65368 are not used by the Nexus® 1500 meter

Chapter 9
Alternative Method for Downloading Logs

9.1: Overview

The preferred and recommended method for downloading logs from the Nexus® 1500 meter is using LDA, as explained in Chapter 6. For backward compatibility, the System Events Log and historical logs 1 and 2 can be downloaded using the serial method. This chapter contains information for doing so.

9.2: Historical Log 1 Format

Profile Information is in the Programmable Settings Block.

- Historical Log 1: Historical Log 1 will fill to its total allocated memory. The number of records possible in the log is the total memory allocated divided by the record size (size of an Historical Log 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 VBN. 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:

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 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.

9.3: Historical Log 2 Format

Profile Information is in the Programming Settings Block.

- Historical Log 2: Historical Log 2 will fill to its total allocated memory. The number of records possible in Historical Log 2 is the total memory allocated divided by the sum of record size (size of Historical Log snapshot) and the 8 bytes record header.

- 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 Log 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 VBN. 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 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.

9.4: System Event Log Format

- The System Event Log stores events which affect the operation of the meter, including power events, time changes, log retrieval, and firmware changes. The full list is given below.

- Record Format: The System Event record is 16 bytes.

[Timestamp]	8 bytes, Nexus Timestamp
[Record Type]	1 byte
[Record Details]	7 bytes

- Event Table - see next page.

Event Type ID	System Event Type	Record Sequence	Bytes 0 to 7	Byte 8	Byte 9	Byte 10	Byte 11	Byte 12	Byte 13	Byte 14	Byte 15
0x000	Run Time Status (Power)	First	TimeStamp	Event Type ID	Details	Undefined					
0x001	Password	First	TimeStamp	Event Type ID	Action	Port ID	Undefined				
0x002	Change Programmable Settings	First	TimeStamp	Event Type ID	Undefined						
0x003	Change Firmware	First	TimeStamp	Event Type ID	Firmware ID	Current Major Version				Rec Sequence	Undefined
		Second	TimeStamp	Event Type ID	Firmware ID	Current Minor Version				Rec Sequence	Undefined
0x004	Change Time	First	TimeStamp	Event Type ID	Part changed	Port ID	Undefined				
0x005	Test Mode	First	TimeStamp	Event Type ID	Action	Port ID	Undefined				
0x006	Log Retrieval	First	TimeStamp	Event Type ID	Action	Log ID	Port ID	Rec Sequence	Protocol	IP Byte 1	IP Byte 2
		Second	TimeStamp	Event Type ID	Action	Log ID	Port ID	Rec Sequence	IP Byte 3	IP Byte 4	Undefined
0x007	Feature Reset	First	TimeStamp	Event Type ID	Item ID	Port ID	Undefined				
0x008	System Initialization problem	First	TimeStamp	Event Type ID	Problem Type	Prob Detail	Undefined				
0x009	Change meter serial number	First	TimeStamp	Event Type ID	Rec Sequence	Port ID	Old Serial Number MSB Part				
		Second	TimeStamp	Event Type ID	Rec Sequence	Old Serial Number LSB Part			Undefined		
0x00A	Bio-Block	First	TimeStamp	Event Type ID	Rec Sequence	Block ID	Update Order	Port ID	Reason = 1	Not Used	
0x00A	Bio-Block (Ether Board 1)	First	TimeStamp	Event Type ID	Rec Sequence	Block ID = 2	Update Order	Port ID	Reason = 2	MAC Byte 1	MAC Byte 2
		Second	TimeStamp	Event Type ID	Rec Sequence	Block ID = 2	Update Order	MAC B3	MAC Byte 4	MAC Byte 5	MAC Byte 6
0x00A	Bio-Block (Front Panel Board)	First	TimeStamp	Event Type ID	Rec Sequence	Block ID = 3	Update Order	Port ID	Reason >= 2	Contrast	Volume
		Second	TimeStamp	Event Type ID	Rec Sequence	LCD Turnoff Timeout		X Left Coordinate		X Right Coordinate	
		Third	TimeStamp	Event Type ID	Rec Sequence	Y Top Coordinate		Y Bottom Coordinate		Undefined	
0x00A	Bio-Block (Digital Board)	First	TimeStamp	Event Type ID	Rec Sequence	Block ID = 8	Upd Order	Port ID	Reason = 2	Cal Status	Cal Error
		Second	TimeStamp	Event Type ID	Rec Sequence	F Tst Status	Fin Tst Error	Undefined			
0x00B	VSwitch	First	TimeStamp	Event Type ID	V-Switch Value	Port ID	Undefined				
0x00C	Security	First	TimeStamp	Event Type ID	Action	Port ID	User Acc Idx	Undefined			
0x00D	Clock Compensation	First	TimeStamp	Event Type ID	Enabled/Disabled	Port ID	Undefined				

- **Run Time Status - Power Record**

The first byte of the sub-fields indicates whether power was lost or regained at the recorded time:

0x000	Run Time was stopped (power loss, boot mode, etc.). The timestamp record is that recorded before the meter be turned off.
0x001	Run Time has started.
0x002	Run Time is active (all readings have initialized, polling, logging limits, etc. are enabled)
0x003-0x0FF	Undefined

The remaining 6 bytes of the sub-fields are undefined.

- **Password Record**

The Password System Event record is stored when the administrative password is used or changed. See Security Record for changes in the individual user accounts.

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	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The remaining 5 bytes of the sub-fields are undefined.

- **Change Programmable Settings**

The 7 bytes of the sub-fields are undefined.

The first byte of the sub-fields indicates which copy was successfully created and saved. If all bits are zero no copy was successfully created/saved:

Bit 0 (Less significant bit) = 1 (First copy OK)
Bit 1 (Less significant bit) = 1 (Second copy OK)
Bit 2 (Less significant bit) = 1 (Third copy OK)
Bit 3-7 = Not defined

The 6 bytes of the sub-fields are undefined.

- **Change Firmware**

This event type can generate up two consecutives records.

The first byte of the sub-fields indicates which firmware has been changed:

0x000	Comm Run Time
0x001	DSP 1 Run Time
0x002	Comm Boot
0x003	FPGA
0x004	DSP2 Run Time
0x005-0x0FF	Undefined

The next 4 bytes of the sub-fields indicates the current major/minor version number of the changed firmware. They major/minor version is left leading with space/zeros. (For FPGA the minor firmware version will be just into the second and third byte)

The sixth byte of the sub-fields indicates the record sequence.

0x000	no extra record (for firmware that does not have minor version number)
0x001	the first record of the sequence, it contains the major version number
0x002	the second record of the sequence, it contains the minor version number

The seventh byte of the sub-fields is 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	Old Time – Auto correction, time stamp before correction was made. Internally used, so next byte should be 0.
0x003	New Time – Auto correction, corrected time stamp.
0x004-0x0FF	Undefined

The second byte of the sub-fields indicates what port was used to change the time:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The remaining 5 bytes of the sub-fields are undefined.

- **Log Download**

When logs are retrieved, the action is recorded in the system event log. When retrieving logs over Ethernet, two records are generated to record the ip address of the software doing the retrieval. When retrieving logs otherwise, only one record is recorded.

FIRST RECORD

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.
0x003	Download Ended, dropped records. (**Log download using file system access**)

The second byte of the sub-fields indicates which Log was being downloaded:

0x000	Interval 1 Log
0x001	Interval 2 Log
0x002	Limit Log
0x003	n/a
0x004	Digital Input Log
0x005	n/a

0x006	Digital Output Log
0x007	n/a
0x008	Flicker Log
0x009	Waveform Log
0x00A	System Event Log
0x00B	Transient Log
0x00C	PQ Log
0x00D	Reset Log – NOT SUPPORTED
0x00E	Interval Log 3 Log
0x00F	Interval Log 4 Log
0x010	Interval Log 5 Log
0x011	Interval Log 6 Log
0x012	Interval Log 7 Log
0x013	Interval Log 8 Log
0x014	Event triggered Log
0x015-0x0FF	Undefined

The third byte of the sub-fields indicates what port was used to download the log:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The fourth byte of the sub-fields indicates the sequence number: (**Ethernet only**)

0x000	first record
0x001	second record

The fifth byte of the sub-fields indicates the protocol: (**Ethernet only**)

0x000	MODBUS TCP
0x001	FTP

The remaining 2 bytes of the sub-fields are the first two bytes of the client IP address

SECOND RECORD

The first fourth bytes of the sub-fields are defined as into the first record.
The fifth and sixth bytes of the sub-fields are the last bytes of the client IP address
The remaining 1 byte of the sub-fields is undefined

- **Feature Reset**

A Feature Reset System Event record occurs when a log or accumulator is reset by an external request.

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	Interval 1 Log Reset
0x009	Interval 2 Log Reset
0x00A	Limit 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
0x013	Test Mode – NOT SUPPORTED
0x014	Interval 3 Log Reset
0x015	Interval 4 Log Reset
0x016	Interval 5 Log Reset
0x017	Interval 6 Log Reset
0x018	Interval 7 Log Reset
0x019	Interval 8 Log Reset
0x01A	Event triggered Log Reset
0x01B	Transient Log Reset
0x01C	EN50160 data reset
0x01D	EN50160 report reset
0x01E	EN50160 log reset
0x01F	EN50160 data preset

The second byte of the sub-fields indicates what port was used to request the reset.

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The remaining 5 bytes of the sub-fields are undefined.

- **System Initialization Problem**

The System Initialization System Event records when the meter detected a problem during bootup.

The first byte indicates the problem type:

0x000	Log Initialization
0x001-0x0FF	Undefined

The second byte of the sub-fields indicates the reason of the problem.

Bit (0x01)	The log folder into the compact flash has a bad layout: files are out of order, files are missed, file have wrong size, directories exist into that folder
Bit 2 (0x02)	The memory allocated is bigger than the memory available
Bit 3 (0x04)	The log folder and the system event log file was created
Bit 4 (0x08)	Some log files are missed then they are created (This bit should not be set, excepted for special runtime version that allows creating log files)
Bit 5 (0x10)	The log files are out of order (This bit should not be set, excepted for special runtime version that allows creating log files)
Bit 6 (0x20)	There were extra log files in the end of the log folder and they were deleted (This bit should not be set, excepted for special runtime version that allows creating log files)
Bit 7 (0x40)	There were extra files into the log folder (This bit should not be set, excepted for special runtime version that allows creating log files)

The remaining 5 bytes of the sub-fields are undefined.

- **Change Meter Serial Number**

  This event generates two consecutives records.

  FIRST RECORD:

  The first byte of the sub-fields indicates the sequence number.

0x000	first record
0x001	second record

  The second byte of the sub-fields indicates what port was used to change the serial number:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

  The remaining 5 bytes of the sub-fields are used to save the 5 most significant bytes of the old meter serial number.

  SECOND RECORD

  The first byte of the sub-fields indicates the sequence number.

0x001	second record

  The second, third and fourth bytes of the sub-fields are used to save the 3 less significant byte of the old meter serial number

  The remaining 3 bytes of the sub-fields are undefined

- **V-switch**

  A V-Switch system event record indicates the changing of the V-switch of the meter.

  The first byte indicates the value of the v-switch to be updated to.

  The second byte of the sub-fields indicates what port was used for the action:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

  The remaining 5 bytes of the sub-fields are undefined.

- **Security**

  A Security System Event record occur when a security change occurs, such as changing a username or password used to log onto the meter. See Password Record for changes in the administrative password.

  The first byte of the sub-fields indicates what action occurred at the recorded time:

0x000	Sealing switch enabled
0x001	Sealing switch disabled.

0x002	Network username/password changed.
0x003	Network privileges changed
0x004-0x0FF	Undefined

The second byte of the sub-fields indicates what port was used for the action:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The third byte of the sub-fields is just valid for actions 0x002-0x003 and indicates the user account number

0x000	n/a
0x001	user account 1
0x002	user account 2
0x003	user account 3
0x004	user account 4
0x005	user account 5
0x006	user account 6
0x007	user account 7
0x008	user account 8

The remaining 4 bytes of the sub-fields are undefined.

- **Clock Compensation**

The first byte indicate if the clock compensation was enabled or disabled:

0x000	Disabled
0x001	Enabled

The second byte of the sub-fields indicates what port was used for the action:

0x000	internal use
0x001	PORT 1 – IR/OPTICAL PORT
0x002	LCD touch screen
0x003	ETHERNET 1
0x004	ETHERNET 2
0x005	PORT 3- RS485 – master or slave
0x006	reserved, N/A
0x007	USB only, N/A for UART
0x008	PORT 4 – RS485, master or slave
0x009	PORT 2 – UART, USB serial
0x00A-0x0FF	Undefined

The remaining 5 bytes of the sub-fields are undefined.

Appendix A
Modbus Support Information

A.1: Channel/Scaling Factor Table

Data Type	Channel Name	Channel Offset	Index	Channel Number	Scaling Factor
Samples	Logical Raw Sample of Van	0	0	0	32768 ADC count =3223.92 V
	Logical Raw Sample of Vbn		1	1	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vcn		2	2	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vab		3	3	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vbc		4	4	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vca		5	5	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vxn		6	6	32768 ADC count = 3223.92 V
	Logical Raw Sample of Vres		7	7	32768 ADC count = 6447.84 V
	Logical Raw Sample of Ires		8	8	32768 ADC count = 400 A
	Physical Raw Sample of Vae	32	0	32	32768 ADC count = 1611.96 V
	Physical Raw Sample of Vbe		1	33	32768 ADC count = 1611.96 V
	Physical Raw Sample of Vce		2	34	32768 ADC count = 1611.96 V
	Physical Raw Sample of Vxe		3	35	32768 ADC count = 1611.96 V
	Physical Raw Sample of Vne		4	36	32768 ADC count = 1611.96 V
	Physical Raw Sample of Ia		5	37	32768 ADC count = 100 A
	Physical Raw Sample of Ib		6	38	32768 ADC count = 100 A
	Physical Raw Sample of Ic		7	39	32768 ADC count = 100 A
	Physical Raw Sample of Ix		8	40	32768 ADC count = 100 A
	Duration of transient Van	68	0	68	1 count = 18.18 ns
	Peak of transient Van		1	69	256 ADC count = 1800 V
	Flags of transient Van		2	70	
	Duration of Transient Vbn		3	71	1 count = 18.18 ns
	Peak of transient Vbn		4	72	256 ADC count = 1800 V
	Flags of transient Vbn		5	73	
	Duaration of transient Vcn		6	74	1 count = 18.18 ns
	Peak of transient Vcn		7	75	256 ADC count = 1800 V
	Flags of transient Vcn		8	76	
	Waveform Transient Combine	77	0	77	32768 ADC count = 3223.92 V
	Waveform Transient Combine		1	78	32768 ADC count = 3223.92 V
	Waveform Transient Combine 2		2	79	32768 ADC count = 3223.92 V
	High speed input samples			80	

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). 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 tranformer.
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 IEE 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™ meter.

Harmonics:	Measuring values of the fundamental current and voltage and percent of the fundamental.
Integer:	Any of the natural numbers, the negatives of those numbers or zero.
Invalid Register:	In the Nexus® meter's Modbus Map there are gaps between Registers. For example, the next Register after 08320 is 34817. Any unmapped Register 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 reponds 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 meter port that facilitates infrared communication. Using an ANSI C12.13 Type II magnetic optical communications coupler and an RS232 cable from the coupler to a PC, the meter can be programmed with Communicator EXT 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: (Programmable Values and Factors on the Nexus® Meter)	Watt and VAR flow is typically represented usng 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 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.

RS232:	A type of serial network connection that connects two devices to enable communication between devices. An RS232 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. RS232 communication can be accomplished using the Optical Port of a meter.
RS485:	A type of serial network connection that connects two or more devices to enable communication between the devices. An RS485 connection allows 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.
TDD: -	The Total Demand Distortion of the current waveform. The ratio of the root sum-square value of the harmonic current to the maximum demand load current.
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.