

3720 ACM

**Advanced Digital Power
Instrumentation Package**

**3720 ACM / Modicon Modbus
Serial Communications Protocol
and Register Map**

Version 1.3

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TABLE OF CONTENTS

1.	INTRODUCTION.....	1
1.1	PURPOSE OF THE COMMUNICATIONS PROTOCOL.....	1
2.	MODBUS IMPLEMENTATION.....	1
2.1	GROUND RULES.....	1
2.2	MODES OF TRANSMISSION.....	1
2.3	DESCRIPTION OF THE MODBUS PACKET STRUCTURE.....	2
2.3.1	<i>Slave Address Field.....</i>	<i>2</i>
2.3.2	<i>Function Field.....</i>	<i>2</i>
2.3.3	<i>Data Field.....</i>	<i>2</i>
2.3.4	<i>Error Check Field (Checksum).....</i>	<i>2</i>
2.4	EXCEPTION RESPONSES.....	3
2.5	BROADCAST PACKETS.....	3
3.	PACKET COMMUNICATIONS.....	4
3.1	FUNCTION 03: READ HOLDING REGISTERS (16-BIT).....	4
3.2	FUNCTION 16: PRESET MULTIPLE REGISTERS (16-BIT).....	5
3.3	EXTENDED (32-BIT) MODE PACKET COMMUNICATIONS.....	6
3.4	32-BIT VALUE FORMAT:.....	6
3.4.1	<i>Normal (Mod-10000) Format 32-bit Values.....</i>	<i>6</i>
3.4.2	<i>Special (Long word) Format 32-bit Values.....</i>	<i>6</i>
3.5	ENERGY HOUR VALUE FORMATS.....	9
3.5.1	<i>16-Bit Mode Energy Hours Format.....</i>	<i>9</i>
3.5.2	<i>32-Bit Mode Energy Hours Format.....</i>	<i>9</i>
3.6	PASSWORD PROTECTION.....	9
3.7	INVALID REGISTERS.....	9
3.8	16-/32-BIT MODE MISMATCH.....	10
4.	3720 ACM MODBUS CONFIGURATION.....	11
4.1	UNIT ID (REGISTER 43006).....	11
4.2	REGISTER SIZE (REGISTER 43064).....	11
4.3	BAUD RATE (REGISTER 43007).....	11
4.4	INVALID OBJECTS (REGISTER 43065).....	11
4.5	PASSWORD PROTECT (REGISTER 43066).....	11
4.6	TRANSMIT DELAY (REGISTER 43067).....	11
5.	3720 ACM MODBUS REGISTERS.....	12
5.1	REAL TIME MEASUREMENTS.....	12
5.1.1	<i>Power Factor Representation.....</i>	<i>12</i>
5.2	STATUS REGISTERS.....	12
5.2.1	<i>Relay Status Registers.....</i>	<i>12</i>
5.2.2	<i>Status Input Register.....</i>	<i>12</i>
5.2.3	<i>Setpoint Status Registers.....</i>	<i>12</i>
5.2.4	<i>Status Input Counters.....</i>	<i>12</i>
5.3	HIGH SPEED REGISTERS.....	13
5.3.1	<i>High Speed Polarity.....</i>	<i>13</i>
5.4	WAVEFORM RECORDER.....	13
5.4.1	<i>Waveform Recorder Reading Window.....</i>	<i>13</i>
5.4.2	<i>Loading the Waveform Reading Window.....</i>	<i>13</i>
5.4.3	<i>WFR Log Counters: Calculating the WFR Log Index.....</i>	<i>14</i>
5.4.4	<i>Interpreting the WFR Data.....</i>	<i>14</i>
5.5	SETUP REGISTERS.....	14
5.5.1	<i>Relay Operation Setup.....</i>	<i>14</i>
5.5.2	<i>Log Status Input Transitions.....</i>	<i>15</i>

5.5.3	Trigger Waveform Capture	15
5.5.4	Preset Status Input Counters.....	15
5.5.5	Sliding Window Keys.....	15
5.5.6	Modbus Protocol Setup.....	15
5.5.7	Status Input Counter Setup	15
5.5.8	Waveform Recorder Depth.....	15
5.5.9	Waveform Recorder Trigger/Rearm.....	15
5.5.10	Event Counters.....	15
5.5.11	Setpoint Registers.....	16
5.6	WAVEFORM CAPTURE	16
5.6.1	Waveform Read Request	16
5.6.2	Compressed Sample Format	17
5.7	EVENT LOG.....	17
5.8	REGISTERS WITH INVALID NUMBERS	17
5.8.1	Representation of Invalid Numbers.....	17
5.8.2	Min/Max Registers	17
5.8.3	Sliding Window and Predicted Demand Registers.....	17
5.8.4	Time of Use Demand Registers	17
<u>APPENDIX A: CRC-16 CALCULATION</u>		19
<u>APPENDIX B: 3720 ACM REGISTER MAP.....</u>		23

LIST OF TABLES AND FIGURES

TABLE 2-1: MODBUS FUNCTION SUPPORTED BY THE 3720 ACM.....2

TABLE 2-2: EXCEPTION CODES SUPPORTED BY THE 3720 ACM.....3

TABLE 4-1: MODBUS CONFIGURATION PARAMETERS..... 11

FIGURE 3-1: READ HOLDING REGISTERS (16-BIT MODE)4

FIGURE 3-2: PRESET MULTIPLE REGISTERS (16-BIT MODE)5

FIGURE 3-3: READ HOLDING REGISTERS (32-BIT MODE)7

FIGURE 3-4: PRESET MULTIPLE REGISTERS (32-BIT MODE)8

FIGURE 5-1: WAVEFORM CAPTURE PACKET 16

1. INTRODUCTION

The 3720 ACM performs Modbus communications by emulating the Modicon 984 Programmable Controller. This document describes the Modbus communications protocol employed by the 3720 ACM and how to pass information into and out of the 3720 ACM in a Modbus network.

This document provides information specific to the 3720 implementation of the Modbus protocol. For a more detailed description of the Modbus protocol as used with PML devices, consult the 3710 ACM Modbus protocol document.

It is assumed that the reader is familiar with the Modbus protocol and serial communications in general.

1.1 Purpose of the Communications Protocol

The purpose of the 3720 ACM Modbus communications protocol is to allow setup information and measured data to be efficiently transferred between a Modbus Master Station and a 3720 ACM. This includes:

- 1) Allowing configuration and interrogation of all 3720 ACM set-up parameters from a Modbus Master Station.
- 2) Allowing interrogation of all data measured by a 3720 ACM, including minimum and maximum real time values and date stamps.
- 3) Allowing the configuration and interrogation of 3720 ACM setpoint parameters.
- 4) Allowing control of the 3720 ACM relays
- 5) Allowing the interrogation of the event log.

2. MODBUS IMPLEMENTATION

2.1 Ground Rules

The 3720 ACM is capable of communication on both the RS-232C and the RS-485 serial communication standards. The RS-485 medium allows for multiple devices on a multi-drop network, whereas RS-232C allows for only a single device. The 3720 ACM Modbus protocol is identical for both environments.

The following rules define the protocol for information transfer between a Modbus Master device and the 3720 ACM.

- 1) All communications on the communications loop conforms to a MASTER/SLAVE scheme. In this scheme, information and data is transferred between a Modbus MASTER device and up to 32 SLAVE monitoring devices for RS-485 and only one SLAVE device for RS-232C.
- 2) The MASTER will initiate and control all information transfer on the communications loop.
- 3) Under no circumstances will a SLAVE device initiate a communications sequence.
- 4) All communications activity on the loop occurs in the form of "PACKETS", a packet being simply a serial string of 8-bit bytes. The maximum number of bytes contained within one packet is 255.
- 5) All PACKETS transmitted by the MASTER are REQUESTS. All PACKETS transmitted by a SLAVE device are RESPONSES.
- 6) At most one SLAVE can respond to a single request from a MASTER.

2.2 Modes of Transmission

The Modbus protocol uses ASCII and RTU modes of transmission. The 3720 ACM supports only the RTU mode of transmission, with 8 data bits, no parity, and one stop bit.

2.3 Description of the Modbus packet structure

Every Modbus packet consists of four fields:

- 1) The Slave Address Field
- 2) The Function Field
- 3) The Data Field
- 4) The Error Check Field (Checksum)

2.3.1 Slave Address Field

The slave address field of a Modbus packet is one byte in length and uniquely identifies the slave device involved in the transaction. Valid addresses range between 1 and 247. A slave device, when receiving a request packet with the slave address field matching its own address, will perform the command specified in the packet. A response packet generated by the slave will have the same value in the slave address field.

2.3.2 Function Field

The function field of a Modbus request packet is one byte in length and tells the addressed slave which function to perform. Similarly, the function field of a response packet tells the master what function the addressed slave has just performed. Table 2-1 lists the Modbus functions supported by the 3720 ACM.

2.3.3 Data Field

The data field of a Modbus request is of variable length, and depends upon the function. This field contains information required by the slave device to perform the command specified in a request packet or data being passed back by the slave device in a response packet.

In general, data in this field are contained in either 16-bit or 32-bit registers. In 16-bit mode, registers are transmitted in the order of high-order byte first, low-order byte second. In 32-bit mode, registers are transmitted in the order of high-order word first, low-order word second. This ordering of bytes is called “Big Endian” format.

Example 2.1:

A 16-bit register contains the value 12AB Hex. This register is transmitted:

High order byte = 12 Hex
Low order byte = AB Hex

This register will be transmitted in the order 12 AB.

Example 2.2:

A 32-bit register contains the value 0A1B2C3D Hex. This register is transmitted:

High order word: 0A1B Hex
High order byte = 0A Hex
Low order byte = 1B Hex
Low order word: 2C3D Hex
High order byte = 2C Hex
Low order byte = 3D Hex

This register is transmitted in the order 0A 1B 2C 3D.

2.3.4 Error Check Field (Checksum)

The checksum field allows the receiving device to determine if a packet has been corrupted with transmission errors. In Modbus RTU mode, a 16-bit Cyclic Redundancy Check (CRC-16) is used.

The sending device calculates a 16-bit value, based on every byte in the packet, using the CRC-16 algorithm. The calculated value is inserted in the error check field.

The receiving device performs the same calculation on the entire packet it receives, excepting the error check field. The resulting value is compared to the error check field. If the calculated checksum is not equal to the checksum stored in the incoming packet, transmission errors have occurred and corrupted the packet. A bad packet will be ignored by the receiving device.

The CRC-16 algorithm is detailed in appendix A of this document.

FUNCTION	MEANING	ACTION
03	Read Holding Registers	Obtains the current value in one or more holding registers of the 3720 ACM.
16	Preset Multiple Registers	Places specific values into a series of consecutive holding registers of the 3720 ACM. The holding registers that can be written to a 3720 ACM are shown in the register map.

Table 2-1: Modbus Function Supported by the 3720 ACM

2.4 Exception Responses

If a Modbus master device sends an invalid command to a 3720 ACM or attempts to read an invalid holding register, an exception response will be generated. The exception response follows the standard packet format. The high order bit of the function code in an exception response is set to 1.

The data field of an exception response contains the exception error code. Table 2-2 describes the exception codes supported by the 3720 ACM and their possible causes.

2.5 Broadcast Packets

The 3720 ACM Modbus protocol supports the use of broadcast request packets. The purpose of a broadcast request packet is to allow all the Slave devices to receive the same command from the Master station.

A broadcast request packet is the same as a normal request packet, except the slave address field is set to zero (0). All Modbus slave devices will receive and execute a broadcast request command, but no device will respond.

The Preset Multiple Registers command is the only command supporting broadcast packets.

CODE	NAME	MEANING
01	Illegal Function	An Invalid command is contained in the function field of the request packet. The 3720 ACM only support Modbus functions 3 and 16. This illegal function code could also indicate that an incorrect password is used when the user attempts to perform a protected function.
02	Illegal Address	The address referenced in the data field is an invalid address for the specified function. This could also indicate that the registers requested are not within the valid register range of the 3720 ACM.
03	Illegal Value	The value referenced in the data field is not allowable for the referenced register on the 3720 ACM.

Table 2-2: Exception Codes supported by the 3720 ACM

3. PACKET COMMUNICATIONS

This section will illustrate the Modbus functions supported by the 3720 ACM, first in standard (16-bit) mode, then in extended (32-bit) mode.

must send the slave device a Read Holding Registers request packet.

The Read Holding Registers request packet specifies a start register and a number of registers to read. The start register is numbered from zero (40001 = zero, 40002 = one, etc.).

3.1 Function 03: Read Holding Registers (16-bit)

The 3720 ACM responds with a packet containing the values of the registers in the range defined in the request.

To read 3720 ACM parameter values, a Master station

Figure 3-1 shows the Read Holding Registers request and

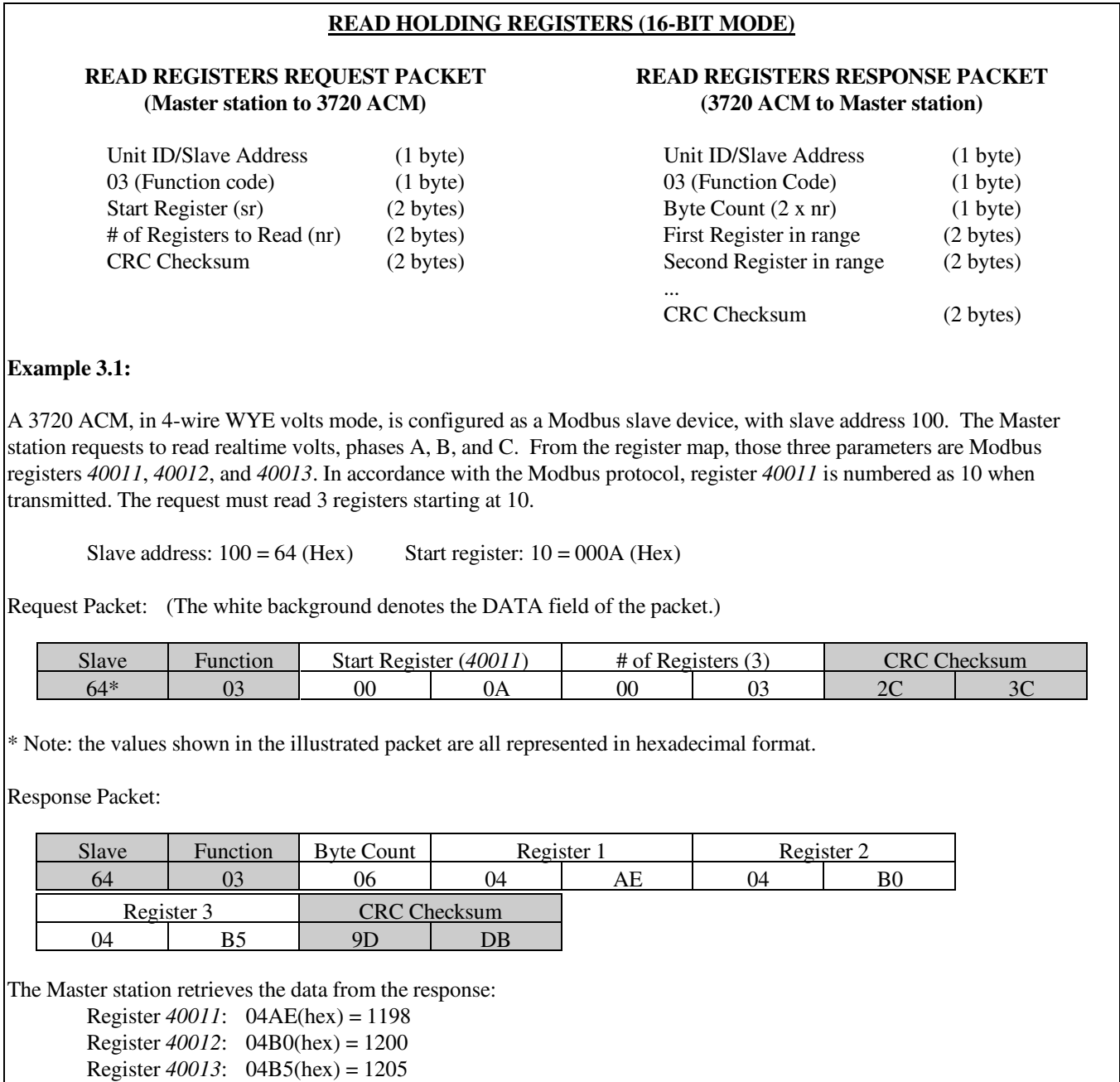


Figure 3-1: Read Holding Registers (16-Bit Mode)

response packet formats, and an example transaction.

The 3720 ACM responds with a packet indicating that a write was performed to the range of registers specified in the request.

3.2 Function 16: Preset Multiple Registers (16-bit)

The Preset Multiple Registers command packet allows a Modbus master to configure the 3720 ACM.

Figure 3-2 shows the Preset Multiple Registers request and response packet formats, and an example transaction.

The Preset Multiple Registers request packet contains, as the data field, a definition of a range of registers to write to, and the values to write to those registers.

Note that, except for the function field, the Preset Registers Response packet is identical in format to the Read Registers Request packet.

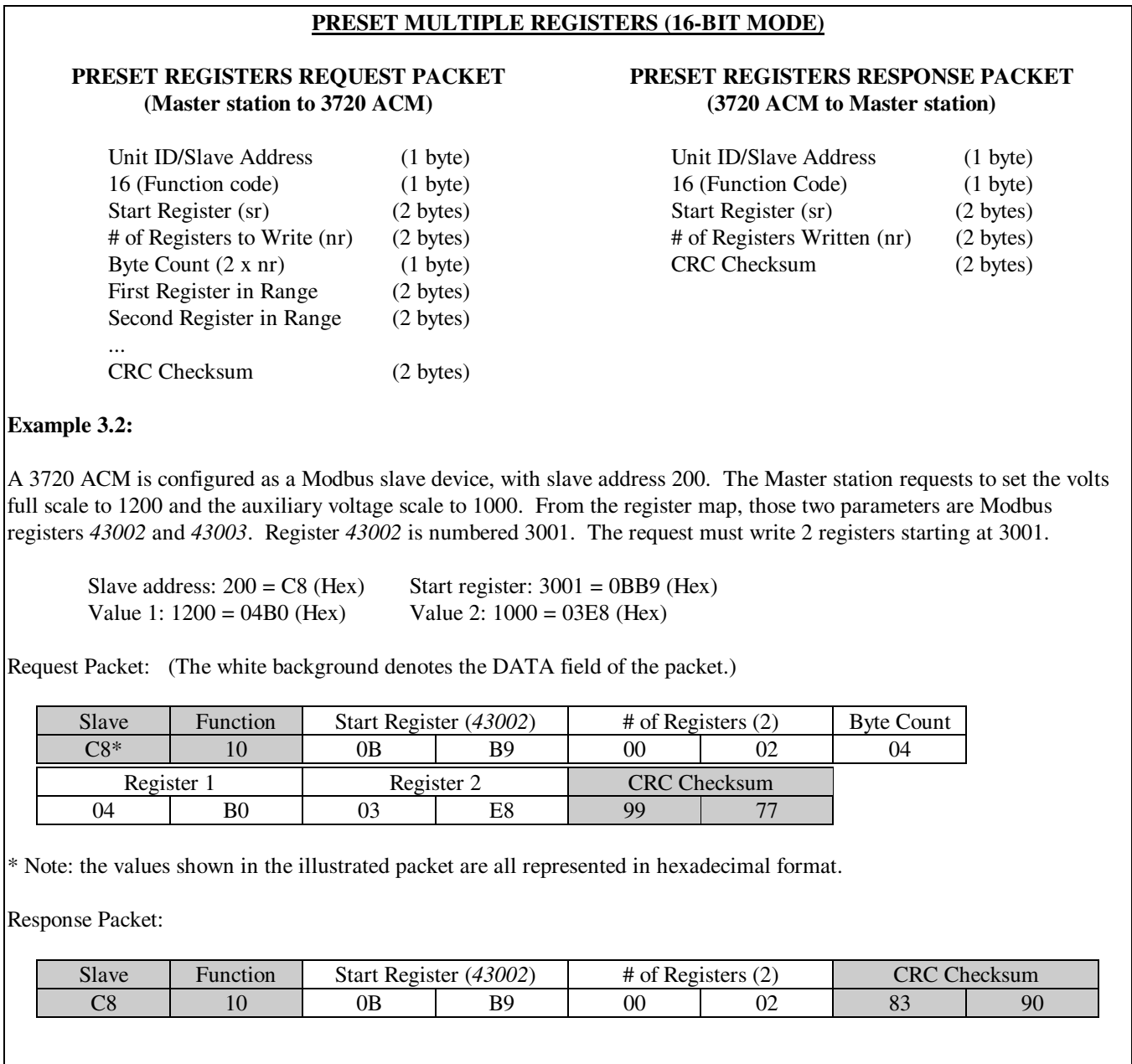


Figure 3-2: Preset Multiple Registers (16-Bit Mode)

3.3 Extended (32-bit) Mode Packet Communications

Standard Modbus protocol supports only 16-bit registers. Measurements and values used by the 3720 are capable of exceeding the maximum value (65535) that can be represented by 16 bits. To accommodate large numbers, an extended 32-bit register mode is implemented in the 3720 ACM.

The 32-bit register mode in the 3720 ACM Modbus protocol effectively doubles the accessible register map. Each 32-bit register takes the logical space of two contiguously located 16-bit registers. In 32-bit mode, each entry in the register map actually counts for two 16-bit registers. Where the map specifies address $4xxx$ in 16-bit mode, the 32-bit version of the same register map entry can be considered to be two registers: $4xxx_{high}$ and $4xxx_{low}$. In 32-bit mode, the two 16-bit registers which comprise one 32-bit register can not be divided in communications.

For each 16-bit mode transaction as shown in the previous section, an equivalent 32-bit mode transaction can be made by doubling the number of registers in the 16-bit mode version and by doubling the length (in bytes) of each register. This also means that the byte count field of any packet would also be doubled.

Figure 3-3 on page 7 shows the 32-bit mode Read Holding Registers request and response packet formats, and an example transaction.

Figure 3-4 on page 8 shows the 32-bit mode Preset Multiple Registers request and response packet formats, and an example transaction.

3.4 32-Bit Value Format:

The 3720 ACM uses three different formats for expressing values in 32-bit mode:

- 1) Normal (Mod-10000) format
- 2) Special (Long word) format
- 3) Energy Hours format

3.4.1 Normal (Mod-10000) Format 32-bit Values

A 32-bit register represented in Normal format is passed via communications two 16-bit registers:

$$\text{High-Order Register} = \frac{\text{value}}{10000}$$

$$\text{Low-Order Register} = \text{value} \bmod 10000$$

The 32-bit value can be retrieved by the following calculation:

$$\text{value} = \text{register}_{high} \times 10000 + \text{register}_{low}$$

Example 3.3:

Value 12345678 is passed in normal 32-bit format.

$$\text{Register}_{high}: 1234 = 04D2 \text{ Hex}$$

$$\text{Register}_{low}: 5678 = 162E \text{ Hex}$$

Real-time measurements and most setup parameters (except energy hour counters) are passed in this format.

This configuration is compatible with the Modicon PLC floating point format.

3.4.2 Special (Long word) Format 32-bit Values

A 32-bit register represented in Special format is passed via communications as two 16-bit registers:

$$\text{High-Order Register} = \frac{\text{value}}{65536}$$

$$\text{Low-Order Register} = \text{value} \bmod 65536$$

$$\text{value} = \text{register}_{high} \times 65536 + \text{register}_{low}, \text{ or}$$

$$\text{value} = \text{register}_{high} \bmod \text{register}_{low}$$

Example 3.4:

Value 12345678 is passed in special 32-bit format:

$$12345678 = 00BC614E \text{ Hex}$$

$$\text{Register}_{high} = 00BC \text{ Hex} = 188$$

$$\text{Register}_{low} = 614E \text{ Hex} = 24910$$

Registers which are passed in Special format are those in which individual bit-fields in the value have special significance. These include:

- Time values
- Polarity registers
- Setpoint setup/status
- Counters
- Status Input Counter Scales/Roll-Overs
- Sliding Window Keys
- Event Logs

READ HOLDING REGISTERS (32-BIT MODE)

**READ REGISTERS REQUEST PACKET
(Master station to 3720 ACM)**

Unit ID/Slave Address	(1 byte)
03 (Function code)	(1 byte)
Start Register (sr)	(2 bytes)
# of 16-bit Registers to Read (nr) ¹	(2 bytes)
CRC Checksum	(2 bytes)

**READ REGISTERS RESPONSE PACKET
(3720 ACM to Master station)**

Unit ID/Slave Address	(1 byte)
03 (Function Code)	(1 byte)
Byte Count (2 x nr) ²	(1 byte)
First 32-bit Register in range:	
High-Order 16-bit register	(2 bytes)
Low-Order 16-bit register	(2 bytes)
Second 32-bit Register in range:	
High-Order 16-bit register	(2 bytes)
Low-Order 16-bit register	(2 bytes)
...	
CRC Checksum	(2 bytes)

Notes: ¹: nr (# of 16-bit registers) = 2 x # of 32-bit registers
²: byte count = 2 x nr = 4 x # of 32-bit registers

Example 3.5: (32-bit version of example 3.1)

A 3720 ACM, in 4-wire WYE volts mode, is configured as a Modbus slave device, with slave address 100. The Master station requests to read realtime volts, phases A, B, and C. From the register map, those three parameters are Modbus registers 40011, 40012, and 40013. The request must read three 32-bit registers (i.e. six 16-bit registers) starting at 40011 (numbered 10).

Slave address: 100 = 64 (Hex)
 Start register: 10 = 000A (Hex)

Request Packet: (The white background denotes the DATA field of the packet.)

Slave	Function	Start Register (40011)		# of Registers (2 x 3 = 6)		CRC Checksum	
64*	03	00	0A	00	06	EC	3F

* Note: the values shown in the illustrated packet are all represented in hexadecimal format.

Response Packet:

Slave	Function	Byte Count	Register 1 _{high}		Register 1 _{low}		
64	03	0C	00	00	04	AE	
Register 2 _{high}		Register 2 _{low}		Register 3 _{high}		Register 3 _{low}	
00	00	04	B0	00	00	04	B5
CRC Checksum							
40	C0						

The Master station retrieves the data from the response:

Register 40011: high: 0000(hex) = 0, low: 04AE(hex) = 1198
 Register 40012: high: 0000(hex) = 0, low: 04B0(hex) = 1200
 Register 40013: high: 0000(hex) = 0, low: 04B5(hex) = 1205

Figure 3-3: Read Holding Registers (32-Bit Mode)

PRESET MULTIPLE REGISTERS (32-BIT MODE)

**PRESET REGISTERS REQUEST PACKET
(Master station to 3720 ACM)**

Unit ID/Slave Address	(1 byte)
16 (Function code)	(1 byte)
Start Register (sr)	(2 bytes)
# of 16-bit Registers to Write (nr) ¹	(2 bytes)
Byte Count (2 x nr) ²	(1 byte)
First 32-bit Register in Range:	
High-Order 16-bit register	(2 bytes)
Low-Order 16-bit register	(2 bytes)
Second Register in Range:	
High-Order 16-bit register	(2 bytes)
Low-Order 16-bit register	(2 bytes)
...	
CRC Checksum	(2 bytes)

**PRESET REGISTERS RESPONSE PACKET
(3720 ACM to Master station)**

Unit ID/Slave Address	(1 byte)
16 (Function Code)	(1 byte)
Start Register (sr)	(2 bytes)
# of 16-bit Registers Written (nr) ¹	(2 bytes)
CRC Checksum	(2 bytes)

Notes: ¹: nr (# of 16-bit registers) = 2 x # of 32-bit registers
²: byte count = 2 x nr = 4 x # of 32-bit registers

Example 3.6: (32-bit version of example 3.2)

A 3720 ACM is configured as a Modbus slave device, with slave address 200. The Master station requests to set the volts full scale to 1200 and the auxiliary voltage scale to 1000. From the register map, those two parameters are Modbus registers 43002 and 43003. The request must write two 32-bit registers (i.e. four 16-bit registers) starting at 43002 (numbered 3001).

Slave address: 200 = C8 (Hex) Start register: 3001 = 0BB9 (Hex)
 Value 1_{high}: 0 = 0000 (Hex) Value 1_{low}: 1200 = 04B0 (Hex)
 Value 2_{high}: 0 = 0000 (Hex) Value 2_{low}: 1000 = 03E8 (Hex)

Request Packet: (The white background denotes the DATA field of the packet.)

Slave	Function	Start Register (43002)		# of 16-bit Registers (2x2)		Byte Count
C8*	10	0B	B9	00	04	08
Register 1 _{high}		Register 1 _{low}		Register 2 _{high}		Register 2 _{low}
00	00	04	B0	00	00	03 E8
CRC Checksum						
BB	65					

* Note: the values shown in the illustrated packet are all represented in hexadecimal format.

Response Packet:

Slave	Function	Start Register (43002)		# of 16-bit Registers (2x2)		CRC Checksum	
C8	10	0B	B9	00	04	03	92

Figure 3-4: Preset Multiple Registers (32-Bit Mode)

3.5 Energy Hour Value Formats

Energy Hour integrator parameters (40051-40078) are always divided into two registers, regardless of whether the register size is set to 16-bit or 32-bit. The values for these registers are expressed in engineering units.

The first register of each pair is the “kilo” component of the value. In 16-bit mode, the second register is the “mega” component of the value, and in 32-bit mode, the same register is the “giga” component.

In 16-bit mode, the maximum expressable value for energy hours is 65535 MWH/MVARH/MVAH.

In 32-bit mode, the maximum expressable value for energy hours is 1000 GWH/GVARH/GVAH.

3.5.1 16-Bit Mode Energy Hours Format

“Kilo” Register = value **modulus** 1000
 “Mega” Register = $\frac{\text{value}}{1000}$

Example 3.7:

kWh Import is reading 123456.

Value for register 40051 (kilo) = 456 kWh
 Value for register 40052 (mega) = 123 MWh

Value = 123 MWh + 456 kWh = 123456 kWh.

3.5.2 32-Bit Mode Energy Hours Format

32-bit “Kilo” Register = value **modulus** 1000000
 32-bit “Giga” Register = $\frac{\text{value}}{1000000}$

The 32-bit registers for energy hours are represented in Mod-10000 format.

Example 3.8:

kWh Net is reading 123456789.

32-bit “Kilo” Register (40057):
 High Order 16-bit register: 45
 Low Order 16-bit register: 6789
 32-Bit value = $45 \times 10000 + 6789 = 456789$ kWh.
 32-Bit “Giga” Register (40058):
 High Order 16-bit register: 0
 Low Order 16-bit register: 123
 32-Bit value = $0 \times 10000 + 123 = 123$ GWh.

Value = 123 GWh + 456789 kWh = 123456789 kWh.

3.6 Password Protection

The 3720 ACM supports a password protection mode, which locks the 3720 ACM setup registers, allowing access only when a valid password has been provided. In password protection mode, the password register (address 43010) is protected for a read request, and all writeable registers are protected for write requests.

Since there is no reserved password field in the Modbus protocol, a special procedure is required to access protected registers.

The correct password must first be written to the Packet Password register (address 43051) using the Preset Multiple Registers function. A response packet is always returned for this packet, regardless of whether or not the password was correct. The user may then perform the desired function. If the password previously transmitted was incorrect, an *illegal function* (01) exception response is generated; otherwise, the 3720 ACM will perform the specified command.

The password protection mode is selectable through the front panel programming mode and via communications.

3.7 Invalid Registers

In the 3720 ACM Modbus register map, there are gaps between some registers. For example, the next register after 40008 is 40011. The unmapped registers 40009 and 40010 are said to be INVALID. Invalid registers store no information.

It is sometimes useful to request invalid registers. For example, if one wishes to read all the real-time power measurements on the 3720 ACM, it is most efficient to read the whole range from 40011 to 40046 in one request.

There are two ways that the 3720 ACM can be configured to respond to a request which includes invalid registers:

- 1) Skip Invalids
- 2) Return Invalids

If the 3720 ACM is configured to skip invalid registers, the next valid register is returned in place of an invalid register.

If the 3720 ACM is configured to return invalid registers, a value of zero is returned for an invalid register. This is the default configuration.

Example 3.9:

A request is made to read 6 registers, starting at 40026. Registers 40027 and 40029 are invalid, according to the register map. The following table describes the information included in the response. The first column shows the order in which the registers are returned. The second and third columns indicate which register's value is returned for the corresponding position in the response. The invalid registers (highlighted in grey) contain the value 0.

i	Skip Invalids	Return Invalids
1	40026	40026
2	40028	(40027)
3	40029	40028
4	40031	40029
5	40032	(40030)
6	40033	40031

This feature of the 3720 ACM Modbus protocol is configurable through communications and the front panel programming menu.

3.8 16-/32-bit Mode Mismatch

If the 3720 ACM is configured to 16-bit mode, and a 32-bit style Modbus request is received, the request will be processed and responded to as if it is a 16-bit request. That is, twice the number of 32-bit registers will be transferred, in 16-bit format. If the response packet is decoded in 32-bit format, the values extracted from the packet will be incorrect.

If the 3720 ACM is configured to 32-bit mode, and a 16-bit style Modbus request is received, the response depends on how many registers are intended to be transferred.

If the 16-bit request is intended to transfer an even number of 16-bit registers, then the 3720 ACM will process and respond to the request as if it is a 32-bit request. That is, ½ the number of 16-bit registers will be transferred, in 32-bit format. As with the above scenario, if the response packet is decoded in 16-bit format, the values extracted from the packet will be incorrect.

If the 16-bit request is intended to transfer an odd number of 16-bit registers, then the 3720 ACM will see a violation of the 32-bit request format and respond with an *illegal address* exception response.

4. 3720 ACM MODBUS CONFIGURATION

The following setup options, relevant to the Modbus protocol, are available on the 3720 ACM.

PARAMETER NAME	MODBUS ADDRESS
Unit ID	43006
Register Size	43064
Baud Rate	43007
Invalid Objects	43065
Password Protect	43066
Transmit Delay	43067

Table 4-1: Modbus Configuration Parameters

All of these parameters can be accessed via the front panel programming menu, as well as via communications.

4.1 Unit ID (Register 43006)

The Unit ID parameter defines the slave address used in Modbus packets for the device in question. Valid range is from 1 to 247.

See section 2.3.1 for more detail.

4.2 Register Size (Register 43064)

This parameter selects 16-bit or 32-bit register size. Via communications, value 0 corresponds to 16-bit mode, and value 1 corresponds to 32-bit mode.

See section 3.3 for more detail.

4.3 Baud Rate (Register 43007)

The baud rate parameter defines the speed of serial communications. The following baud rates are supported by the 3720 ACM:

Via ISOCOMM:

300, 1200, 2400, 4800, 9600, 19200

Via 3720 Multiport Communications Cards (MPCC or MPE)¹:

300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

¹ Contact PML for information regarding 3720 MPCC or MPE.

Via communications, baud rate is selectable by a value indicating the ordinal position in the baud rate list:

0 = 300 baud, 1 = 1200 baud, 2 = 2400 baud, etc.

4.4 Invalid Objects (Register 43065)

This parameter selects how the 3720 ACM handles a request for an invalid object.

If the value is “NO” (front panel) or 0 (communications), the 3720 ACM will skip invalid registers.

If the value is “YES” (front panel) or 1 (communications), the 3720 ACM will return invalid registers.

The default value for this parameter is “YES”.

This option is detailed in section 3.7 of this document.

4.5 Password Protect (Register 43066)

The Password Protect parameter sets the password protection mode. Set to “YES” or value 1 enables password protection. Set to “NO” or value 0 disables password protection.

The default value for this parameter is “NO”.

See section 3.6 for more detail.

4.6 Transmit Delay (Register 43067)

The transmit delay parameter defines the time (in milliseconds) that the 3720 ACM will wait before transmitting a communications packet, once that packet is ready to send. In some cases it is possible for MPCC or MPE to respond faster than some communication devices can handle. It is recommended that if communication problems occur to try increasing the transmit delay to see if the problems disappear. The default setting is 20 ms.

5. 3720 ACM MODBUS REGISTERS

The 3720 ACM Modbus register map defines a set of parameters which are treated as HOLDING REGISTERS of the Modicon 984 PLC, having addresses **4xxx**. According to the Modbus protocol, in response to a request for register **4xxx** of a particular slave device (3720), the Modbus master reads register **xxx-1** from the slave. For example, register **4011** corresponds to register 10.

The following sections will describe in detail the coded values stored for various registers. The registers will be discussed in the order they appear on the 3720 ACM Modbus Register Map (appendix B).

5.1 Real Time Measurements

All real-time parameters return straight-forward measurement units, except for one exception: the power factor parameters are coded differently.

5.1.1 Power Factor Representation

The 3720 ACM measures LEADING and LAGGING power factors for all phases. These are available via Modbus as registers **40039-40042**.

Power Factor measurements are represented as a value from 0 to 200. The value is interpreted as follows:

PF	Meaning
0-100	Power Factor = PF (lagging)
100-200	Power Factor = 200-PF (leading)

5.2 Status Registers

The status registers indicate the state of the 3720 relays, the four status inputs (S1-S4), and the internal setpoints.

5.2.1 Relay Status Registers

The Relay Status Registers (**40201-40203**) indicate and control the status of the 3720 ACM control relays. A relay can be forced by writing a new status to the associated status register. The relay operation status can be in two states:

- Released: Normally On position is OPEN.
 - Operated: Normally On position is CLOSED.
- Bits 15-4 3-2 1-0

000000000000	B	A
--------------	---	---

	READING	WRITING
A)	00 = Released 01 = Operated 10 = Forced Released 11 = Forced Operated	00 = Normal 01 = Force Operate 10 = Force Release
B)	00 = Relay is latched 10 = Relay is pulsed inactive 11 = Relay is pulsed active	

5.2.2 Status Input Register

The Status Input Register (**40210**) indicates the status of the 3720 ACM Status Inputs (S1-S4).

Bits 15-6	5-4	3	2	1	0
0000000000	E	D	C	B	A

- A) Status Input #1: 0 = Normal, 1 = Active.
- B) Status Input #2: 0 = Normal, 1 = Active.
- C) Status Input #3: 0 = Normal, 1 = Active.
- D) Status Input #4: 0 = Normal, 1 = Active.
- E) Logical Combination: Bit 6 = NAND, Bit 5 = OR

5.2.3 Setpoint Status Registers

The Setpoint Status Registers (**40211-40227**) indicate whether the setpoint is currently active.

Bits 15-8	7	6-0
00000000	A	11111111

- A) Setpoint status: 0 = Inactive, 1 = Active

The setpoint key is defined in the setpoint configuration section (registers **43301-43470**).

5.2.4 Status Input Counters

When a Status Input on the 3720 ACM makes a transition from Normal to Active, the counter associated with that input will increment. Registers **40241-40244** indicate the Status Input Counters.

The Status Input Counters are scaleable. Section [5.5.7](#) of this document explains how to set the scale and roll-over parameters on the Status Input Counters.

The Status Input Counter values are stored on the 3720 ACM as 32-bit values. These values are formatted as a “scaled unsigned 30 bit integer”: the upper two bits of the long word define a negative exponential multiplier.

Bits 31-30	29-0
B	A

- A) Integer component: range 0 to $2^{30}-1$
 B) Multiplier: 00 = 1, 01 = 0.1, 10 = 0.01, 11 = 0.001

The value stored is interpreted as:

$$\text{value} = A * 10^{-B}$$

Since this format uses the upper two bits of a 32-bit long word, *it is recommended that the multiplier should always be set to 1 when the device is configured for 16-bit mode*. The multiplier applies when presetting the counter (section 5.5.4), and setting the scale and roll-over parameters (section 5.5.7).

5.3 High Speed Registers

In 3720 ACM firmware releases V1500 or later, a set of high-speed registers have been added to the 3720 ACM Modbus Register Map. These registers span the range of **40261-40287**.

5.3.1 High Speed Polarity

Four of the high speed measurements have associated polarities. For the phase kW measurements (**40264-40266**), there is one contiguously located polarity register (**40267**). For the total kW measurement (**40275**), there is a single contiguously located polarity register (**40276**).

High speed kW phase polarity:

Bit 15-3	2	1	0
n/a	C	B	A

- A) Polarity for HS kW A: 0 = positive, 1 = negative
 B) Polarity for HS kW B: 0 = positive, 1 = negative
 C) Polarity for HS kW C: 0 = positive, 1 = negative

High speed kW total polarity:

Bit 15-4	3	2-0
n/a	D	n/a

- D) Polarity for HS kW Total: 0 = positive, 1 = negative

5.4 Waveform Recorder

The 3720 ACM has a programmable Waveform Recorder (WFR) feature, which records up to 36 cycles on 8 channels. Waveform recorder configuration and data retrieval is available via the Modbus protocol.

Since the size of the largest possible waveform recorder log (36 cycles/channel x 8 channels x 16 samples/cycle = 4608 samples) is prohibitive, a register re-use scheme has been adopted for reading the waveform recorder logs via Modbus.

5.4.1 Waveform Recorder Reading Window

To read the waveform recorder log, a section of registers (**42100-42696**) is considered a re-useable “reading window”, into which one full channel of one log can be loaded at a time. Once the channel has been loaded, the data for that channel of that log is treated as a contiguous group of holding registers.

5.4.2 Loading the Waveform Reading Window

The first three registers of the waveform recorder reading window (**42100-42102**) are the reading window setup registers. To load the reading window with waveform recorder data, a Modbus master must perform a write to these registers.

- 42100**: WFR Channel Number
42101: Number of WFR logs to read
42102: WFR log index

The channel number (**42100**) can be one of the following values:

Value (hex)	Channel
A510	V _a
A511	I _a
A512	V _b
A513	I _b
A514	V _c
A515	I _c
A516	V _{aux}
A517	I _{neutral}

The number of logs to read (**42101**) must be set to value 1.

The WFR log index is a calculated value. This value must index one of the currently stored WFR logs on the 3720 ACM. This can be calculated from the current WFR log

counters (**43209**, **43210**). The next section describes the calculation.

If the values sent in the write request describe a non-existent log, the 3720 ACM will generate an *illegal value* exception response.

5.4.3 WFR Log Counters: Calculating the WFR Log Index

When a waveform recorder log is triggered, that log is assigned a reference handle which identifies that log. The reference handle is the WFR log index.

At any time, the WFR data counter (**43210**) defines the next log index to be used. This number is incremented after each trigger. The WFR size counter (**43209**) indicates how many WFR logs are currently stored. The two numbers can be used to calculate the index for each log that is currently stored on the 3720 ACM:

$$index = \text{WFR data counter} - i,$$

where: i defines how recent the log is,
and $i \leq \text{WFR size counter}$

The following table shows the available WFR log indices:

WFR data ctr (43210)	WFR size ctr (43209)	Available indices (42102)
d	0	n/a
d	1	$d-1$
d	2	$d-2, d-1$
d	3	$d-3, d-2, d-1$

5.4.4 Interpreting the WFR Data

Once the waveform recorder reading window has been set up, the waveform recorder log is available to be read by a Modbus master.

The waveform recorder log can be considered as two segments: the log information, and the waveform data.

The log information segment contains the following items:

- Number of channels (1)
- Samples per channel (16 x #cycles)
- Sampling frequency
- Trigger type (manual: low-order byte = 1, or setpoint: high-order byte = setpoint #)
- Trigger timestamp - contains two 32-bit numbers: the meter time in UNIX time, and the number of microseconds into the current UNIX second.

Record timestamp - same format as Trigger timestamp.

The waveform data segment contains all the information needed to reconstruct the sampled waveform. The first six registers define 32-bit scaling values (multiplier: **42115/6**, divisor: **42117/8**, and offset: **42119/20**). The remaining registers are the waveform samples. Each sample is one 16-bit register. The following formula applies:

$$\text{SAMPLE}_{\text{RMS}} = \frac{(\text{SAMPLE}_{\text{AD}} + \text{OFFSET}) \times \text{MULTIPLIER}}{\text{DIVISOR}}$$

This formula will scale each sample to its proper value.

5.5 Setup Registers

The 3720 ACM has an extensive set of Setup Registers (**43002-43079**, **43301-43470**). These registers provide a means of programming the 3720 ACM from a remote location. The following sections discuss the setup registers which contain an encoded value.

5.5.1 Relay Operation Setup

The Relay Operation Setup register (**43027-43032**) control the operation of the 3720 ACM relays. Each relay can be assigned one of the following operation modes:

0	Setpoint
1	kWh Pulse
2	kVARh Pulse
3	kVAh Pulse
4	kWh Import Pulse
5	kWh Export Pulse
6	kVARh Import Pulse
7	kVARh Export Pulse

The relay operating value registers control the active time (for setpoint mode operation), or the pulse interval (for pulse mode operation).

5.5.2 Log Status Input Transitions

The Log Status Input Transitions Register (**43033**) specifies whether changes to the status inputs (S1 - S4) are logged in the Event Log.

Bits 15-12	11-8	7-4	3-0
D	C	B	A

- A) Log S1 transitions: 0 = No, 1 = Yes
- B) Log S2 transitions: 0 = No, 1 = Yes
- C) Log S3 transitions: 0 = No, 1 = Yes
- D) Log S4 transitions: 0 = No, 1 = Yes

5.5.3 Trigger Waveform Capture

The Trigger Waveform Capture Register (**43034**) is used to trigger or rearm the Waveform Capture Log on the 3720 ACM. To trigger the Waveform Capture, write one of the following values:

Value (hex)	Channel
0000	V _a
0001	I _a
0002	V _b
0003	I _b
0004	V _c
0005	I _c
0006	V _{aux}
0007	I _{neutral}

Writing any other value will **rearm** the Waveform Capture Log.

Note: After manually triggering a Waveform Capture, the Modbus master station should check the Waveform Capture Log Counter (**43208**) to verify that the counter has incremented. If the log is read before the counter increments, an improper waveform will be obtained.

5.5.4 Preset Status Input Counters

The Status Input Counters can be preset to a known value, by writing the value to the appropriate Preset Status Input Counter register (**43035-43038**). The format of this register group matches that described in section [5.2.4](#) of this document.

5.5.5 Sliding Window Keys

Registers **43052-43061** define the 10 programmable sliding window demand keys. The valid keys which can be programmed in these registers are defined in the

[3720 ACM Serial Communications Protocol](#) document. Consult section [2.3.3.1](#) of that document for more detail.

5.5.6 Modbus Protocol Setup

Registers **43063-43067** of the 3720 ACM Modbus register map define the operating parameters for the Modbus protocol. See section [4](#) of this document for more detail on these registers.

5.5.7 Status Input Counter Setup

The 3720 ACM supports scaleable counters for the status inputs. For a full description of status input counters, consult the 3720 ACM manual.

Registers **43071-43074** define the number of counts that the counter should increment for each input pulse.

Register **43076-43079** define the roll-over points for the status input counters. When a counter reaches its roll-over point, it resets to zero and continues to count up.

Both of these parameter sets are of the same data format as described in section [5.2.4](#) of this document.

5.5.8 Waveform Recorder Depth

The Waveform Recorder Depth register (**43084**) controls the number and size of waveform recorder logs on the 3720 ACM. The following values are allowed:

- 1: one recorder log of 36 cycles
- 2: two recorder logs of 18 cycles
- 3: three recorder logs of 12 cycles.

Changing the log depth will rearm the waveform recorder.

5.5.9 Waveform Recorder Trigger/Rearm

Register **43086** allows a manual trigger/rearm of the waveform recorder on the 3720 ACM. Writing value 0 to this register will rearm the waveform recorder. Writing any other value will trigger the waveform recorder.

5.5.10 Event Counters

Section [2.3.1.2](#) of the [3720 ACM Serial Communications Protocol](#) document describes a set of event counters, some of which are duplicated in the Modbus protocol. Registers **43201-43260** in the 3720 ACM Modbus register map cover the event counters.

5.5.11 Setpoint Registers

The 3720 ACM setpoint control section spans registers **43301-43470**.

Each setpoint setup structure spans 10 Modbus registers. For a description of the individual fields of the setup structure, consult the 3720 ACM Serial Communications Protocol document, section 2.3.6.1.

5.6 Waveform Capture

The 3720 ACM Modbus protocol includes a special section for the waveform capture log (**43501-43600**). The waveform capture log can be retrieved in a single read request.

5.6.1 Waveform Read Request

The 3720 ACM waveform capture log can be read only by a BLOCK READ command, requesting 100 registers, starting at address **43501**. An *illegal address* exception response will be generated for any request to read anything but 100 registers when the start address is **43501**. Figure 5-1 describes the packet format.

WAVEFORM CAPTURE BLOCK READ (16/32-BIT MODE)

**WAVEFORM CAPTURE PACKET
(Master station to 3720 ACM)**

Unit ID/Slave Address	(1 byte)
03 (Function code)	(1 byte)
3500 (Start Register)	(2 bytes)
100 (# of Registers)	(2 bytes)
CRC Checksum	(2 bytes)

**WAVEFORM CAPTURE RESPONSE PACKET
(3720 ACM to Master station)**

Unit ID/Slave Address	(1 byte)
03 (Function Code)	(1 byte)
200 (Byte Count)	(1 byte)
Waveform Channel #	(2 bytes)
Number of Sample Points	(2 bytes)
Delay between each sample (in microseconds)	(2 bytes)
Trigger Type	(2 bytes)
Compressed Samples	(192 bytes)
CRC Checksum	(2 bytes)

- Notes:** 1) The Waveform Capture Packet format is identical in both 16 and 32 bit register size modes.
 2) If the user requests a waveform register without following the above BLOCK READ format, an *illegal address* exception will be generated.

COMPRESSED SAMPLE FORMAT

The waveform samples are arranged in a packed format: two 12-bit samples are contained in three bytes (24-bits). Three 16-bit registers contain two three byte words:

	Bits 15-12	11-8	7-4	3-0
Register 43505	A		B	C
Register 43506	D		E	
Register 43507	F	G	H	

- | | |
|-------------------------------|-------------------------------|
| A) Second sample lower 8 bits | E) Fourth sample lower 8 bits |
| B) First sample lower 4 bits | F) Third sample lower 4 bits |
| C) Second sample upper 4 bits | G) Fourth sample upper 4 bits |
| D) First sample upper 8 bits | H) Third sample upper 8 bits |

The pattern repeats for every three registers/four samples.

Figure 5-1: Waveform Capture Packet

5.6.2 Compressed Sample Format

The waveform samples are arranged in a packed format. In this format, two 12-bit samples are contained in three bytes (24-bits).

Data is in unsigned 12-bit format with two samples in every three-byte word. The three-byte word is ordered in the packet as low byte first, middle byte next, and high byte last. The three-byte words are organized as follows:

Bit # 23-16	15-12	11-8	7-0
A	B	C	D

- A) Upper 8 bits of the first sample
- B) Lower 4 bits of the first sample
- C) Upper 4 bits of the second sample
- D) Lower 8 bits of the second sample.

Figure 5-1 shows how this format maps the first four samples to the first three packed sample registers.

5.7 Event Log

The 3720 ACM device event log covers the Modbus register range of **44001-45000**. The most recent 100 events are stored in this log.

Each device event spans 10 Modbus registers. That block of 10 registers represents the event log structure described in the [3720 ACM Serial Communications Protocol](#) document, section [2.3.7.1](#).

5.8 Registers with Invalid Numbers

Certain registers in the 3720 ACM, under certain conditions, can hold *invalid numbers*. This is not to be confused with *invalid registers* (described in section [3.7](#) of this document).

5.8.1 Representation of Invalid Numbers

Depending on the type of register, invalid numbers can mean different things. Therefore there are a few different representations of those invalid numbers.

- INVALID_MIN
- INVALID_MAX
- INVALID

INVALID_MIN is defined as the largest positive value. In 16-bit mode, INVALID_MIN is represented as FFFF hex. In 32-bit mode, it is represented as FFFFFFFF hex.

If a polarity bit is mapped for the register in question, that bit would store value zero.

INVALID_MAX is defined as the most negative value. In 16-bit mode, INVALID_MAX is represented as FFFF hex. In 32-bit mode, it is represented as FFFFFFFF hex. If a polarity bit is mapped for the register in question, that bit would store value one.

INVALID is defined as FFFF hex in 16-bit mode and FFFFFFFF hex in 32-bit mode. If a polarity bit is mapped for the register in question, that bit would store value zero.

5.8.2 Min/Max Registers

When Min/Max registers are reset, they are initialized to a default state. Min registers are reset to INVALID_MIN, and Max registers are reset to INVALID_MAX.

For all Min/Max registers except for harmonics, the associated polarity bit is used as described above. For harmonic measurements, where all measurements are positive, there are no polarity bits associated with the Min/Max measurements.

5.8.3 Sliding Window and Predicted Demand Registers

Any Sliding Window Demand which is unprogrammed will hold the INVALID value. This is true for the corresponding Predicted Demand register as well.

When Sliding Window Demand is reset, all programmed Sliding Window registers are initialized to the value INVALID_MIN, and will retain that value for the duration of one SD sub-interval. The associated polarity bits are cleared. The same is true for the corresponding Predicted Demand registers, except that these registers are updated every second.

5.8.4 Time of Use Demand Registers

When reset, the Time Of Use Demand registers are reset to the INVALID_MAX value. There is no associated polarity register for these registers.

APPENDIX A: CRC-16 CALCULATION

This appendix describes the procedure for obtaining the CRC-16 error check field for a Modbus RTU frame.

PROCEDURE

A frame can be considered as a continuous, serial stream of binary data (ones and zeros). The 16-bit checksum is obtained by multiplying the serial data stream by 2^{16} (1000000000000000) and then dividing it by the *generator polynomial* $x^{16}+x^{15}+x^2+1$, which can be expressed as the 17-bit binary number 1100000000000101. The quotient is ignored and the 16-bit remainder is the checksum, which is appended to the end of the frame.

In calculating the CRC, all arithmetic operations (additions and subtractions) are performed using MODULO TWO, or EXCLUSIVE OR operation. A step-by-step example is provided to show how to obtain the checksum for a simple Modbus RTU frame.

Steps for generating the CRC-16 checksum:

- 1) Form a new polynomial by dropping the MSB (Most Significant Bit) of the generator polynomial and reversing the bit sequence. This yields the binary number 1010 0000 0000 0001, or A0 01 (hex).
- 2) Load a 16-bit register with initial value FF FF (hex).
- 3) Exclusive OR the first data byte with the low-order byte of the 16-bit register, storing the result in the 16-bit register.
- 4) Shift the 16-bit register one bit to the right.
- 5a) If the bit shifted out to the right is one, Exclusive OR the 16-bit register with the new generator polynomial, with the result stored in the 16-bit registers. Return to step 4.
- 5b) If the bit shifted out to the right is zero, return to step 4.
- 6) Repeat steps 4 and 5 until 8 shifts have been performed.
- 7) Exclusive OR the next data byte with the 16-bit register.
- 8) Repeat steps 4 through 7 until all bytes of the frame have been Exclusive Ored with the 16-bit register and shifted 8 times.
- 9) The content of the 16-bit register is the checksum and is appended to the end of the frame.

Example:

A Modbus master node requests to read register 40011 from a Modbus slave with address 100 (64 hex). As per the Modbus protocol, reading register 40011 means using the READ HOLDING REGISTERS function (03 hex) with start register 10.

Initial frame:

Slave Address	Function	Start Register		# of Registers		Error Check (CRC-16)
64	03	00	0A	00	01	To be calculated

Step	Byte	Bits Shifted	Action	16-Bit Register	Bit Shifted Out
2			Initial Value	1111 1111 1111 1111	
	1		Load First Data Byte	0000 0000 0110 0100	
3			Exclusive OR	1111 1111 1001 1011	
4		1	Shift 1 bit to the Right	0111 1111 1100 1101	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1101 1111 1100 1100	
4		2	Shift 1 bit to the Right	0110 1111 1110 0110	0
4		3	Shift 1 bit to the Right	0011 0111 1111 0011	0
4		4	Shift 1 bit to the Right	0001 1011 1111 1001	1

Step	Byte	Bits Shifted	Action	16-Bit Register	Bit Shifted Out
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1011 1011 1111 1000	
4		5	Shift 1 bit to the Right	0101 1101 1111 1100	0
4		6	Shift 1 bit to the Right	0010 1110 1111 1110	0
4		7	Shift 1 bit to the Right	0001 0111 0111 1111	0
4		8	Shift 1 bit to the Right	0000 1011 1011 1111	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1010 1011 1011 1110	
	2		Load 2 nd Data Byte	0000 0000 0000 0011	
7			Exclusive OR	1010 1011 1011 1101	
4		1	Shift 1 bit to the Right	0101 0101 1101 1110	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1111 0101 1101 1111	
4		2	Shift 1 bit to the Right	0111 1010 1110 1111	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1101 1010 1110 1110	
4		3	Shift 1 bit to the Right	0110 1101 0111 0111	0
4		4	Shift 1 bit to the Right	0011 0110 1011 1011	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1001 0110 1011 1010	
4		5	Shift 1 bit to the Right	0100 1011 0101 1101	0
4		6	Shift 1 bit to the Right	0010 0101 1010 1110	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1000 0101 1010 1111	
4		7	Shift 1 bit to the Right	0100 0010 1101 0111	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1110 0010 1101 0110	
4		8	Shift 1 bit to the Right	0111 0001 0110 1011	0
	3		Load 3rd Data Byte	0000 0000 0000 0000	
7			Exclusive OR	0111 0001 0110 1011	
4		1	Shift 1 bit to the Right	0011 1000 1011 0101	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1001 1000 1011 0100	
4		2	Shift 1 bit to the Right	0100 1100 0101 1010	0
4		3	Shift 1 bit to the Right	0010 0110 0010 1101	0
4		4	Shift 1 bit to the Right	0001 0011 0001 0110	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1011 0011 0001 0111	
4		5	Shift 1 bit to the Right	0101 1001 1000 1011	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1111 1001 1000 1010	
4		6	Shift 1 bit to the Right	0111 1100 1100 0101	0
4		7	Shift 1 bit to the Right	0011 1110 0110 0010	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1001 1110 0110 0011	
4		8	Shift 1 bit to the Right	0100 1111 0011 0001	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1110 1111 0011 0000	
7	4		Load 4th Data Byte	0000 0000 0000 1010	
			Exclusive OR	1110 1111 0011 1010	
4		1	Shift 1 bit to the Right	0111 0111 1001 1101	0
4		2	Shift 1 bit to the Right	0011 1011 1100 1110	1
			Generator Polynomial	1010 0000 0000 0001	
5a			Exclusive OR	1001 1011 1100 1111	

Step	Byte	Bits Shifted	Action	16-Bit Register	Bit Shifted Out
4		3	Shift 1 bit to the Right Generator Polynomial	0100 1101 1110 0111 1010 0000 0000 0001	1
5a			Exclusive OR	1110 1101 1110 0110	
4		4	Shift 1 bit to the Right Generator Polynomial	0111 0110 1111 0011 1010 0000 0000 0001	0
4		5	Shift 1 bit to the Right Generator Polynomial	0011 1011 0111 1001 1010 0000 0000 0001	1
5a			Exclusive OR	1001 1011 0111 1000	
4		6	Shift 1 bit to the Right Generator Polynomial	0100 1101 1011 1100 1010 0000 0000 0001	0
4		7	Shift 1 bit to the Right Generator Polynomial	0010 0110 1101 1110 1010 0000 0000 0001	0
4		8	Shift 1 bit to the Right Generator Polynomial	0001 0011 0110 1111 1010 0000 0000 0001	0
7	5		Load 5th Data Byte Exclusive OR	0000 0000 0000 0000 0001 0011 0110 1111	
4		1	Shift 1 bit to the Right Generator Polynomial	0000 1001 1011 0111 1010 0000 0000 0001	1
5a			Exclusive OR	1010 1001 1011 0110	
4		2	Shift 1 bit to the Right Generator Polynomial	0101 0100 1101 1011 1010 0000 0000 0001	0
4		3	Shift 1 bit to the Right Generator Polynomial	0010 1010 0110 1101 1010 0000 0000 0001	1
5a			Exclusive OR	1000 1010 0110 1100	
4		4	Shift 1 bit to the Right Generator Polynomial	0100 0101 0011 0110 1010 0000 0000 0001	0
4		5	Shift 1 bit to the Right Generator Polynomial	0010 0010 1001 1011 1010 0000 0000 0001	0
4		6	Shift 1 bit to the Right Generator Polynomial	0001 0001 0100 1101 1010 0000 0000 0001	1
5a			Exclusive OR	1011 0001 0100 1100	
4		7	Shift 1 bit to the Right Generator Polynomial	0101 1000 1010 0110 1010 0000 0000 0001	0
4		8	Shift 1 bit to the Right Generator Polynomial	0010 1100 0101 0011 1010 0000 0000 0001	0
7	6		Load 6th Data Byte Exclusive OR	0000 0000 0000 0001 0010 1100 0101 0010	
4		1	Shift 1 bit to the Right Generator Polynomial	0001 0110 0010 1001 1010 0000 0000 0001	0
4		2	Shift 1 bit to the Right Generator Polynomial	0000 1011 0001 0100 1010 0000 0000 0001	1
5a			Exclusive OR	1010 1011 0001 0101	
4		3	Shift 1 bit to the Right Generator Polynomial	0101 0101 1000 1010 1010 0000 0000 0001	1
5a			Exclusive OR	1111 0101 1000 1011	
4		4	Shift 1 bit to the Right Generator Polynomial	0111 1010 1100 0101 1010 0000 0000 0001	1
5a			Exclusive OR	1101 1010 1100 0100	
4		5	Shift 1 bit to the Right Generator Polynomial	0110 1101 0110 0010 1010 0000 0000 0001	0
4		6	Shift 1 bit to the Right Generator Polynomial	0011 0110 1011 0001 1010 0000 0000 0001	0
4		7	Shift 1 bit to the Right Generator Polynomial	0001 1011 0101 1000 1010 0000 0000 0001	1
5a			Exclusive OR	1011 1011 0101 1001	
4		8	Shift 1 bit to the Right Generator Polynomial	0101 1101 1010 1100 1010 0000 0000 0001	1
5a			Exclusive OR	1111 1101 1011 1100	
			RESULT	Hex FD Hex AD	

The frame completed with the CRC-16 checksum is as follows:

Slave Address	Function	Start Register	# of Registers	Error Check (CRC-16)
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64	03	00	0A	00	01	AD	FD
----	----	----	----	----	----	----	----

PSEUDOCODE FOR CRC-16 GENERATION

For the users who are familiar with computer programming, the following is the pseudocode for calculating the 16-bit Cyclic Redundancy Check.

Initialize a 16-bit register to FFFF Hex

Initialize the generator polynomial to A001 Hex

FOR n=1 to # of bytes in packet

BEGIN

 XOR nth data byte with the 16-bit register

 FOR bits_shifted = 1 to 8

 BEGIN

 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

 END

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

APPENDIX B: 3720 ACM REGISTER MAP

REAL TIME MEASUREMENTS.....	25
THERMAL DEMAND MEASUREMENTS.....	25
STATUS REGISTERS	26
HIGH SPEED MEASUREMENTS.....	26
MINIMUM REAL TIME MEASUREMENTS.....	26
MINIMUM REAL TIME TIMESTAMPS.....	26
SLIDING WINDOW DEMAND MEASUREMENTS.....	27
MAXIMUM REAL TIME MEASUREMENTS	27
MAXIMUM REAL TIME TIMESTAMPS.....	27
MINIMUM THERMAL DEMAND MEASUREMENTS.....	28
MINIMUM THERMAL DEMAND TIMESTAMPS	29
MAXIMUM THERMAL DEMAND MEASUREMENTS	29
MAXIMUM THERMAL DEMAND TIMESTAMPS.....	29
MINIMUM SLIDING WINDOW MEASUREMENTS	30
MINIMUM SLIDING WINDOW TIMESTAMPS.....	30
MAXIMUM SLIDING WINDOW MEASUREMENTS	30
MAXIMUM SLIDING WINDOW TIMESTAMPS	31
PREDICTED DEMAND MEASUREMENTS	31
MINIMUM PREDICTED DMD MEASUREMENTS	31
MINIMUM PREDICTED DMD TIMESTAMPS.....	32
MAXIMUM PREDICTED DMD MEASUREMENTS	32
MAXIMUM PREDICTED DMD TIMESTAMPS	32
WAVEFORM RECORDER WINDOW	33
DEVICE CONFIGURATION PARAMETERS.....	34
EVENT COUNTERS.....	35
SETPOINT SYSTEM CONFIGURATION.....	36

WAVEFORM CAPTURE LOG	37
TIME OF USE INFORMATION	38
DEVICE EVENT LOG	39
REAL TIME HARMONIC MEASUREMENTS	41
MINIMUM REAL TIME HARMONIC MEASUREMENTS	42
MINIMUM REAL TIME HARMONIC TIMESTAMPS	43
MAXIMUM REAL TIME HARMONIC MEASUREMENTS	44
MAXIMUM REAL TIME HARMONIC TIMESTAMPS	46
THERMAL DEMAND HARMONIC MEASUREMENTS	47
MINIMUM THERMAL DEMAND HARMONIC MEASUREMENTS	48
MINIMUM THERMAL DEMAND HARMONIC TIMESTAMPS	50
MAXIMUM THERMAL DEMAND HARMONIC MEASUREMENTS	51
MAXIMUM THERMAL DEMAND HARMONIC TIMESTAMPS	52
SLIDING DEMAND HARMONIC MEASUREMENTS	53
MINIMUM SLIDING DEMAND HARMONIC MEASUREMENTS	55
MINIMUM SLIDING DEMAND HARMONIC TIMESTAMPS	56
MAXIMUM SLIDING DEMAND HARMONIC MEASUREMENTS	57
MAXIMUM SLIDING DEMAND HARMONIC TIMESTAMPS	59
PREDICTED DEMAND HARMONIC MEASUREMENTS	60
MINIMUM PREDICTED DEMAND HARMONIC MEASUREMENTS	61
MINIMUM PREDICTED DEMAND HARMONIC TIMESTAMPS	62
MAXIMUM PREDICTED DEMAND HARMONIC MEASUREMENTS	64
MAXIMUM PREDICTED DEMAND HARMONIC TIMESTAMPS	65
<u>REGISTER MAP NOTES</u>	67

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
REAL TIME MEASUREMENTS					THERMAL DEMAND MEASUREMENTS				
40002	RW	Year	year - 1900		40062	RO	M/GVARh Import	M/GVARh	(c)
40003	RW	Month	(1-12)		40063	RO	kVARh Export	kVARh	
40004	RW	Day	(1-31)		40064	RO	M/GVARh Export	M/GVARh	(c)
40005	RW	Hour	(0-23)		40065	RO	kVARh Total	kVARh	
40006	RW	Minute	(0-59)		40066	RO	M/GVARh Total	M/GVARh	(c)
40007	RW	Second	(0-59)		40067	RO	kVARh Net	kVARh	
40008	RW	UNIX Time	seconds	(d)	40068	RO	M/GVARh Net	M/GVARh	(c)
40011	RO	Van	V rms	(a)	40071	RO	kVAh Import	kVAh	
40012	RO	Vbn	V rms	(a)	40072	RO	M/GVAh Import	M/GVAh	(c)
40013	RO	Vcn	V rms	(a,b)	40073	RO	kVAh Export	kVAh	
40014	RO	Vln average	V rms	(a)	40074	RO	M/GVAh Export	M/GVAh	(c)
40015	RO	Vab	V rms		40075	RO	kVAh Total	kVAh	
40016	RO	Vbc	V rms	(b)	40076	RO	M/GVAh Total	M/GVAh	(c)
40017	RO	Vca	V rms	(b)	40077	RO	kVAh Net	kVAh	
40018	RO	Vll average	V rms		40078	RO	M/GVAh Net	M/GVAh	(c)
40020	RO	Vaux	V rms		40111	RO	Van	V rms	(a)
40021	RO	Ia	A rms		40112	RO	Vbn	V rms	(a)
40022	RO	Ib	A rms		40113	RO	Vcn	V rms	(a,b)
40023	RO	Ic	A rms	(b)	40114	RO	Vln average	V rms	(a)
40024	RO	I average	A rms		40115	RO	Vab	V rms	
40026	RO	Neutral current (I4)	A rms		40116	RO	Vbc	V rms	(b)
40028	RO	Voltage imbalance	%		40117	RO	Vca	V rms	(b)
40029	RO	Current imbalance	%		40118	RO	Vll average	V rms	
40031	RO	kW Phase A	kW rms	(a)	40120	RO	Vaux	V rms	
40032	RO	kW Phase B	kW rms	(a)	40121	RO	Ia	A rms	
40033	RO	kW Phase C	kW rms	(a,b)	40122	RO	Ib	A rms	
40034	RO	kW Total	kW rms		40123	RO	Ic	A rms	(b)
40035	RO	kVAR Phase A	kVAR rms	(a)	40124	RO	I average	A rms	
40036	RO	kVAR Phase B	kVAR rms	(a)	40126	RO	Neutral current (I4)	A rms	
40037	RO	kVAR Phase C	kVAR rms	(a,b)	40128	RO	Voltage imbalance	%	
40038	RO	kVAR Total	kVAR rms		40129	RO	Current imbalance	%	
40039	RO	Power Factor Phase A	%	(a)	40131	RO	kW Phase A	kW rms	(a)
40040	RO	Power Factor Phase B	%	(a)	40132	RO	kW Phase B	kW rms	(a)
40041	RO	Power Factor Phase C	%	(a,b)	40133	RO	kW Phase C	kW rms	(a,b)
40042	RO	Power Factor Total	%		40134	RO	kW Total	kW rms	
40043	RO	kVA Phase A	kVA	(a)	40135	RO	kVAR Phase A	kVAR rms	(a)
40044	RO	kVA Phase B	kVA	(a)	40136	RO	kVAR Phase B	kVAR rms	(a)
40045	RO	kVA Phase C	kVA	(a,b)	40137	RO	kVAR Phase C	kVAR rms	(a,b)
40046	RO	kVA Total	kVA		40138	RO	kVAR Total	kVAR rms	
40048	RO	Frequency on Va	0.01 Hz		40139	RO	Power Factor Phase A	%	(a)
40049	RO	Phase Reversal	Logical		40140	RO	Power Factor Phase B	%	(a)
40050	RO	Real time polarity	Bit mapped	(d)	40141	RO	Power Factor Phase C	%	(a,b)
40051	RO	kWh Import	kWh		40142	RO	Power Factor Total	%	
40052	RO	M/GWh Import	M/GWh	(c)	40143	RO	kVA Phase A	kVA	(a)
40053	RO	kWh Export	kWh		40144	RO	kVA Phase B	kVA	(a)
40054	RO	M/GWh Export	M/GWh	(c)	40145	RO	kVA Phase C	kVA	(a,b)
40055	RO	kWh Total	kWh		40146	RO	kVA Total	kVA	
40056	RO	M/GWh Total	M/GWh	(c)	40148	RO	Frequency on Va	0.01 Hz	
40057	RO	kWh Net	kWh		40150	RO	RT Thermal dmd polarity	Bit mapped	(d)
40058	RO	M/GWh Net	M/GWh	(c)					
40061	RO	kVARh Import	kVARh						

Register				Register					
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
STATUS REGISTERS					40287	RO	S4 Counter	Counts	
40201	RW	Relay #1			MINIMUM REAL TIME MEASUREMENTS				
40202	RW	Relay #2			40311	RO	Van	V rms	(a)
40203	RW	Relay #3			40312	RO	Vbn	V rms	(a)
40210	RO	Status inputs	Bit mapped		40313	RO	Vcn	V rms	(a,b)
40211	RO	Setpoint #01	Bit mapped		40314	RO	Vln average	V rms	(a)
40212	RO	Setpoint #02	Bit mapped		40315	RO	Vab	V rms	
40213	RO	Setpoint #03	Bit mapped		40316	RO	Vbc	V rms	(b)
40214	RO	Setpoint #04	Bit mapped		40317	RO	Vca	V rms	(b)
40215	RO	Setpoint #05	Bit mapped		40318	RO	Vll average	V rms	
40216	RO	Setpoint #06	Bit mapped		40320	RO	Vaux	V rms	
40217	RO	Setpoint #07	Bit mapped		40321	RO	Ia	A rms	
40218	RO	Setpoint #08	Bit mapped		40322	RO	Ib	A rms	
40219	RO	Setpoint #09	Bit mapped		40323	RO	Ic	A rms	(b)
40220	RO	Setpoint #10	Bit mapped		40324	RO	I average	A rms	
40221	RO	Setpoint #11	Bit mapped		40326	RO	Neutral current (I4)	A rms	
40222	RO	High speed setpoint #1	Bit mapped		40328	RO	Voltage imbalance	%	
40223	RO	High speed setpoint #2	Bit mapped		40329	RO	Current imbalance	%	
40224	RO	High speed setpoint #3	Bit mapped		40331	RO	kW Phase A	kW rms	(a)
40225	RO	High speed setpoint #4	Bit mapped		40332	RO	kW Phase B	kW rms	(a)
40226	RO	High speed setpoint #5	Bit mapped		40333	RO	kW Phase C	kW rms	(a,b)
40227	RO	High speed setpoint #6	Bit mapped		40334	RO	kW Total	kW rms	
40241	RO	Status #1 counter	Counts	(d)	40335	RO	kVAR Phase A	kVAR rms	(a)
40242	RO	Status #2 counter	Counts	(d)	40336	RO	kVAR Phase B	kVAR rms	(a)
40243	RO	Status #3 counter	Counts	(d)	40337	RO	kVAR Phase C	kVAR rms	(a,b)
40244	RO	Status #4 counter	Counts	(d)	40338	RO	kVAR Total	kVAR rms	
HIGH SPEED MEASUREMENTS					40339	RO	Power Factor Phase A	%	(a)
40261	RO	HS kVA Phase A	kVA		40340	RO	Power Factor Phase B	%	(a)
40262	RO	HS kVA Phase B	kVA		40341	RO	Power Factor Phase C	%	(a,b)
40263	RO	HS kVA Phase C	kVA		40342	RO	Power Factor Total	%	
40264	RO	HS kW Phase A	kW		40343	RO	kVA Phase A	kVA	(a)
40265	RO	HS kW Phase B	kW		40344	RO	kVA Phase B	kVA	(a)
40266	RO	HS kW Phase C	kW		40345	RO	kVA Phase C	kVA	(a,b)
40267	RO	HS kW Phase Polarity	Bit mapped		40346	RO	kVA Total	kVA	
40268	RO	HS Ia	A rms		40348	RO	Frequency on Va	0.01 Hz	
40269	RO	HS Ib	A rms		40350	RO	RT minimum polarity	Bit mapped	(d)
40270	RO	HS Ic	A rms		MINIMUM REAL TIME TIMESTAMPS				
40271	RO	HS Va	V rms		40411	RO	Van	Unix Time	(a,d)
40272	RO	HS Vb	V rms		40412	RO	Vbn	Unix Time	(a,d)
40273	RO	HS Vc	V rms		40413	RO	Vcn	Unix Time	(a,b,d)
40274	RO	HS kVA Total	kVA		40414	RO	Vln average	Unix Time	(a,d)
40275	RO	HS kW Total	kW		40415	RO	Vab	Unix Time	(d)
40276	RO	HS kW Total Polarity	Bit mapped		40416	RO	Vbc	Unix Time	(b,d)
40277	RO	HS I average	A rms		40417	RO	Vca	Unix Time	(b,d)
40278	RO	HS V average	V rms		40418	RO	Vll average	Unix Time	(d)
40279	RO	HS Neutral Current (I4)	A rms		40420	RO	Vaux	Unix Time	(d)
40280	RO	HS Phase reversal	Logical						
40281	RO	Status Inputs	Bit mapped						
40282	RO	HS Voltage imbalance	%						
40283	RO	HS Frequency	0.01 Hz						
40284	RO	S1 Counter	Counts						
40285	RO	S2 Counter	Counts						
40286	RO	S3 Counter	Counts						

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
40421	RO	Ia	Unix Time	(d)	40540	RO	Power Factor Phase B	%	(a)
40422	RO	Ib	Unix Time	(d)	40541	RO	Power Factor Phase C	%	(a,b)
40423	RO	Ic	Unix Time	(b,d)	40542	RO	Power Factor Total	%	
40424	RO	I average	Unix Time	(d)	40543	RO	kVA Phase A	kVA	(a)
40426	RO	Neutral current (I4)	Unix Time	(d)	40544	RO	kVA Phase B	kVA	(a)
40428	RO	Voltage imbalance	Unix Time	(d)	40545	RO	kVA Phase C	kVA	(a,b)
40429	RO	Current imbalance	Unix Time	(d)	40546	RO	kVA Total	kVA	
40431	RO	kW Phase A	Unix Time	(a,d)	40548	RO	Frequency on Va	0.01 Hz	
40432	RO	kW Phase B	Unix Time	(a,d)	40550	RO	Sliding demand polarity	Bit mapped	(d)
40433	RO	kW Phase C	Unix Time	(a,b,d)					
40434	RO	kW Total	Unix Time	(d)					
40435	RO	kVAR Phase A	Unix Time	(a,d)					
40436	RO	kVAR Phase B	Unix Time	(a,d)					
40437	RO	kVAR Phase C	Unix Time	(a,b,d)					
40438	RO	kVAR Total	Unix Time	(d)					
40439	RO	Power Factor Phase A	Unix Time	(a,d)					
40440	RO	Power Factor Phase B	Unix Time	(a,d)					
40441	RO	Power Factor Phase C	Unix Time	(a,b,d)					
40442	RO	Power Factor Total	Unix Time	(d)					
40443	RO	kVA Phase A	Unix Time	(a,d)					
40444	RO	kVA Phase B	Unix Time	(a,d)					
40445	RO	kVA Phase C	Unix Time	(a,b,d)					
40446	RO	kVA Total	Unix Time	(d)					
40448	RO	Frequency on Va	Unix Time	(d)					

SLIDING WINDOW DEMAND MEASUREMENTS

40511	RO	Van	V rms	(a)
40512	RO	Vbn	V rms	(a)
40513	RO	Vcn	V rms	(a,b)
40514	RO	VIn average	V rms	(a)
40515	RO	Vab	V rms	
40516	RO	Vbc	V rms	(b)
40517	RO	Vca	V rms	(b)
40518	RO	VII average	V rms	
40520	RO	Vaux	V rms	
40521	RO	Ia	A rms	
40522	RO	Ib	A rms	
40523	RO	Ic	A rms	(b)
40524	RO	I average	A rms	
40526	RO	Neutral current (I4)	A rms	
40528	RO	Voltage imbalance	%	
40529	RO	Current imbalance	%	
40531	RO	kW Phase A	kW rms	(a)
40532	RO	kW Phase B	kW rms	(a)
40533	RO	kW Phase C	kW rms	(a,b)
40534	RO	kW Total	kW rms	
40535	RO	kVAR Phase A	kVAR rms	(a)
40536	RO	kVAR Phase B	kVAR rms	(a)
40537	RO	kVAR Phase C	kVAR rms	(a,b)
40538	RO	kVAR Total	kVAR rms	
40539	RO	Power Factor Phase A	%	(a)

MAXIMUM REAL TIME MEASUREMENTS

40611	RO	Van	V rms	(a)
40612	RO	Vbn	V rms	(a)
40613	RO	Vcn	V rms	(a,b)
40614	RO	VIn average	V rms	(a)
40615	RO	Vab	V rms	
40616	RO	Vbc	V rms	(b)
40617	RO	Vca	V rms	(b)
40618	RO	VII average	V rms	
40620	RO	Vaux	V rms	
40621	RO	Ia	A rms	
40622	RO	Ib	A rms	
40623	RO	Ic	A rms	(b)
40624	RO	I average	A rms	
40626	RO	Neutral current (I4)	A rms	
40628	RO	Voltage imbalance	%	
40629	RO	Current imbalance	%	
40631	RO	kW Phase A	kW rms	(a)
40632	RO	kW Phase B	kW rms	(a)
40633	RO	kW Phase C	kW rms	(a,b)
40634	RO	kW Total	kW rms	
40635	RO	kVAR Phase A	kVAR rms	(a)
40636	RO	kVAR Phase B	kVAR rms	(a)
40637	RO	kVAR Phase C	kVAR rms	(a,b)
40638	RO	kVAR Total	kVAR rms	
40639	RO	Power Factor Phase A	%	(a)
40640	RO	Power Factor Phase B	%	(a)
40641	RO	Power Factor Phase C	%	(a,b)
40642	RO	Power Factor Total	%	
40643	RO	kVA Phase A	kVA	(a)
40644	RO	kVA Phase B	kVA	(a)
40645	RO	kVA Phase C	kVA	(a,b)
40646	RO	kVA Total	kVA	
40648	RO	Frequency on Va	0.01 Hz	
40650	RO	RT maximum polarity	Bit mapped	(d)

MAXIMUM REAL TIME TIMESTAMPS

40711	RO	Van	Unix Time	(a,d)
40712	RO	Vbn	Unix Time	(a,d)
40713	RO	Vcn	Unix Time	(a,b,d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
40714	RO	VIn average	Unix Time	(a,d)	40831	RO	kW Phase A	kW rms	(a)
40715	RO	Vab	Unix Time	(d)	40832	RO	kW Phase B	kW rms	(a)
40716	RO	Vbc	Unix Time	(b,d)	40833	RO	kW Phase C	kW rms	(a,b)
40717	RO	Vca	Unix Time	(b,d)	40834	RO	kW Total	kW rms	
40718	RO	VII average	Unix Time	(d)	40835	RO	kVAR Phase A	kVAR rms	(a)
40720	RO	Vaux	Unix Time	(d)	40836	RO	kVAR Phase B	kVAR rms	(a)
40721	RO	Ia	Unix Time	(d)	40837	RO	kVAR Phase C	kVAR rms	(a,b)
40722	RO	Ib	Unix Time	(d)	40838	RO	kVAR Total	kVAR rms	
40723	RO	Ic	Unix Time	(b,d)	40839	RO	Power Factor Phase A	%	(a)
40724	RO	I average	Unix Time	(d)	40840	RO	Power Factor Phase B	%	(a)
40726	RO	Neutral current (I4)	Unix Time	(d)	40841	RO	Power Factor Phase C	%	(a,b)
40728	RO	Voltage imbalance	Unix Time	(d)	40842	RO	Power Factor Total	%	
40729	RO	Current imbalance	Unix Time	(d)	40843	RO	kVA Phase A	kVA	(a)
40731	RO	kW Phase A	Unix Time	(a,d)	40844	RO	kVA Phase B	kVA	(a)
40732	RO	kW Phase B	Unix Time	(a,d)	40845	RO	kVA Phase C	kVA	(a,b)
40733	RO	kW Phase C	Unix Time	(a,b,d)	40846	RO	kVA Total	kVA	
40734	RO	kW Total	Unix Time	(d)	40848	RO	Frequency on Va	0.01 Hz	
40735	RO	kVAR Phase A	Unix Time	(a,d)	40850	RO	Min. thermal dmd polarity	Bit mapped	(d)
40736	RO	kVAR Phase B	Unix Time	(a,d)					
40737	RO	kVAR Phase C	Unix Time	(a,b,d)					
40738	RO	kVAR Total	Unix Time	(d)					
40739	RO	Power Factor Phase A	Unix Time	(a,d)					
40740	RO	Power Factor Phase B	Unix Time	(a,d)					
40741	RO	Power Factor Phase C	Unix Time	(a,b,d)					
40742	RO	Power Factor Total	Unix Time	(d)					
40743	RO	kVA Phase A	Unix Time	(a,d)					
40744	RO	kVA Phase B	Unix Time	(a,d)					
40745	RO	kVA Phase C	Unix Time	(a,b,d)					
40746	RO	kVA Total	Unix Time	(d)					
40748	RO	Frequency on Va	Unix Time	(d)					

MINIMUM THERMAL DEMAND MEASUREMENTS

40811	RO	Van	V rms	(a)
40812	RO	Vbn	V rms	(a)
40813	RO	Vcn	V rms	(a,b)
40814	RO	VIn average	V rms	(a)
40815	RO	Vab	V rms	
40816	RO	Vbc	V rms	(b)
40817	RO	Vca	V rms	(b)
40818	RO	VII average	V rms	
40820	RO	Vaux	V rms	
40821	RO	Ia	A rms	
40822	RO	Ib	A rms	
40823	RO	Ic	A rms	(b)
40824	RO	I average	A rms	
40826	RO	Neutral current (I4)	A rms	
40828	RO	Voltage imbalance	%	
40829	RO	Current imbalance	%	

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
MINIMUM THERMAL DEMAND TimestAMPS					41026	RO	Neutral current (I4)	A rms	
40911	RO	Van	Unix Time	(a,d)	41028	RO	Voltage imbalance	%	
40912	RO	Vbn	Unix Time	(a,d)	41029	RO	Current imbalance	%	
40913	RO	Vcn	Unix Time	(a,b,d)	41031	RO	kW Phase A	kW rms	(a)
40914	RO	VIn average	Unix Time	(a,d)	41032	RO	kW Phase B	kW rms	(a)
40915	RO	Vab	Unix Time	(d)	41033	RO	kW Phase C	kW rms	(a,b)
40916	RO	Vbc	Unix Time	(b,d)	41034	RO	kW Total	kW rms	
40917	RO	Vca	Unix Time	(b,d)	41035	RO	kVAR Phase A	kVAR rms	(a)
40918	RO	VII average	Unix Time	(d)	41036	RO	kVAR Phase B	kVAR rms	(a)
40920	RO	Vaux	Unix Time	(d)	41037	RO	kVAR Phase C	kVAR rms	(a,b)
40921	RO	Ia	Unix Time	(d)	41038	RO	kVAR Total	kVAR rms	
40922	RO	Ib	Unix Time	(d)	41039	RO	Power Factor Phase A	%	(a)
40923	RO	Ic	Unix Time	(b,d)	41040	RO	Power Factor Phase B	%	(a)
40924	RO	I average	Unix Time	(d)	41041	RO	Power Factor Phase C	%	(a,b)
40926	RO	Neutral current (I4)	Unix Time	(d)	41042	RO	Power Factor Total	%	
40928	RO	Voltage imbalance	Unix Time	(d)	41043	RO	kVA Phase A	kVA	(a)
40929	RO	Current imbalance	Unix Time	(d)	41044	RO	kVA Phase B	kVA	(a)
40931	RO	kW Phase A	Unix Time	(a,d)	41045	RO	kVA Phase C	kVA	(a,b)
40932	RO	kW Phase B	Unix Time	(a,d)	41046	RO	kVA Total	kVA	
40933	RO	kW Phase C	Unix Time	(a,b,d)	41048	RO	Frequency on Va	0.01 Hz	
40934	RO	kW Total	Unix Time	(d)	41050	RO	Max. thermal dmd polarity	Bit mapped	
40935	RO	kVAR Phase A	Unix Time	(a,d)	MAXIMUM THERMAL DEMAND TimestAMPS				
40936	RO	kVAR Phase B	Unix Time	(a,d)	41111	RO	Van	Unix Time	(a,d)
40937	RO	kVAR Phase C	Unix Time	(a,b,d)	41112	RO	Vbn	Unix Time	(a,d)
40938	RO	kVAR Total	Unix Time	(d)	41113	RO	Vcn	Unix Time	(a,b,d)
40939	RO	Power Factor Phase A	Unix Time	(a,d)	41114	RO	VIn average	Unix Time	(a,d)
40940	RO	Power Factor Phase B	Unix Time	(a,d)	41115	RO	Vab	Unix Time	(d)
40941	RO	Power Factor Phase C	Unix Time	(a,b,d)	41116	RO	Vbc	Unix Time	(b,d)
40942	RO	Power Factor Total	Unix Time	(d)	41117	RO	Vca	Unix Time	(b,d)
40943	RO	kVA Phase A	Unix Time	(a,d)	41118	RO	VII average	Unix Time	(d)
40944	RO	kVA Phase B	Unix Time	(a,d)	41120	RO	Vaux	Unix Time	(d)
40945	RO	kVA Phase C	Unix Time	(a,b,d)	41121	RO	Ia	Unix Time	(d)
40946	RO	kVA Total	Unix Time	(d)	41122	RO	Ib	Unix Time	(d)
40948	RO	Frequency on Va	Unix Time	(d)	41123	RO	Ic	Unix Time	(b,d)
MAXIMUM THERMAL DEMAND MEASUREMENTS					41124	RO	I average	Unix Time	(d)
41011	RO	Van	V rms	(a)	41126	RO	Neutral current (I4)	Unix Time	(d)
41012	RO	Vbn	V rms	(a)	41128	RO	Voltage imbalance	Unix Time	(d)
41013	RO	Vcn	V rms	(a,b)	41129	RO	Current imbalance	Unix Time	(d)
41014	RO	VIn average	V rms	(a)	41131	RO	kW Phase A	Unix Time	(a,d)
41015	RO	Vab	V rms		41132	RO	kW Phase B	Unix Time	(a,d)
41016	RO	Vbc	V rms	(b)	41133	RO	kW Phase C	Unix Time	(a,b,d)
41017	RO	Vca	V rms	(b)	41134	RO	kW Total	Unix Time	(d)
41018	RO	VII average	V rms		41135	RO	kVAR Phase A	Unix Time	(a,d)
41020	RO	Vaux	V rms		41136	RO	kVAR Phase B	Unix Time	(a,d)
41021	RO	Ia	A rms		41137	RO	kVAR Phase C	Unix Time	(a,b,d)
41022	RO	Ib	A rms		41138	RO	kVAR Total	Unix Time	(d)
41023	RO	Ic	A rms	(b)	41139	RO	Power Factor Phase A	Unix Time	(a,d)
41024	RO	I average	A rms		41140	RO	Power Factor Phase B	Unix Time	(a,d)
					41141	RO	Power Factor Phase C	Unix Time	(a,b,d)
					41142	RO	Power Factor Total	Unix Time	(d)
					41143	RO	kVA Phase A	Unix Time	(a,d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
41144	RO	kVA Phase B	Unix Time	(a,d)	41320	RO	Vaux	Unix Time	(d)
41145	RO	kVA Phase C	Unix Time	(a,b,d)	41321	RO	Ia	Unix Time	(d)
41146	RO	kVA Total	Unix Time	(d)	41322	RO	Ib	Unix Time	(d)
41148	RO	Frequency on Va	Unix Time	(d)	41323	RO	Ic	Unix Time	(b,d)
					41324	RO	I average	Unix Time	(d)
MINIMUM SLIDING WINDOW MEASUREMENTS					41326	RO	Neutral current (I4)	Unix Time	(d)
41211	RO	Van	V rms	(a)	41328	RO	Voltage imbalance	Unix Time	(d)
41212	RO	Vbn	V rms	(a)	41329	RO	Current imbalance	Unix Time	(d)
41213	RO	Vcn	V rms	(a,b)	41331	RO	kW Phase A	Unix Time	(a,d)
41214	RO	VIn average	V rms	(a)	41332	RO	kW Phase B	Unix Time	(a,d)
41215	RO	Vab	V rms		41333	RO	kW Phase C	Unix Time	(a,b,d)
41216	RO	Vbc	V rms	(b)	41334	RO	kW Total	Unix Time	(d)
41217	RO	Vca	V rms	(b)	41335	RO	kVAR Phase A	Unix Time	(a,d)
41218	RO	VII average	V rms		41336	RO	kVAR Phase B	Unix Time	(a,d)
41220	RO	Vaux	V rms		41337	RO	kVAR Phase C	Unix Time	(a,b,d)
41221	RO	Ia	A rms		41338	RO	kVAR Total	Unix Time	(d)
41222	RO	Ib	A rms		41339	RO	Power Factor Phase A	Unix Time	(a,d)
41223	RO	Ic	A rms	(b)	41340	RO	Power Factor Phase B	Unix Time	(a,d)
41224	RO	I average	A rms		41341	RO	Power Factor Phase C	Unix Time	(a,b,d)
41226	RO	Neutral current (I4)	A rms		41342	RO	Power Factor Total	Unix Time	(d)
41228	RO	Voltage imbalance	%		41343	RO	kVA Phase A	Unix Time	(a,d)
41229	RO	Current imbalance	%		41344	RO	kVA Phase B	Unix Time	(a,d)
41231	RO	kW Phase A	kW rms	(a)	41345	RO	kVA Phase C	Unix Time	(a,b,d)
41232	RO	kW Phase B	kW rms	(a)	41346	RO	kVA Total	Unix Time	(d)
41233	RO	kW Phase C	kW rms	(a,b)	41348	RO	Frequency on Va	Unix Time	(d)
41234	RO	kW Total	kW rms						
41235	RO	kVAR Phase A	kVAR rms	(a)	MAXIMUM SLIDING WINDOW MEASUREMENTS				
41236	RO	kVAR Phase B	kVAR rms	(a)	41411	RO	Van	V rms	(a)
41237	RO	kVAR Phase C	kVAR rms	(a,b)	41412	RO	Vbn	V rms	(a)
41238	RO	kVAR Total	kVAR rms		41413	RO	Vcn	V rms	(a,b)
41239	RO	Power Factor Phase A	%	(a)	41414	RO	VIn average	V rms	(a)
41240	RO	Power Factor Phase B	%	(a)	41415	RO	Vab	V rms	
41241	RO	Power Factor Phase C	%	(a,b)	41416	RO	Vbc	V rms	(b)
41242	RO	Power Factor Total	%		41417	RO	Vca	V rms	(b)
41243	RO	kVA Phase A	kVA	(a)	41418	RO	VII average	V rms	
41244	RO	kVA Phase B	kVA	(a)	41420	RO	Vaux	V rms	
41245	RO	kVA Phase C	kVA	(a,b)	41421	RO	Ia	A rms	
41246	RO	kVA Total	kVA		41422	RO	Ib	A rms	
41248	RO	Frequency on Va	0.01 Hz		41423	RO	Ic	A rms	(b)
41250	RO	Min. sliding demand polarity	Bit mapped	(d)	41424	RO	I average	A rms	
MINIMUM SLIDING WINDOW TIMESTAMPS					41426	RO	Neutral current (I4)	A rms	
41311	RO	Van	Unix Time	(a,d)	41428	RO	Voltage imbalance	%	
41312	RO	Vbn	Unix Time	(a,d)	41429	RO	Current imbalance	%	
41313	RO	Vcn	Unix Time	(a,b,d)	41431	RO	kW Phase A	kW rms	(a)
41314	RO	VIn average	Unix Time	(a,d)	41432	RO	kW Phase B	kW rms	(a)
41315	RO	Vab	Unix Time	(d)	41433	RO	kW Phase C	kW rms	(a,b)
41316	RO	Vbc	Unix Time	(b,d)	41434	RO	kW Total	kW rms	
41317	RO	Vca	Unix Time	(b,d)	41435	RO	kVAR Phase A	kVAR rms	(a)
41318	RO	VII average	Unix Time	(d)					

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
41436	RO	kVAR Phase B	kVAR rms	(a)	41611	RO	Van	V rms	(a)
41437	RO	kVAR Phase C	kVAR rms	(a,b)	41612	RO	Vbn	V rms	(a)
41438	RO	kVAR Total	kVAR rms		41613	RO	Vcn	V rms	(a,b)
41439	RO	Power Factor Phase A	%	(a)	41614	RO	VIn average	V rms	(a)
41440	RO	Power Factor Phase B	%	(a)	41615	RO	Vab	V rms	
41441	RO	Power Factor Phase C	%	(a,b)	41616	RO	Vbc	V rms	(b)
41442	RO	Power Factor Total	%		41617	RO	Vca	V rms	(b)
41443	RO	kVA Phase A	kVA	(a)	41618	RO	VII average	V rms	
41444	RO	kVA Phase B	kVA	(a)	41620	RO	Vaux	V rms	
41445	RO	kVA Phase C	kVA	(a,b)	41621	RO	Ia	A rms	
41446	RO	kVA Total	kVA		41622	RO	Ib	A rms	
41448	RO	Frequency on Va	0.01 Hz		41623	RO	Ic	A rms	(b)
41450	RO	Max. sliding demand polarity	Bit mapped	(d)	41624	RO	I average	A rms	

MAXIMUM SLIDING WINDOW TIMESTAMPS

41511	RO	Van	Unix Time	(a,d)
41512	RO	Vbn	Unix Time	(a,d)
41513	RO	Vcn	Unix Time	(a,b,d)
41514	RO	VIn average	Unix Time	(a,d)
41515	RO	Vab	Unix Time	(d)
41516	RO	Vbc	Unix Time	(b,d)
41517	RO	Vca	Unix Time	(b,d)
41518	RO	VII average	Unix Time	(d)
41520	RO	Vaux	Unix Time	(d)
41521	RO	Ia	Unix Time	(d)
41522	RO	Ib	Unix Time	(d)
41523	RO	Ic	Unix Time	(b,d)
41524	RO	I average	Unix Time	(d)
41526	RO	Neutral current (I4)	Unix Time	(d)
41528	RO	Voltage imbalance	Unix Time	(d)
41529	RO	Current imbalance	Unix Time	(d)
41531	RO	kW Phase A	Unix Time	(a,d)
41532	RO	kW Phase B	Unix Time	(a,d)
41533	RO	kW Phase C	Unix Time	(a,b,d)
41534	RO	kW Total	Unix Time	(d)
41535	RO	kVAR Phase A	Unix Time	(a,d)
41536	RO	kVAR Phase B	Unix Time	(a,d)
41537	RO	kVAR Phase C	Unix Time	(a,b,d)
41538	RO	kVAR Total	Unix Time	(d)
41539	RO	Power Factor Phase A	Unix Time	(a,d)
41540	RO	Power Factor Phase B	Unix Time	(a,d)
41541	RO	Power Factor Phase C	Unix Time	(a,b,d)
41542	RO	Power Factor Total	Unix Time	(d)
41543	RO	kVA Phase A	Unix Time	(a,d)
41544	RO	kVA Phase B	Unix Time	(a,d)
41545	RO	kVA Phase C	Unix Time	(a,b,d)
41546	RO	kVA Total	Unix Time	(d)
41548	RO	Frequency on Va	Unix Time	(d)

PREDICTED DEMAND MEASUREMENTS

41611	RO	Van	V rms	(a)
41612	RO	Vbn	V rms	(a)
41613	RO	Vcn	V rms	(a,b)
41614	RO	VIn average	V rms	(a)
41615	RO	Vab	V rms	
41616	RO	Vbc	V rms	(b)
41617	RO	Vca	V rms	(b)
41618	RO	VII average	V rms	
41620	RO	Vaux	V rms	
41621	RO	Ia	A rms	
41622	RO	Ib	A rms	
41623	RO	Ic	A rms	(b)
41624	RO	I average	A rms	
41626	RO	Neutral current (I4)	A rms	
41628	RO	Voltage imbalance	%	
41629	RO	Current imbalance	%	
41631	RO	kW Phase A	kW rms	(a)
41632	RO	kW Phase B	kW rms	(a)
41633	RO	kW Phase C	kW rms	(a,b)
41634	RO	kW Total	kW rms	
41635	RO	kVAR Phase A	kVAR rms	(a)
41636	RO	kVAR Phase B	kVAR rms	(a)
41637	RO	kVAR Phase C	kVAR rms	(a,b)
41638	RO	kVAR Total	kVAR rms	
41639	RO	Power Factor Phase A	%	(a)
41640	RO	Power Factor Phase B	%	(a)
41641	RO	Power Factor Phase C	%	(a,b)
41642	RO	Power Factor Total	%	
41643	RO	kVA Phase A	kVA	(a)
41644	RO	kVA Phase B	kVA	(a)
41645	RO	kVA Phase C	kVA	(a,b)
41646	RO	kVA Total	kVA	
41648	RO	Frequency on Va	0.01 Hz	
41650	RO	Predicted demand polarity	Bit mapped	(d)

MINIMUM PREDICTED DMD MEASUREMENTS

41711	RO	Van	V rms	(a)
41712	RO	Vbn	V rms	(a)
41713	RO	Vcn	V rms	(a,b)
41714	RO	VIn average	V rms	(a)
41715	RO	Vab	V rms	
41716	RO	Vbc	V rms	(b)
41717	RO	Vca	V rms	(b)
41718	RO	VII average	V rms	
41720	RO	Vaux	V rms	
41721	RO	Ia	A rms	
41722	RO	Ib	A rms	
41723	RO	Ic	A rms	(b)
41724	RO	I average	A rms	
41726	RO	Neutral current (I4)	A rms	
41728	RO	Voltage imbalance	%	

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
41729	RO	Current imbalance	%		41846	RO	kVA Total	Unix Time	(d)
41731	RO	kW Phase A	kW rms	(a)	41848	RO	Frequency on Va	Unix Time	(d)
41732	RO	kW Phase B	kW rms	(a)	MAXIMUM PREDICTED DMD MEASUREMENTS				
41733	RO	kW Phase C	kW rms	(a,b)					
41734	RO	kW Total	kW rms						
41735	RO	kVAR Phase A	kVAR rms	(a)					
41736	RO	kVAR Phase B	kVAR rms	(a)					
41737	RO	kVAR Phase C	kVAR rms	(a,b)					
41738	RO	kVAR Total	kVAR rms						
41739	RO	Power Factor Phase A	%	(a)					
41740	RO	Power Factor Phase B	%	(a)					
41741	RO	Power Factor Phase C	%	(a,b)					
41742	RO	Power Factor Total	%		41911	RO	Van	V rms	(a)
41743	RO	kVA Phase A	kVA	(a)	41912	RO	Vbn	V rms	(a)
41744	RO	kVA Phase B	kVA	(a)	41913	RO	Vcn	V rms	(a,b)
41745	RO	kVA Phase C	kVA	(a,b)	41914	RO	VIn average	V rms	(a)
41746	RO	kVA Total	kVA		41915	RO	Vab	V rms	
41748	RO	Frequency on Va	0.01 Hz		41916	RO	Vbc	V rms	(b)
41750	RO	Min. predicted dmd polarity	Bit mapped	(d)	41917	RO	Vca	V rms	(b)
MINIMUM PREDICTED DMD TIMESTAMPS					41918	RO	VII average	V rms	
					41920	RO	Vaux	V rms	
					41921	RO	Ia	A rms	
					41922	RO	Ib	A rms	
					41923	RO	Ic	A rms	(b)
					41924	RO	I average	A rms	
					41926	RO	Neutral current (I4)	A rms	
					41928	RO	Voltage imbalance	%	
					41929	RO	Current imbalance	%	
					41931	RO	kW Phase A	kW rms	(a)
41811	RO	Van	Unix Time	(a,d)	41932	RO	kW Phase B	kW rms	(a)
41812	RO	Vbn	Unix Time	(a,d)	41933	RO	kW Phase C	kW rms	(a,b)
41813	RO	Vcn	Unix Time	(a,b,d)	41934	RO	kW Total	kW rms	
41814	RO	VIn average	Unix Time	(a,d)	41935	RO	kVAR Phase A	kVAR rms	(a)
41815	RO	Vab	Unix Time	(d)	41936	RO	kVAR Phase B	kVAR rms	(a)
41816	RO	Vbc	Unix Time	(b,d)	41937	RO	kVAR Phase C	kVAR rms	(a,b)
41817	RO	Vca	Unix Time	(b,d)	41938	RO	kVAR Total	kVAR rms	
41818	RO	VII average	Unix Time	(d)	41939	RO	Power Factor Phase A	%	(a)
41820	RO	Vaux	Unix Time	(d)	41940	RO	Power Factor Phase B	%	(a)
41821	RO	Ia	Unix Time	(d)	41941	RO	Power Factor Phase C	%	(a,b)
41822	RO	Ib	Unix Time	(d)	41942	RO	Power Factor Total	%	
41823	RO	Ic	Unix Time	(b,d)	41943	RO	kVA Phase A	kVA	(a)
41824	RO	I average	Unix Time	(d)	41944	RO	kVA Phase B	kVA	(a)
41826	RO	Neutral current (I4)	Unix Time	(d)	41945	RO	kVA Phase C	kVA	(a,b)
41828	RO	Voltage imbalance	Unix Time	(d)	41946	RO	kVA Total	kVA	
41829	RO	Current imbalance	Unix Time	(d)	41948	RO	Frequency on Va	0.01 Hz	
41831	RO	kW Phase A	Unix Time	(a,d)	41950	RO	Max. predicted dmd polarity	Bit mapped	(d)
41832	RO	kW Phase B	Unix Time	(a,d)	MAXIMUM PREDICTED DMD TIMESTAMPS				
41833	RO	kW Phase C	Unix Time	(a,b,d)					
41834	RO	kW Total	Unix Time	(d)					
41835	RO	kVAR Phase A	Unix Time	(a,d)					
41836	RO	kVAR Phase B	Unix Time	(a,d)					
41837	RO	kVAR Phase C	Unix Time	(a,b,d)					
41838	RO	kVAR Total	Unix Time	(d)					
41839	RO	Power Factor Phase A	Unix Time	(a,d)					
41840	RO	Power Factor Phase B	Unix Time	(a,d)					
41841	RO	Power Factor Phase C	Unix Time	(a,b,d)					
41842	RO	Power Factor Total	Unix Time	(d)	42011	RO	Van	Unix Time	(a,d)
41843	RO	kVA Phase A	Unix Time	(a,d)	42012	RO	Vbn	Unix Time	(a,d)
41844	RO	kVA Phase B	Unix Time	(a,d)	42013	RO	Vcn	Unix Time	(a,b,d)
41845	RO	kVA Phase C	Unix Time	(a,b,d)	42014	RO	VIn average	Unix Time	(a,d)
					42015	RO	Vab	Unix Time	(d)
					42016	RO	Vbc	Unix Time	(b,d)
					42017	RO	Vca	Unix Time	(b,d)
					42018	RO	VII average	Unix Time	(d)
					42020	RO	Vaux	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
42021	RO	Ia	Unix Time	(d)					
42022	RO	Ib	Unix Time	(d)					
42023	RO	Ic	Unix Time	(b,d)					
42024	RO	I average	Unix Time	(d)					
42026	RO	Neutral current (I4)	Unix Time	(d)					
42028	RO	Voltage imbalance	Unix Time	(d)					
42029	RO	Current imbalance	Unix Time	(d)					
42031	RO	kW Phase A	Unix Time	(a,d)					
42032	RO	kW Phase B	Unix Time	(a,d)					
42033	RO	kW Phase C	Unix Time	(a,b,d)					
42034	RO	kW Total	Unix Time	(d)					
42035	RO	kVAR Phase A	Unix Time	(a,d)					
42036	RO	kVAR Phase B	Unix Time	(a,d)					
42037	RO	kVAR Phase C	Unix Time	(a,b,d)					
42038	RO	kVAR Total	Unix Time	(d)					
42039	RO	Power Factor Phase A	Unix Time	(a,d)					
42040	RO	Power Factor Phase B	Unix Time	(a,d)					
42041	RO	Power Factor Phase C	Unix Time	(a,b,d)					
42042	RO	Power Factor Total	Unix Time	(d)					
42043	RO	kVA Phase A	Unix Time	(a,d)					
42044	RO	kVA Phase B	Unix Time	(a,d)					
42045	RO	kVA Phase C	Unix Time	(a,b,d)					
42046	RO	kVA Total	Unix Time	(d)					
42048	RO	Frequency on Va	Unix Time	(d)					

WAVEFORM RECORDER WINDOW

42100	RW	WFR Channel Number	Channel	(e)
42101	RW	Number of logs to read	(1)	(e)
42102	RW	WFR Log index	counter	(e)
42103	RO	Number of channels		(e)
42104	RO	Samples per channel		(e)
42105	RO	Sampling Frequency	samples/sec	(e)
42106	RO	Trigger Type		(e)
42107	RO	WFR trigger time, seconds	MSW	(e)
42108	RO	WFR trigger time, seconds	LSW	(e)
42109	RO	WFR trigger time, μ seconds	MSW	(e)
42110	RO	WFR trigger time, μ seconds	LSW	(e)
42111	RO	WFR record time, seconds	MSW	(e)
42112	RO	WFR record time, seconds	LSW	(e)
42113	RO	WFR record time, μ seconds	MSW	(e)
42114	RO	WFR record time, μ seconds	LSW	(e)
42115	RO	Multiplier	MSW	(e)
42116	RO	Multiplier	LSW	(e)
42117	RO	Divisor	MSW	(e)
42118	RO	Divisor	LSW	(e)
42119	RO	Offset	MSW	(e)
42120	RO	Offset	LSW	(e)
42121 - 42696		WFR Samples 1-576	unscaled	(e)

Register Address	Type	Description	Units	Notes
DEVICE CONFIGURATION PARAMETERS				
43002	RW	Volts full scale	(0 - 999999 V rms)	
43003	RW	V aux. full scale	(0 - 999999 V rms)	
43004	RW	Current full scale	(0 - 30000 A rms)	
43005	RW	Measurement mode	(0=4W Wye, 1=Delta, 2=Single, 3=Demo, 4=3W Wye)	
43006	RW	Slave ID	(1-247)	(d)
43007	RW	Baudrate	(0=300, 1=1200, 2=2400, 3=4800, 4=9600, 5=19200, 6=38400, 7=57600, 8=115200)	
43008	RW	Sliding demand period	(1 - 99 minutes, 0 = Off)	
43009	RW	Neutral current full scale (I4)	(0 - 9999 A rms)	
43010	WO	Password	(0 - 9999)	
43011	WO	Reset all min/max logs	(1 = Reset all min/max parameters)	
43012	WO	Reset integrators	(1 = Reset kWh, kVARh, kVAh integrators)	
43013	RO	Firmware revision	(in hex. Ex Rev 1.5.0.2 = 1502h)	(d)
43016	RO	Device type	(3720d)	
43018	RW	Number of sliding demand periods	(0 -15)	
43019	RW	Sliding demand synchronisation	(0 = Internal, 1 = External (status input #4)	
43020	RW	Thermal demand period	(1 - 99 minutes, 0 = Off)	
43021	RW	Phase rotation	(0 = Positive, 1 = Negative)	
43022	RW	Iout range	(0 = 0-20 mA, 1 = 4-20 mA)	
43023	RW	Iout key		
43024	RW	Iout full scale	(0 - 999999)	
43025	RW	Standard frequency	(0 = 60 Hz, 1 = 50 Hz)	
43026	RO	Serial communication mode	(0 = RS-232, 1 = RS-485)	
43027	RW	Relay #1 operating mode		(d)
43028	RW	Relay #1 operating value		(d)
43029	RW	Relay #2 operating mode		(d)
43030	RW	Relay #2 operating value		(d)
43031	RW	Relay #3 operating mode		(d)
43032	RW	Relay #3 operating value		(d)
43033	RW	Log status input transitions		(d)
43034	WO	Trigger waveform capture	channel	(d)
43035	RW	Preset S1 counter	Counts	(d)
43036	RW	Preset S2 counter	Counts	(d)
43037	RW	Preset S3 counter	Counts	(d)
43038	RW	Preset S4 counter	Counts	(d)
43041	RW	RTS line mode	(0 = Active Low, 1 = Active High)	
43042	RW	Display time-out	(1-999 minutes, 0 = Remain on)	
43043	RW	Phase labels	(0 = ABC, 1 = XYZ, 2 = RYB, 3 = RST)	
43044	RW	Numeric format	(0 = 1,234.5 1 = 1234,5)	
43045	RW	Extended diagnostics	(0 = No, 1 = Yes)	
43046	RW	V aux. zero scale	(-999999 - 999999)	
43047	RW	Iout zero scale	(-999999 - 999999)	
43048	RW	Prediction base	(1 - 99 %, 0 = Off)	
43051	WO	Packet password	(0-9999)	(d)
43052	RW	Sliding window #1 key	Config key	(d)
43053	RW	Sliding window #2 key	Config key	(d)
43054	RW	Sliding window #3 key	Config key	(d)
43055	RW	Sliding window #4 key	Config key	(d)
43056	RW	Sliding window #5 key	Config key	(d)
43057	RW	Sliding window #6 key	Config key	(d)
43058	RW	Sliding window #7 key	Config key	(d)
43059	RW	Sliding window #8 key	Config key	(d)
43060	RW	Sliding window #9 key	Config key	(d)
43061	RW	Sliding window #10 key	Config key	(d)

Register Address	Type	Description	Units	Notes
43063	RW	Active Protocol	(0 = None, 1 = PML 3720, 2 = Modbus, 3 = PML3720AD, 4 = AB DF-1)	
43064	RW	Register Size	(0 = 16 bits, 1 = 32 bits)	
43065	RW	Return Invalid Objects	(0 = No, 1 = Yes)	
43066	RW	Password Protect	(0 = No, 1 = Yes)	
43067	RW	Transmit Delay	(0 - 999 ms)	
43071	RW	S1 Counter scale	Counts/Pulse	(d)
43072	RW	S2 Counter scale	Counts/Pulse	(d)
43073	RW	S3 Counter scale	Counts/Pulse	(d)
43074	RW	S4 Counter scale	Counts/Pulse	(d)
43076	RW	S1 Counter roll-over	Counts	(d)
43077	RW	S2 Counter roll-over	Counts	(d)
43078	RW	S3 Counter roll-over	Counts	(d)
43079	RW	S4 Counter roll-over	Counts	(d)
43084	RW	Waveform Recorder Depth	(1=1 x 36 cycles, 2=2 x 18 cycles, 3=3 x 12 cycles)	
43086	WO	Waveform Recorder Manual Trigger/Rearm	(0 = rearm, nonzero = trigger)	(d)

EVENT COUNTERS

43201	RO	Setpoints changed state	STCOUNT	(d)
43204	RO	Sliding demand config	STCOUNT	(d)
43205	RO	Event log	STCOUNT	(d)
43207	RO	Min/Max	STCOUNT	(d)
43208	RO	Waveform capture	STCOUNT	(d)
43209	RO	Waveform Recorder size counter	Counts	(d)
43210	RO	Waveform Recorder data counter	Counts	(d)
43217	RO	Integrator reset	STCOUNT	(d)
43218	RO	All min/max log reset	STCOUNT	(d)
43219	RO	Real-time min/max	STCOUNT	(d)
43220	RO	Thermal dmd min/max	STCOUNT	(d)
43221	RO	Sliding demand min/max	STCOUNT	(d)
43222	RO	Harmonic Va min/max	STCOUNT	(d)
43223	RO	Harmonic Vb min/max	STCOUNT	(d)
43224	RO	Harmonic Vc min/max	STCOUNT	(d)
43225	RO	Harmonic Vaux. min/max	STCOUNT	(d)
43226	RO	Harm. Va dmd min/max	STCOUNT	(d)
43227	RO	Harm. Vb dmd min/max	STCOUNT	(d)
43228	RO	Harm. Vc dmd min/max	STCOUNT	(d)
43229	RO	Harm Vaux dmd min/max	STCOUNT	(d)
43230	RO	Harmonic Ia min/max	STCOUNT	(d)
43231	RO	Harmonic Ib min/max	STCOUNT	(d)
43232	RO	Harmonic Ic min/max	STCOUNT	(d)
43233	RO	Harmonic I4 min/max	STCOUNT	(d)
43234	RO	Harm. Ia dmd min/max	STCOUNT	(d)
43235	RO	Harm. Ib dmd min/max	STCOUNT	(d)
43236	RO	Harm. Ic dmd min/max	STCOUNT	(d)
43237	RO	Harm. I4 dmd min/max	STCOUNT	(d)
43238	RO	Predicted dmd min/max	STCOUNT	(d)
43241	RO	Relay #1	Counts	(d)
43242	RO	Relay #2	Counts	(d)
43243	RO	Relay #3	Counts	(d)

Register Address	Type	Description	Units	Notes
43244	RO	Setpoint #1	STCOUNT	(d)
43245	RO	Setpoint #2	STCOUNT	(d)
43246	RO	Setpoint #3	STCOUNT	(d)
43247	RO	Setpoint #4	STCOUNT	(d)
43248	RO	Setpoint #5	STCOUNT	(d)
43249	RO	Setpoint #6	STCOUNT	(d)
43250	RO	Setpoint #7	STCOUNT	(d)
43251	RO	Setpoint #8	STCOUNT	(d)
43252	RO	Setpoint #9	STCOUNT	(d)
43253	RO	Setpoint #10	STCOUNT	(d)
43254	RO	Setpoint #11	STCOUNT	(d)
43255	RO	High speed setpoint #1	STCOUNT	(d)
43256	RO	High speed setpoint #2	STCOUNT	(d)
43257	RO	High speed setpoint #3	STCOUNT	(d)
43258	RO	High speed setpoint #4	STCOUNT	(d)
43259	RO	High speed setpoint #5	STCOUNT	(d)
43260	RO	High speed setpoint #6	STCOUNT	(d)

SETPOINT SYSTEM CONFIGURATION

43301 - 43310	Setpoint #1
43311 - 43320	Setpoint #2
43321 - 43330	Setpoint #3
43331 - 43340	Setpoint #4
43341 - 43350	Setpoint #5
43351 - 43360	Setpoint #6
43361 - 43370	Setpoint #7
43371 - 43380	Setpoint #8
43381 - 43390	Setpoint #9
43391 - 43400	Setpoint #10
43401 - 43410	Setpoint #11
43411 - 43420	High speed setpoint #1
43421 - 43430	High speed setpoint #2
43431 - 43440	High speed setpoint #3
43441 - 43450	High speed setpoint #4
43451 - 43460	High speed setpoint #5
43461 - 43470	High speed setpoint #6

General Setpoint Format (d)

+0	RW	Operation Flags
+1	RW	Trigger Key
+2	RW	High Limit - High order word
+3	RW	High Limit - Low order word
+4	RW	Low Limit - High order word
+5	RW	Low Limit - Low order word
+6	RW	Time delay to operate (STD = Seconds, HS = Cycles)
+7	RW	Time delay to release (STD = Seconds, HS = Cycles)
+8	RW	Action #1 Key
+9	RW	Action #2 Key

Register Address	Type	Description	Units	Notes
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WAVEFORM CAPTURE LOG

43501	RO	Waveform channel number	channel	
43502	RO	Number of sample points	(128)	
43503	RO	Sample point delay	uS	
43504	RO	Trigger type	0=manual trigger, 1-17 = setpoint number	
43505-43600		128 sample points	packed	

Register Address	Type	Description	Units	Notes
TIME OF USE INFORMATION				
43701	RO	Energy Register #1, Tariff #1	(d)	
43702	RO	Energy Register #1, Tariff #2	(d)	
43703	RO	Energy Register #1, Tariff #3	(d)	
43704	RO	Energy Register #1, Tariff #4	(d)	
43705	RO	Energy Register #1, Tariff #5	(d)	
43706	RO	Energy Register #1, Tariff #6	(d)	
43707	RO	Energy Register #1, Tariff #7	(d)	
43708	RO	Energy Register #1, Tariff #8	(d)	
43709	RO	Energy Register #1, Tariff #9	(d)	
43710	RO	Energy Register #1, Tariff #10	(d)	
43711	RO	Energy Register #2, Tariff #1	(d)	
43712	RO	Energy Register #2, Tariff #2	(d)	
43713	RO	Energy Register #2, Tariff #3	(d)	
43714	RO	Energy Register #2, Tariff #4	(d)	
43715	RO	Energy Register #2, Tariff #5	(d)	
43716	RO	Energy Register #2, Tariff #6	(d)	
43717	RO	Energy Register #2, Tariff #7	(d)	
43718	RO	Energy Register #2, Tariff #8	(d)	
43719	RO	Energy Register #2, Tariff #9	(d)	
43720	RO	Energy Register #2, Tariff #10	(d)	
43721	RO	Energy Register #3, Tariff #1	(d)	
43722	RO	Energy Register #3, Tariff #2	(d)	
43723	RO	Energy Register #3, Tariff #3	(d)	
43724	RO	Energy Register #3, Tariff #4	(d)	
43725	RO	Energy Register #3, Tariff #5	(d)	
43726	RO	Energy Register #3, Tariff #6	(d)	
43727	RO	Energy Register #3, Tariff #7	(d)	
43728	RO	Energy Register #3, Tariff #8	(d)	
43729	RO	Energy Register #3, Tariff #9	(d)	
43730	RO	Energy Register #3, Tariff #10	(d)	
43731	RO	Peak Demand Register #1, Tariff #1	(d)	
43732	RO	Peak Demand Register #1, Tariff #2	(d)	
43733	RO	Peak Demand Register #1, Tariff #3	(d)	
43734	RO	Peak Demand Register #1, Tariff #4	(d)	
43735	RO	Peak Demand Register #1, Tariff #5	(d)	
43736	RO	Peak Demand Register #1, Tariff #6	(d)	
43737	RO	Peak Demand Register #1, Tariff #7	(d)	
43738	RO	Peak Demand Register #1, Tariff #8	(d)	
43739	RO	Peak Demand Register #1, Tariff #9	(d)	
43740	RO	Peak Demand Register #1, Tariff #10	(d)	
43741	RO	Peak Demand Register #2, Tariff #1	(d)	
43742	RO	Peak Demand Register #2, Tariff #2	(d)	
43743	RO	Peak Demand Register #2, Tariff #3	(d)	
43744	RO	Peak Demand Register #2, Tariff #4	(d)	
43745	RO	Peak Demand Register #2, Tariff #5	(d)	
43746	RO	Peak Demand Register #2, Tariff #6	(d)	
43747	RO	Peak Demand Register #2, Tariff #7	(d)	
43748	RO	Peak Demand Register #2, Tariff #8	(d)	
43749	RO	Peak Demand Register #2, Tariff #9	(d)	
43750	RO	Peak Demand Register #2, Tariff #10	(d)	
43751	RO	Peak Demand Register #3, Tariff #1	(d)	
43752	RO	Peak Demand Register #3, Tariff #2	(d)	
43753	RO	Peak Demand Register #3, Tariff #3	(d)	
43754	RO	Peak Demand Register #3, Tariff #4	(d)	
43755	RO	Peak Demand Register #3, Tariff #5	(d)	
43756	RO	Peak Demand Register #3, Tariff #6	(d)	
43757	RO	Peak Demand Register #3, Tariff #7	(d)	
43758	RO	Peak Demand Register #3, Tariff #8	(d)	
43759	RO	Peak Demand Register #3, Tariff #9	(d)	
43760	RO	Peak Demand Register #3, Tariff #10	(d)	
43761	RO	Active Tariff		(d)
43762	RO	Energy Register #1 Configuration		(d)
43763	RO	Energy Register #2 Configuration		(d)
43764	RO	Energy Register #3 Configuration		(d)
43765	RO	Peak Demand Register #1 Configuration		(d)
43766	RO	Peak Demand Register #2 Configuration		(d)
43767	RO	Peak Demand Register #3 Configuration		(d)
43768	RO	Active Profile		(d)

Register Address	Description	Register Address	Description
DEVICE EVENT LOG		44431 - 44440	Event #44
44001 - 44010	Event #1 (Most Recent)	44441 - 44450	Event #45
44011 - 44020	Event #2	44451 - 44460	Event #46
44021 - 44030	Event #3	44461 - 44470	Event #47
		44471 - 44480	Event #48
		44481 - 44490	Event #49
		44491 - 44500	Event #50

General Event Format (d)

+0	RO	Event Time - UNIX Time format - High order word
+1	RO	Event Time - UNIX Time format - Low order word
+2	RO	Event Time - microseconds - High order word
+3	RO	Event Time - microseconds - Low order word
+4	RO	Event Cause Key
+5	RO	Event Cause Value - High order word
+6	RO	Event Cause Value - Low order word
+7	RO	Event Effect Key
+8	RO	Event Effect Value - High order word
+9	RO	Event Effect Value - Low order word

44031 - 44040	Event #4	44501 - 44510	Event #51
44041 - 44050	Event #5	44511 - 44520	Event #52
44051 - 44060	Event #6	44521 - 44530	Event #53
44061 - 44070	Event #7	44531 - 44540	Event #54
44071 - 44080	Event #8	44541 - 44550	Event #55
44081 - 44090	Event #9	44551 - 44560	Event #56
44091 - 44100	Event #10	44561 - 44570	Event #57
44101 - 44110	Event #11	44571 - 44580	Event #58
44111 - 44120	Event #12	44581 - 44590	Event #59
44121 - 44130	Event #13	44591 - 44600	Event #60
44131 - 44140	Event #14	44601 - 44610	Event #61
44141 - 44150	Event #15	44611 - 44620	Event #62
44151 - 44160	Event #16	44621 - 44630	Event #63
44161 - 44170	Event #17	44631 - 44640	Event #64
44171 - 44180	Event #18	44641 - 44650	Event #65
44181 - 44190	Event #19	44651 - 44660	Event #66
44191 - 44200	Event #20	44661 - 44670	Event #67
44201 - 44210	Event #21	44671 - 44680	Event #68
44211 - 44220	Event #22	44681 - 44690	Event #69
44221 - 44230	Event #23	44691 - 44700	Event #70
44231 - 44240	Event #24	44701 - 44710	Event #71
44241 - 44250	Event #25	44711 - 44720	Event #72
44251 - 44260	Event #26	44721 - 44730	Event #73
44261 - 44270	Event #27	44731 - 44740	Event #74
44271 - 44280	Event #28	44741 - 44750	Event #75
44281 - 44290	Event #29	44751 - 44760	Event #76
44291 - 44300	Event #30	44761 - 44770	Event #77
44301 - 44310	Event #31	44771 - 44780	Event #78
44311 - 44320	Event #32	44781 - 44790	Event #79
44321 - 44330	Event #33	44791 - 44800	Event #80
44331 - 44340	Event #34	44801 - 44810	Event #81
44341 - 44350	Event #35	44811 - 44820	Event #82
44351 - 44360	Event #36	44821 - 44830	Event #83
44361 - 44370	Event #37	44831 - 44840	Event #84
44371 - 44380	Event #38	44841 - 44850	Event #85
44381 - 44390	Event #39	44851 - 44860	Event #86
44391 - 44400	Event #40	44861 - 44870	Event #87
44401 - 44410	Event #41	44871 - 44880	Event #88
44411 - 44420	Event #42	44881 - 44890	Event #89
44421 - 44430	Event #43	44891 - 44900	Event #90

Register Address	Description	Register Address	Description
44901 - 44910	Event #91		
44911 - 44920	Event #92		
44921 - 44930	Event #93		
44931 - 44940	Event #94		
44941 - 44950	Event #95		
44951 - 44960	Event #96		
44961 - 44970	Event #97		
44971 - 44980	Event #98		
44981 - 44990	Event #99		
44991 - 45000	Event #100 (Least Recent)		

Register				Register					
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
REAL TIME HARMONIC MEASUREMENTS									
45049	RO	Va K-Factor	0.1		45107	RO	Vc Harmonic #4 Dist.	0.1 %	
45050	RO	Vb K-Factor	0.1		45108	RO	V aux. Harmonic #4 Dist.	0.1 %	
45051	RO	Vc K-Factor	0.1		45109	RO	Ia Harmonic #4 Dist.	0.1 %	
45052	RO	V aux. K-Factor	0.1		45110	RO	Ib Harmonic #4 Dist.	0.1 %	
45053	RO	Ia K-Factor	0.1		45111	RO	Ic Harmonic #4 Dist.	0.1 %	
45054	RO	Ib K-Factor	0.1		45112	RO	I4 Harmonic #4 Dist.	0.1 %	
45055	RO	Ic K-Factor	0.1		45113	RO	Va Harmonic #5 Dist.	0.1 %	
45056	RO	I4 (Neutral) K-Factor	0.1		45114	RO	Vb Harmonic #5 Dist.	0.1 %	
45057	RO	Va Total Odd Harm. Dist.	0.1 %		45115	RO	Vc Harmonic #5 Dist.	0.1 %	
45058	RO	Vb Total Odd Harm. Dist.	0.1 %		45116	RO	V aux. Harmonic #5 Dist.	0.1 %	
45059	RO	Vc Total Odd Harm. Dist.	0.1 %		45117	RO	Ia Harmonic #5 Dist.	0.1 %	
45060	RO	V aux. Total Odd Harm. Dist.	0.1 %		45118	RO	Ib Harmonic #5 Dist.	0.1 %	
45061	RO	Ia Total Odd Harm. Dist.	0.1 %		45119	RO	Ic Harmonic #5 Dist.	0.1 %	
45062	RO	Ib Total Odd Harm. Dist.	0.1 %		45120	RO	I4 Harmonic #5 Dist.	0.1 %	
45063	RO	Ic Total Odd Harm. Dist.	0.1 %		45121	RO	Va Harmonic #6 Dist.	0.1 %	
45064	RO	I4 Total Odd Harm. Dist.	0.1 %		45122	RO	Vb Harmonic #6 Dist.	0.1 %	
45065	RO	Va Total Even Harm. Dist.	0.1 %		45123	RO	Vc Harmonic #6 Dist.	0.1 %	
45066	RO	Vb Total Even Harm. Dist.	0.1 %		45124	RO	V aux. Harmonic #6 Dist.	0.1 %	
45067	RO	Vc Total Even Harm. Dist.	0.1 %		45125	RO	Ia Harmonic #6 Dist.	0.1 %	
45068	RO	V aux. Total Even Harm. Dist.	0.1 %		45126	RO	Ib Harmonic #6 Dist.	0.1 %	
45069	RO	Ia Total Even Harm. Dist.	0.1 %		45127	RO	Ic Harmonic #6 Dist.	0.1 %	
45070	RO	Ib Total Even Harm. Dist.	0.1 %		45128	RO	I4 Harmonic #6 Dist.	0.1 %	
45071	RO	Ic Total Even Harm. Dist.	0.1 %		45129	RO	Va Harmonic #7 Dist.	0.1 %	
45072	RO	I4 Total Even Harm. Dist.	0.1 %		45130	RO	Vb Harmonic #7 Dist.	0.1 %	
45073	RO	Va Total Harmonic Dist.	0.1 %		45131	RO	Vc Harmonic #7 Dist.	0.1 %	
45074	RO	Vb Total Harmonic Dist.	0.1 %		45132	RO	V aux. Harmonic #7 Dist.	0.1 %	
45075	RO	Vc Total Harmonic Dist.	0.1 %		45133	RO	Ia Harmonic #7 Dist.	0.1 %	
45076	RO	V aux. Total Harmonic Dist.	0.1 %		45134	RO	Ib Harmonic #7 Dist.	0.1 %	
45077	RO	Ia Total Harmonic Dist.	0.1 %		45135	RO	Ic Harmonic #7 Dist.	0.1 %	
45078	RO	Ib Total Harmonic Dist.	0.1 %		45136	RO	I4 Harmonic #7 Dist.	0.1 %	
45079	RO	Ic Total Harmonic Dist.	0.1 %		45137	RO	Va Harmonic #8 Dist.	0.1 %	
45080	RO	I4 Total Harmonic Dist.	0.1 %		45138	RO	Vb Harmonic #8 Dist.	0.1 %	
45081	RO	Va fundamental Dist.	0.1 %		45139	RO	Vc Harmonic #8 Dist.	0.1 %	
45082	RO	Vb fundamental Dist.	0.1 %		45140	RO	V aux. Harmonic #8 Dist.	0.1 %	
45083	RO	Vc fundamental Dist.	0.1 %		45141	RO	Ia Harmonic #8 Dist.	0.1 %	
45084	RO	V aux. fundamental Dist.	0.1 %		45142	RO	Ib Harmonic #8 Dist.	0.1 %	
45085	RO	Ia fundamental Dist.	0.1 %		45143	RO	Ic Harmonic #8 Dist.	0.1 %	
45086	RO	Ib fundamental Dist.	0.1 %		45144	RO	I4 Harmonic #8 Dist.	0.1 %	
45087	RO	Ic fundamental Dist.	0.1 %		45145	RO	Va Harmonic #9 Dist.	0.1 %	
45088	RO	I4 fundamental Dist.	0.1 %		45146	RO	Vb Harmonic #9 Dist.	0.1 %	
45089	RO	Va Harmonic #2 Dist.	0.1 %		45147	RO	Vc Harmonic #9 Dist.	0.1 %	
45090	RO	Vb Harmonic #2 Dist.	0.1 %		45148	RO	V aux. Harmonic #9 Dist.	0.1 %	
45091	RO	Vc Harmonic #2 Dist.	0.1 %		45149	RO	Ia Harmonic #9 Dist.	0.1 %	
45092	RO	V aux. Harmonic #2 Dist.	0.1 %		45150	RO	Ib Harmonic #9 Dist.	0.1 %	
45093	RO	Ia Harmonic #2 Dist.	0.1 %		45151	RO	Ic Harmonic #9 Dist.	0.1 %	
45094	RO	Ib Harmonic #2 Dist.	0.1 %		45152	RO	I4 Harmonic #9 Dist.	0.1 %	
45095	RO	Ic Harmonic #2 Dist.	0.1 %		45153	RO	Va Harmonic #10 Dist.	0.1 %	
45096	RO	I4 Harmonic #2 Dist.	0.1 %		45154	RO	Vb Harmonic #10 Dist.	0.1 %	
45097	RO	Va Harmonic #3 Dist.	0.1 %		45155	RO	Vc Harmonic #10 Dist.	0.1 %	
45098	RO	Vb Harmonic #3 Dist.	0.1 %		45156	RO	V aux. Harmonic #10 Dist.	0.1 %	
45099	RO	Vc Harmonic #3 Dist.	0.1 %		45157	RO	Ia Harmonic #10 Dist.	0.1 %	
45100	RO	V aux. Harmonic #3 Dist.	0.1 %		45158	RO	Ib Harmonic #10 Dist.	0.1 %	
45101	RO	Ia Harmonic #3 Dist.	0.1 %		45159	RO	Ic Harmonic #10 Dist.	0.1 %	
45102	RO	Ib Harmonic #3 Dist.	0.1 %		45160	RO	I4 Harmonic #10 Dist.	0.1 %	
45103	RO	Ic Harmonic #3 Dist.	0.1 %		45161	RO	Va Harmonic #11 Dist.	0.1 %	
45104	RO	I4 Harmonic #3 Dist.	0.1 %		45162	RO	Vb Harmonic #11 Dist.	0.1 %	
45105	RO	Va Harmonic #4 Dist.	0.1 %		45163	RO	Vc Harmonic #11 Dist.	0.1 %	
45106	RO	Vb Harmonic #4 Dist.	0.1 %		45164	RO	V aux. Harmonic #11 Dist.	0.1 %	
					45165	RO	Ia Harmonic #11 Dist.	0.1 %	
					45166	RO	Ib Harmonic #11 Dist.	0.1 %	
					45167	RO	Ic Harmonic #11 Dist.	0.1 %	
					45168	RO	I4 Harmonic #11 Dist.	0.1 %	

45169	RO	Va Harmonic #12 Dist.	0.1 %
45170	RO	Vb Harmonic #12 Dist.	0.1 %
45171	RO	Vc Harmonic #12 Dist.	0.1 %
45172	RO	V aux. Harmonic #12 Dist.	0.1 %
45173	RO	Ia Harmonic #12 Dist.	0.1 %
45174	RO	Ib Harmonic #12 Dist.	0.1 %
45175	RO	Ic Harmonic #12 Dist.	0.1 %
45176	RO	I4 Harmonic #12 Dist.	0.1 %
45177	RO	Va Harmonic #13 Dist.	0.1 %
45178	RO	Vb Harmonic #13 Dist.	0.1 %
45179	RO	Vc Harmonic #13 Dist.	0.1 %
45180	RO	V aux. Harmonic #13 Dist.	0.1 %
45181	RO	Ia Harmonic #13 Dist.	0.1 %
45182	RO	Ib Harmonic #13 Dist.	0.1 %
45183	RO	Ic Harmonic #13 Dist.	0.1 %
45184	RO	I4 Harmonic #13 Dist.	0.1 %
45185	RO	Va Harmonic #14 Dist.	0.1 %
45186	RO	Vb Harmonic #14 Dist.	0.1 %
45187	RO	Vc Harmonic #14 Dist.	0.1 %
45188	RO	V aux. Harmonic #14 Dist.	0.1 %
45189	RO	Ia Harmonic #14 Dist.	0.1 %
45190	RO	Ib Harmonic #14 Dist.	0.1 %
45191	RO	Ic Harmonic #14 Dist.	0.1 %
45192	RO	I4 Harmonic #14 Dist.	0.1 %
45193	RO	Va Harmonic #15 Dist.	0.1 %
45194	RO	Vb Harmonic #15 Dist.	0.1 %
45195	RO	Vc Harmonic #15 Dist.	0.1 %
45196	RO	V aux. Harmonic #15 Dist.	0.1 %
45197	RO	Ia Harmonic #15 Dist.	0.1 %
45198	RO	Ib Harmonic #15 Dist.	0.1 %
45199	RO	Ic Harmonic #15 Dist.	0.1 %
45200	RO	I4 Harmonic #15 Dist.	0.1 %
45272	RO	I4 Total Even Harm. Dist.	0.1 %
45273	RO	Va Total Harmonic Dist.	0.1 %
45274	RO	Vb Total Harmonic Dist.	0.1 %
45275	RO	Vc Total Harmonic Dist.	0.1 %
45276	RO	V aux. Total Harmonic Dist.	0.1 %
45277	RO	Ia Total Harmonic Dist.	0.1 %
45278	RO	Ib Total Harmonic Dist.	0.1 %
45279	RO	Ic Total Harmonic Dist.	0.1 %
45280	RO	I4 Total Harmonic Dist.	0.1 %
45281	RO	Va fundamental Dist.	0.1 %
45282	RO	Vb fundamental Dist.	0.1 %
45283	RO	Vc fundamental Dist.	0.1 %
45284	RO	V aux. fundamental Dist.	0.1 %
45285	RO	Ia fundamental Dist.	0.1 %
45286	RO	Ib fundamental Dist.	0.1 %
45287	RO	Ic fundamental Dist.	0.1 %
45288	RO	I4 fundamental Dist.	0.1 %
45289	RO	Va Harmonic #2 Dist.	0.1 %
45290	RO	Vb Harmonic #2 Dist.	0.1 %
45291	RO	Vc Harmonic #2 Dist.	0.1 %
45292	RO	V aux. Harmonic #2 Dist.	0.1 %
45293	RO	Ia Harmonic #2 Dist.	0.1 %
45294	RO	Ib Harmonic #2 Dist.	0.1 %
45295	RO	Ic Harmonic #2 Dist.	0.1 %
45296	RO	I4 Harmonic #2 Dist.	0.1 %
45297	RO	Va Harmonic #3 Dist.	0.1 %
45298	RO	Vb Harmonic #3 Dist.	0.1 %
45299	RO	Vc Harmonic #3 Dist.	0.1 %
45300	RO	V aux. Harmonic #3 Dist.	0.1 %
45301	RO	Ia Harmonic #3 Dist.	0.1 %
45302	RO	Ib Harmonic #3 Dist.	0.1 %
45303	RO	Ic Harmonic #3 Dist.	0.1 %
45304	RO	I4 Harmonic #3 Dist.	0.1 %
45305	RO	Va Harmonic #4 Dist.	0.1 %
45306	RO	Vb Harmonic #4 Dist.	0.1 %
45307	RO	Vc Harmonic #4 Dist.	0.1 %
45308	RO	V aux. Harmonic #4 Dist.	0.1 %
45309	RO	Ia Harmonic #4 Dist.	0.1 %
45310	RO	Ib Harmonic #4 Dist.	0.1 %
45311	RO	Ic Harmonic #4 Dist.	0.1 %
45312	RO	I4 Harmonic #4 Dist.	0.1 %
45313	RO	Va Harmonic #5 Dist.	0.1 %
45314	RO	Vb Harmonic #5 Dist.	0.1 %
45315	RO	Vc Harmonic #5 Dist.	0.1 %
45316	RO	V aux. Harmonic #5 Dist.	0.1 %
45317	RO	Ia Harmonic #5 Dist.	0.1 %
45318	RO	Ib Harmonic #5 Dist.	0.1 %
45319	RO	Ic Harmonic #5 Dist.	0.1 %
45320	RO	I4 Harmonic #5 Dist.	0.1 %
45321	RO	Va Harmonic #6 Dist.	0.1 %
45322	RO	Vb Harmonic #6 Dist.	0.1 %
45323	RO	Vc Harmonic #6 Dist.	0.1 %
45324	RO	V aux. Harmonic #6 Dist.	0.1 %
45325	RO	Ia Harmonic #6 Dist.	0.1 %
45326	RO	Ib Harmonic #6 Dist.	0.1 %
45327	RO	Ic Harmonic #6 Dist.	0.1 %
45328	RO	I4 Harmonic #6 Dist.	0.1 %
45329	RO	Va Harmonic #7 Dist.	0.1 %
45330	RO	Vb Harmonic #7 Dist.	0.1 %
45331	RO	Vc Harmonic #7 Dist.	0.1 %
45332	RO	V aux. Harmonic #7 Dist.	0.1 %
45333	RO	Ia Harmonic #7 Dist.	0.1 %

MINIMUM REAL TIME HARMONIC MEASUREMENTS

45249	RO	Va K-Factor	0.1
45250	RO	Vb K-Factor	0.1
45251	RO	Vc K-Factor	0.1
45252	RO	V aux. K-Factor	0.1
45253	RO	Ia K-Factor	0.1
45254	RO	Ib K-Factor	0.1
45255	RO	Ic K-Factor	0.1
45256	RO	I4 (Neutral) K-Factor	0.1
45257	RO	Va Total Odd Harm. Dist.	0.1 %
45258	RO	Vb Total Odd Harm. Dist.	0.1 %
45259	RO	Vc Total Odd Harm. Dist.	0.1 %
45260	RO	V aux. Total Odd Harm. Dist.	0.1 %
45261	RO	Ia Total Odd Harm. Dist.	0.1 %
45262	RO	Ib Total Odd Harm. Dist.	0.1 %
45263	RO	Ic Total Odd Harm. Dist.	0.1 %
45264	RO	I4 Total Odd Harm. Dist.	0.1 %
45265	RO	Va Total Even Harm. Dist.	0.1 %
45266	RO	Vb Total Even Harm. Dist.	0.1 %
45267	RO	Vc Total Even Harm. Dist.	0.1 %
45268	RO	V aux. Total Even Harm. Dist.	0.1 %
45269	RO	Ia Total Even Harm. Dist.	0.1 %
45270	RO	Ib Total Even Harm. Dist.	0.1 %
45271	RO	Ic Total Even Harm. Dist.	0.1 %

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
45334	RO	Ib Harmonic #7 Dist.	0.1 %		45396	RO	V aux. Harmonic #15 Dist.	0.1 %	
45335	RO	Ic Harmonic #7 Dist.	0.1 %		45397	RO	Ia Harmonic #15 Dist.	0.1 %	
45336	RO	I4 Harmonic #7 Dist.	0.1 %		45398	RO	Ib Harmonic #15 Dist.	0.1 %	
45337	RO	Va Harmonic #8 Dist.	0.1 %		45399	RO	Ic Harmonic #15 Dist.	0.1 %	
45338	RO	Vb Harmonic #8 Dist.	0.1 %		45400	RO	I4 Harmonic #15 Dist.	0.1 %	
45339	RO	Vc Harmonic #8 Dist.	0.1 %						
45340	RO	V aux. Harmonic #8 Dist.	0.1 %						
45341	RO	Ia Harmonic #8 Dist.	0.1 %						
45342	RO	Ib Harmonic #8 Dist.	0.1 %						
45343	RO	Ic Harmonic #8 Dist.	0.1 %						
45344	RO	I4 Harmonic #8 Dist.	0.1 %						
45345	RO	Va Harmonic #9 Dist.	0.1 %						
45346	RO	Vb Harmonic #9 Dist.	0.1 %						
45347	RO	Vc Harmonic #9 Dist.	0.1 %						
45348	RO	V aux. Harmonic #9 Dist.	0.1 %						
45349	RO	Ia Harmonic #9 Dist.	0.1 %						
45350	RO	Ib Harmonic #9 Dist.	0.1 %						
45351	RO	Ic Harmonic #9 Dist.	0.1 %						
45352	RO	I4 Harmonic #9 Dist.	0.1 %						
45353	RO	Va Harmonic #10 Dist.	0.1 %						
45354	RO	Vb Harmonic #10 Dist.	0.1 %						
45355	RO	Vc Harmonic #10 Dist.	0.1 %						
45356	RO	V aux. Harmonic #10 Dist.	0.1 %						
45357	RO	Ia Harmonic #10 Dist.	0.1 %						
45358	RO	Ib Harmonic #10 Dist.	0.1 %						
45359	RO	Ic Harmonic #10 Dist.	0.1 %						
45360	RO	I4 Harmonic #10 Dist.	0.1 %						
45361	RO	Va Harmonic #11 Dist.	0.1 %						
45362	RO	Vb Harmonic #11 Dist.	0.1 %						
45363	RO	Vc Harmonic #11 Dist.	0.1 %						
45364	RO	V aux. Harmonic #11 Dist.	0.1 %						
45365	RO	Ia Harmonic #11 Dist.	0.1 %						
45366	RO	Ib Harmonic #11 Dist.	0.1 %						
45367	RO	Ic Harmonic #11 Dist.	0.1 %						
45368	RO	I4 Harmonic #11 Dist.	0.1 %						
45369	RO	Va Harmonic #12 Dist.	0.1 %						
45370	RO	Vb Harmonic #12 Dist.	0.1 %						
45371	RO	Vc Harmonic #12 Dist.	0.1 %						
45372	RO	V aux. Harmonic #12 Dist.	0.1 %						
45373	RO	Ia Harmonic #12 Dist.	0.1 %						
45374	RO	Ib Harmonic #12 Dist.	0.1 %						
45375	RO	Ic Harmonic #12 Dist.	0.1 %						
45376	RO	I4 Harmonic #12 Dist.	0.1 %						
45377	RO	Va Harmonic #13 Dist.	0.1 %						
45378	RO	Vb Harmonic #13 Dist.	0.1 %						
45379	RO	Vc Harmonic #13 Dist.	0.1 %						
45380	RO	V aux. Harmonic #13 Dist.	0.1 %						
45381	RO	Ia Harmonic #13 Dist.	0.1 %						
45382	RO	Ib Harmonic #13 Dist.	0.1 %						
45383	RO	Ic Harmonic #13 Dist.	0.1 %						
45384	RO	I4 Harmonic #13 Dist.	0.1 %						
45385	RO	Va Harmonic #14 Dist.	0.1 %						
45386	RO	Vb Harmonic #14 Dist.	0.1 %						
45387	RO	Vc Harmonic #14 Dist.	0.1 %						
45388	RO	V aux. Harmonic #14 Dist.	0.1 %						
45389	RO	Ia Harmonic #14 Dist.	0.1 %						
45390	RO	Ib Harmonic #14 Dist.	0.1 %						
45391	RO	Ic Harmonic #14 Dist.	0.1 %						
45392	RO	I4 Harmonic #14 Dist.	0.1 %						
45393	RO	Va Harmonic #15 Dist.	0.1 %						
45394	RO	Vb Harmonic #15 Dist.	0.1 %						
45395	RO	Vc Harmonic #15 Dist.	0.1 %						

MINIMUM REAL TIME HARMONIC TIMESTAMPS				
Address	Type	Description	Units	Notes
45449	RO	Va K-Factor	Unix Time	(d)
45450	RO	Vb K-Factor	Unix Time	(d)
45451	RO	Vc K-Factor	Unix Time	(d)
45452	RO	V aux. K-Factor	Unix Time	(d)
45453	RO	Ia K-Factor	Unix Time	(d)
45454	RO	Ib K-Factor	Unix Time	(d)
45455	RO	Ic K-Factor	Unix Time	(d)
45456	RO	I4 (Neutral) K-Factor	Unix Time	(d)
45457	RO	Va Total Odd Harm. Dist.	Unix Time	(d)
45458	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)
45459	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)
45460	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)
45461	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)
45462	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)
45463	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)
45464	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)
45465	RO	Va Total Even Harm. Dist.	Unix Time	(d)
45466	RO	Vb Total Even Harm. Dist.	Unix Time	(d)
45467	RO	Vc Total Even Harm. Dist.	Unix Time	(d)
45468	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)
45469	RO	Ia Total Even Harm. Dist.	Unix Time	(d)
45470	RO	Ib Total Even Harm. Dist.	Unix Time	(d)
45471	RO	Ic Total Even Harm. Dist.	Unix Time	(d)
45472	RO	I4 Total Even Harm. Dist.	Unix Time	(d)
45473	RO	Va Total Harmonic Dist.	Unix Time	(d)
45474	RO	Vb Total Harmonic Dist.	Unix Time	(d)
45475	RO	Vc Total Harmonic Dist.	Unix Time	(d)
45476	RO	V aux. Total Harmonic Dist.	Unix Time	(d)
45477	RO	Ia Total Harmonic Dist.	Unix Time	(d)
45478	RO	Ib Total Harmonic Dist.	Unix Time	(d)
45479	RO	Ic Total Harmonic Dist.	Unix Time	(d)
45480	RO	I4 Total Harmonic Dist.	Unix Time	(d)
45481	RO	Va fundamental Dist.	Unix Time	(d)
45482	RO	Vb fundamental Dist.	Unix Time	(d)
45483	RO	Vc fundamental Dist.	Unix Time	(d)
45484	RO	V aux. fundamental Dist.	Unix Time	(d)
45485	RO	Ia fundamental Dist.	Unix Time	(d)
45486	RO	Ib fundamental Dist.	Unix Time	(d)
45487	RO	Ic fundamental Dist.	Unix Time	(d)
45488	RO	I4 fundamental Dist.	Unix Time	(d)
45489	RO	Va Harmonic #2 Dist.	Unix Time	(d)
45490	RO	Vb Harmonic #2 Dist.	Unix Time	(d)
45491	RO	Vc Harmonic #2 Dist.	Unix Time	(d)
45492	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)
45493	RO	Ia Harmonic #2 Dist.	Unix Time	(d)
45494	RO	Ib Harmonic #2 Dist.	Unix Time	(d)
45495	RO	Ic Harmonic #2 Dist.	Unix Time	(d)
45496	RO	I4 Harmonic #2 Dist.	Unix Time	(d)
45497	RO	Va Harmonic #3 Dist.	Unix Time	(d)
45498	RO	Vb Harmonic #3 Dist.	Unix Time	(d)

45499	RO	Vc Harmonic #3 Dist.	Unix Time	(d)	45561	RO	Va Harmonic #11 Dist.	Unix Time	(d)
45500	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)	45562	RO	Vb Harmonic #11 Dist.	Unix Time	(d)
45501	RO	la Harmonic #3 Dist.	Unix Time	(d)	45563	RO	Vc Harmonic #11 Dist.	Unix Time	(d)
45502	RO	lb Harmonic #3 Dist.	Unix Time	(d)	45564	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)
45503	RO	lc Harmonic #3 Dist.	Unix Time	(d)	45565	RO	la Harmonic #11 Dist.	Unix Time	(d)
45504	RO	l4 Harmonic #3 Dist.	Unix Time	(d)	45566	RO	lb Harmonic #11 Dist.	Unix Time	(d)
45505	RO	Va Harmonic #4 Dist.	Unix Time	(d)	45567	RO	lc Harmonic #11 Dist.	Unix Time	(d)
45506	RO	Vb Harmonic #4 Dist.	Unix Time	(d)	45568	RO	l4 Harmonic #11 Dist.	Unix Time	(d)
45507	RO	Vc Harmonic #4 Dist.	Unix Time	(d)	45569	RO	Va Harmonic #12 Dist.	Unix Time	(d)
45508	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)	45570	RO	Vb Harmonic #12 Dist.	Unix Time	(d)
45509	RO	la Harmonic #4 Dist.	Unix Time	(d)	45571	RO	Vc Harmonic #12 Dist.	Unix Time	(d)
45510	RO	lb Harmonic #4 Dist.	Unix Time	(d)	45572	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)
45511	RO	lc Harmonic #4 Dist.	Unix Time	(d)	45573	RO	la Harmonic #12 Dist.	Unix Time	(d)
45512	RO	l4 Harmonic #4 Dist.	Unix Time	(d)	45574	RO	lb Harmonic #12 Dist.	Unix Time	(d)
45513	RO	Va Harmonic #5 Dist.	Unix Time	(d)	45575	RO	lc Harmonic #12 Dist.	Unix Time	(d)
45514	RO	Vb Harmonic #5 Dist.	Unix Time	(d)	45576	RO	l4 Harmonic #12 Dist.	Unix Time	(d)
45515	RO	Vc Harmonic #5 Dist.	Unix Time	(d)	45577	RO	Va Harmonic #13 Dist.	Unix Time	(d)
45516	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)	45578	RO	Vb Harmonic #13 Dist.	Unix Time	(d)
45517	RO	la Harmonic #5 Dist.	Unix Time	(d)	45579	RO	Vc Harmonic #13 Dist.	Unix Time	(d)
45518	RO	lb Harmonic #5 Dist.	Unix Time	(d)	45580	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)
45519	RO	lc Harmonic #5 Dist.	Unix Time	(d)	45581	RO	la Harmonic #13 Dist.	Unix Time	(d)
45520	RO	l4 Harmonic #5 Dist.	Unix Time	(d)	45582	RO	lb Harmonic #13 Dist.	Unix Time	(d)
45521	RO	Va Harmonic #6 Dist.	Unix Time	(d)	45583	RO	lc Harmonic #13 Dist.	Unix Time	(d)
45522	RO	Vb Harmonic #6 Dist.	Unix Time	(d)	45584	RO	l4 Harmonic #13 Dist.	Unix Time	(d)
45523	RO	Vc Harmonic #6 Dist.	Unix Time	(d)	45585	RO	Va Harmonic #14 Dist.	Unix Time	(d)
45524	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)	45586	RO	Vb Harmonic #14 Dist.	Unix Time	(d)
45525	RO	la Harmonic #6 Dist.	Unix Time	(d)	45587	RO	Vc Harmonic #14 Dist.	Unix Time	(d)
45526	RO	lb Harmonic #6 Dist.	Unix Time	(d)	45588	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)
45527	RO	lc Harmonic #6 Dist.	Unix Time	(d)	45589	RO	la Harmonic #14 Dist.	Unix Time	(d)
45528	RO	l4 Harmonic #6 Dist.	Unix Time	(d)	45590	RO	lb Harmonic #14 Dist.	Unix Time	(d)
45529	RO	Va Harmonic #7 Dist.	Unix Time	(d)	45591	RO	lc Harmonic #14 Dist.	Unix Time	(d)
45530	RO	Vb Harmonic #7 Dist.	Unix Time	(d)	45592	RO	l4 Harmonic #14 Dist.	Unix Time	(d)
45531	RO	Vc Harmonic #7 Dist.	Unix Time	(d)	45593	RO	Va Harmonic #15 Dist.	Unix Time	(d)
45532	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)	45594	RO	Vb Harmonic #15 Dist.	Unix Time	(d)
45533	RO	la Harmonic #7 Dist.	Unix Time	(d)	45595	RO	Vc Harmonic #15 Dist.	Unix Time	(d)
45534	RO	lb Harmonic #7 Dist.	Unix Time	(d)	45596	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)
45535	RO	lc Harmonic #7 Dist.	Unix Time	(d)	45597	RO	la Harmonic #15 Dist.	Unix Time	(d)
45536	RO	l4 Harmonic #7 Dist.	Unix Time	(d)	45598	RO	lb Harmonic #15 Dist.	Unix Time	(d)
45537	RO	Va Harmonic #8 Dist.	Unix Time	(d)	45599	RO	lc Harmonic #15 Dist.	Unix Time	(d)
45538	RO	Vb Harmonic #8 Dist.	Unix Time	(d)	45600	RO	l4 Harmonic #15 Dist.	Unix Time	(d)
45539	RO	Vc Harmonic #8 Dist.	Unix Time	(d)					
45540	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)					
45541	RO	la Harmonic #8 Dist.	Unix Time	(d)					
45542	RO	lb Harmonic #8 Dist.	Unix Time	(d)					
45543	RO	lc Harmonic #8 Dist.	Unix Time	(d)					
45544	RO	l4 Harmonic #8 Dist.	Unix Time	(d)					
45545	RO	Va Harmonic #9 Dist.	Unix Time	(d)					
45546	RO	Vb Harmonic #9 Dist.	Unix Time	(d)					
45547	RO	Vc Harmonic #9 Dist.	Unix Time	(d)					
45548	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)					
45549	RO	la Harmonic #9 Dist.	Unix Time	(d)					
45550	RO	lb Harmonic #9 Dist.	Unix Time	(d)					
45551	RO	lc Harmonic #9 Dist.	Unix Time	(d)					
45552	RO	l4 Harmonic #9 Dist.	Unix Time	(d)					
45553	RO	Va Harmonic #10 Dist.	Unix Time	(d)					
45554	RO	Vb Harmonic #10 Dist.	Unix Time	(d)					
45555	RO	Vc Harmonic #10 Dist.	Unix Time	(d)					
45556	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)					
45557	RO	la Harmonic #10 Dist.	Unix Time	(d)					
45558	RO	lb Harmonic #10 Dist.	Unix Time	(d)					
45559	RO	lc Harmonic #10 Dist.	Unix Time	(d)					
45560	RO	l4 Harmonic #10 Dist.	Unix Time	(d)					

MAXIMUM REAL TIME HARMONIC MEASUREMENTS

45649	RO	Va K-Factor	0.1
45650	RO	Vb K-Factor	0.1
45651	RO	Vc K-Factor	0.1
45652	RO	V aux. K-Factor	0.1
45653	RO	la K-Factor	0.1
45654	RO	lb K-Factor	0.1
45655	RO	lc K-Factor	0.1
45656	RO	l4 (Neutral) K-Factor	0.1
45657	RO	Va Total Odd Harm. Dist.	0.1 %
45658	RO	Vb Total Odd Harm. Dist.	0.1 %
45659	RO	Vc Total Odd Harm. Dist.	0.1 %
45660	RO	V aux. Total Odd Harm. Dist.	0.1 %
45661	RO	la Total Odd Harm. Dist.	0.1 %
45662	RO	lb Total Odd Harm. Dist.	0.1 %
45663	RO	lc Total Odd Harm. Dist.	0.1 %

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
45664	RO	I4 Total Odd Harm. Dist.	0.1 %		45726	RO	Ib Harmonic #6 Dist.	0.1 %	
45665	RO	Va Total Even Harm. Dist	0.1 %		45727	RO	Ic Harmonic #6 Dist.	0.1 %	
45666	RO	Vb Total Even Harm. Dist.	0.1 %		45728	RO	I4 Harmonic #6 Dist.	0.1 %	
45667	RO	Vc Total Even Harm. Dist.	0.1 %		45729	RO	Va Harmonic #7 Dist.	0.1 %	
45668	RO	V aux. Total Even Harm. Dist.	0.1 %		45730	RO	Vb Harmonic #7 Dist.	0.1 %	
45669	RO	Ia Total Even Harm. Dist.	0.1 %		45731	RO	Vc Harmonic #7 Dist.	0.1 %	
45670	RO	Ib Total Even Harm. Dist.	0.1 %		45732	RO	V aux. Harmonic #7 Dist.	0.1 %	
45671	RO	Ic Total Even Harm. Dist.	0.1 %		45733	RO	Ia Harmonic #7 Dist.	0.1 %	
45672	RO	I4 Total Even Harm. Dist.	0.1 %		45734	RO	Ib Harmonic #7 Dist.	0.1 %	
45673	RO	Va Total Harmonic Dist.	0.1 %		45735	RO	Ic Harmonic #7 Dist.	0.1 %	
45674	RO	Vb Total Harmonic Dist.	0.1 %		45736	RO	I4 Harmonic #7 Dist.	0.1 %	
45675	RO	Vc Total Harmonic Dist.	0.1 %		45737	RO	Va Harmonic #8 Dist.	0.1 %	
45676	RO	V aux. Total Harmonic Dist.	0.1 %		45738	RO	Vb Harmonic #8 Dist.	0.1 %	
45677	RO	Ia Total Harmonic Dist.	0.1 %		45739	RO	Vc Harmonic #8 Dist.	0.1 %	
45678	RO	Ib Total Harmonic Dist.	0.1 %		45740	RO	V aux. Harmonic #8 Dist.	0.1 %	
45679	RO	Ic Total Harmonic Dist.	0.1 %		45741	RO	Ia Harmonic #8 Dist.	0.1 %	
45680	RO	I4 Total Harmonic Dist.	0.1 %		45742	RO	Ib Harmonic #8 Dist.	0.1 %	
45681	RO	Va fundamental Dist.	0.1 %		45743	RO	Ic Harmonic #8 Dist.	0.1 %	
45682	RO	Vb fundamental Dist.	0.1 %		45744	RO	I4 Harmonic #8 Dist.	0.1 %	
45683	RO	Vc fundamental Dist.	0.1 %		45745	RO	Va Harmonic #9 Dist.	0.1 %	
45684	RO	V aux. fundamental Dist.	0.1 %		45746	RO	Vb Harmonic #9 Dist.	0.1 %	
45685	RO	Ia fundamental Dist.	0.1 %		45747	RO	Vc Harmonic #9 Dist.	0.1 %	
45686	RO	Ib fundamental Dist.	0.1 %		45748	RO	V aux. Harmonic #9 Dist.	0.1 %	
45687	RO	Ic fundamental Dist.	0.1 %		45749	RO	Ia Harmonic #9 Dist.	0.1 %	
45688	RO	I4 fundamental Dist.	0.1 %		45750	RO	Ib Harmonic #9 Dist.	0.1 %	
45689	RO	Va Harmonic #2 Dist.	0.1 %		45751	RO	Ic Harmonic #9 Dist.	0.1 %	
45690	RO	Vb Harmonic #2 Dist.	0.1 %		45752	RO	I4 Harmonic #9 Dist.	0.1 %	
45691	RO	Vc Harmonic #2 Dist.	0.1 %		45753	RO	Va Harmonic #10 Dist.	0.1 %	
45692	RO	V aux. Harmonic #2 Dist.	0.1 %		45754	RO	Vb Harmonic #10 Dist.	0.1 %	
45693	RO	Ia Harmonic #2 Dist.	0.1 %		45755	RO	Vc Harmonic #10 Dist.	0.1 %	
45694	RO	Ib Harmonic #2 Dist.	0.1 %		45756	RO	V aux. Harmonic #10 Dist.	0.1 %	
45695	RO	Ic Harmonic #2 Dist.	0.1 %		45757	RO	Ia Harmonic #10 Dist.	0.1 %	
45696	RO	I4 Harmonic #2 Dist.	0.1 %		45758	RO	Ib Harmonic #10 Dist.	0.1 %	
45697	RO	Va Harmonic #3 Dist.	0.1 %		45759	RO	Ic Harmonic #10 Dist.	0.1 %	
45698	RO	Vb Harmonic #3 Dist.	0.1 %		45760	RO	I4 Harmonic #10 Dist.	0.1 %	
45699	RO	Vc Harmonic #3 Dist.	0.1 %		45761	RO	Va Harmonic #11 Dist.	0.1 %	
45700	RO	V aux. Harmonic #3 Dist.	0.1 %		45762	RO	Vb Harmonic #11 Dist.	0.1 %	
45701	RO	Ia Harmonic #3 Dist.	0.1 %		45763	RO	Vc Harmonic #11 Dist.	0.1 %	
45702	RO	Ib Harmonic #3 Dist.	0.1 %		45764	RO	V aux. Harmonic #11 Dist.	0.1 %	
45703	RO	Ic Harmonic #3 Dist.	0.1 %		45765	RO	Ia Harmonic #11 Dist.	0.1 %	
45704	RO	I4 Harmonic #3 Dist.	0.1 %		45766	RO	Ib Harmonic #11 Dist.	0.1 %	
45705	RO	Va Harmonic #4 Dist.	0.1 %		45767	RO	Ic Harmonic #11 Dist.	0.1 %	
45706	RO	Vb Harmonic #4 Dist.	0.1 %		45768	RO	I4 Harmonic #11 Dist.	0.1 %	
45707	RO	Vc Harmonic #4 Dist.	0.1 %		45769	RO	Va Harmonic #12 Dist.	0.1 %	
45708	RO	V aux. Harmonic #4 Dist.	0.1 %		45770	RO	Vb Harmonic #12 Dist.	0.1 %	
45709	RO	Ia Harmonic #4 Dist.	0.1 %		45771	RO	Vc Harmonic #12 Dist.	0.1 %	
45710	RO	Ib Harmonic #4 Dist.	0.1 %		45772	RO	V aux. Harmonic #12 Dist.	0.1 %	
45711	RO	Ic Harmonic #4 Dist.	0.1 %		45773	RO	Ia Harmonic #12 Dist.	0.1 %	
45712	RO	I4 Harmonic #4 Dist.	0.1 %		45774	RO	Ib Harmonic #12 Dist.	0.1 %	
45713	RO	Va Harmonic #5 Dist.	0.1 %		45775	RO	Ic Harmonic #12 Dist.	0.1 %	
45714	RO	Vb Harmonic #5 Dist.	0.1 %		45776	RO	I4 Harmonic #12 Dist.	0.1 %	
45715	RO	Vc Harmonic #5 Dist.	0.1 %		45777	RO	Va Harmonic #13 Dist.	0.1 %	
45716	RO	V aux. Harmonic #5 Dist.	0.1 %		45778	RO	Vb Harmonic #13 Dist.	0.1 %	
45717	RO	Ia Harmonic #5 Dist.	0.1 %		45779	RO	Vc Harmonic #13 Dist.	0.1 %	
45718	RO	Ib Harmonic #5 Dist.	0.1 %		45780	RO	V aux. Harmonic #13 Dist.	0.1 %	
45719	RO	Ic Harmonic #5 Dist.	0.1 %		45781	RO	Ia Harmonic #13 Dist.	0.1 %	
45720	RO	I4 Harmonic #5 Dist.	0.1 %		45782	RO	Ib Harmonic #13 Dist.	0.1 %	
45721	RO	Va Harmonic #6 Dist.	0.1 %		45783	RO	Ic Harmonic #13 Dist.	0.1 %	
45722	RO	Vb Harmonic #6 Dist.	0.1 %		45784	RO	I4 Harmonic #13 Dist.	0.1 %	
45723	RO	Vc Harmonic #6 Dist.	0.1 %		45785	RO	Va Harmonic #14 Dist.	0.1 %	
45724	RO	V aux. Harmonic #6 Dist.	0.1 %		45786	RO	Vb Harmonic #14 Dist.	0.1 %	
45725	RO	Ia Harmonic #6 Dist.	0.1 %		45787	RO	Vc Harmonic #14 Dist.	0.1 %	

45788	RO	V aux. Harmonic #14 Dist.	0.1 %
45789	RO	Ia Harmonic #14 Dist.	0.1 %
45790	RO	Ib Harmonic #14 Dist.	0.1 %
45791	RO	Ic Harmonic #14 Dist.	0.1 %
45792	RO	I4 Harmonic #14 Dist.	0.1 %
45793	RO	Va Harmonic #15 Dist.	0.1 %
45794	RO	Vb Harmonic #15 Dist.	0.1 %
45795	RO	Vc Harmonic #15 Dist.	0.1 %
45796	RO	V aux. Harmonic #15 Dist.	0.1 %
45797	RO	Ia Harmonic #15 Dist.	0.1 %
45798	RO	Ib Harmonic #15 Dist.	0.1 %
45799	RO	Ic Harmonic #15 Dist.	0.1 %
45800	RO	I4 Harmonic #15 Dist.	0.1 %

45891	RO	Vc Harmonic #2 Dist.	Unix Time	(d)
45892	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)
45893	RO	Ia Harmonic #2 Dist.	Unix Time	(d)
45894	RO	Ib Harmonic #2 Dist.	Unix Time	(d)
45895	RO	Ic Harmonic #2 Dist.	Unix Time	(d)
45896	RO	I4 Harmonic #2 Dist.	Unix Time	(d)
45897	RO	Va Harmonic #3 Dist.	Unix Time	(d)
45898	RO	Vb Harmonic #3 Dist.	Unix Time	(d)
45899	RO	Vc Harmonic #3 Dist.	Unix Time	(d)
45900	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)
45901	RO	Ia Harmonic #3 Dist.	Unix Time	(d)
45902	RO	Ib Harmonic #3 Dist.	Unix Time	(d)
45903	RO	Ic Harmonic #3 Dist.	Unix Time	(d)
45904	RO	I4 Harmonic #3 Dist.	Unix Time	(d)
45905	RO	Va Harmonic #4 Dist.	Unix Time	(d)
45906	RO	Vb Harmonic #4 Dist.	Unix Time	(d)
45907	RO	Vc Harmonic #4 Dist.	Unix Time	(d)
45908	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)
45909	RO	Ia Harmonic #4 Dist.	Unix Time	(d)
45910	RO	Ib Harmonic #4 Dist.	Unix Time	(d)
45911	RO	Ic Harmonic #4 Dist.	Unix Time	(d)
45912	RO	I4 Harmonic #4 Dist.	Unix Time	(d)
45913	RO	Va Harmonic #5 Dist.	Unix Time	(d)
45914	RO	Vb Harmonic #5 Dist.	Unix Time	(d)
45915	RO	Vc Harmonic #5 Dist.	Unix Time	(d)
45916	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)
45917	RO	Ia Harmonic #5 Dist.	Unix Time	(d)
45918	RO	Ib Harmonic #5 Dist.	Unix Time	(d)
45919	RO	Ic Harmonic #5 Dist.	Unix Time	(d)
45920	RO	I4 Harmonic #5 Dist.	Unix Time	(d)
45921	RO	Va Harmonic #6 Dist.	Unix Time	(d)
45922	RO	Vb Harmonic #6 Dist.	Unix Time	(d)
45923	RO	Vc Harmonic #6 Dist.	Unix Time	(d)
45924	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)
45925	RO	Ia Harmonic #6 Dist.	Unix Time	(d)
45926	RO	Ib Harmonic #6 Dist.	Unix Time	(d)
45927	RO	Ic Harmonic #6 Dist.	Unix Time	(d)
45928	RO	I4 Harmonic #6 Dist.	Unix Time	(d)
45929	RO	Va Harmonic #7 Dist.	Unix Time	(d)
45930	RO	Vb Harmonic #7 Dist.	Unix Time	(d)
45931	RO	Vc Harmonic #7 Dist.	Unix Time	(d)
45932	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)
45933	RO	Ia Harmonic #7 Dist.	Unix Time	(d)
45934	RO	Ib Harmonic #7 Dist.	Unix Time	(d)
45935	RO	Ic Harmonic #7 Dist.	Unix Time	(d)
45936	RO	I4 Harmonic #7 Dist.	Unix Time	(d)
45937	RO	Va Harmonic #8 Dist.	Unix Time	(d)
45938	RO	Vb Harmonic #8 Dist.	Unix Time	(d)
45939	RO	Vc Harmonic #8 Dist.	Unix Time	(d)
45940	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)
45941	RO	Ia Harmonic #8 Dist.	Unix Time	(d)
45942	RO	Ib Harmonic #8 Dist.	Unix Time	(d)
45943	RO	Ic Harmonic #8 Dist.	Unix Time	(d)
45944	RO	I4 Harmonic #8 Dist.	Unix Time	(d)
45945	RO	Va Harmonic #9 Dist.	Unix Time	(d)
45946	RO	Vb Harmonic #9 Dist.	Unix Time	(d)
45947	RO	Vc Harmonic #9 Dist.	Unix Time	(d)
45948	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)
45949	RO	Ia Harmonic #9 Dist.	Unix Time	(d)
45950	RO	Ib Harmonic #9 Dist.	Unix Time	(d)
45951	RO	Ic Harmonic #9 Dist.	Unix Time	(d)
45952	RO	I4 Harmonic #9 Dist.	Unix Time	(d)

MAXIMUM REAL TIME HARMONIC TIMESTAMPS

45849	RO	Va K-Factor	Unix Time	(d)
45850	RO	Vb K-Factor	Unix Time	(d)
45851	RO	Vc K-Factor	Unix Time	(d)
45852	RO	V aux. K-Factor	Unix Time	(d)
45853	RO	Ia K-Factor	Unix Time	(d)
45854	RO	Ib K-Factor	Unix Time	(d)
45855	RO	Ic K-Factor	Unix Time	(d)
45856	RO	I4 (Neutral) K-Factor	Unix Time	(d)
45857	RO	Va Total Odd Harm. Dist.	Unix Time	(d)
45858	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)
45859	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)
45860	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)
45861	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)
45862	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)
45863	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)
45864	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)
45865	RO	Va Total Even Harm. Dist.	Unix Time	(d)
45866	RO	Vb Total Even Harm. Dist.	Unix Time	(d)
45867	RO	Vc Total Even Harm. Dist.	Unix Time	(d)
45868	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)
45869	RO	Ia Total Even Harm. Dist.	Unix Time	(d)
45870	RO	Ib Total Even Harm. Dist.	Unix Time	(d)
45871	RO	Ic Total Even Harm. Dist.	Unix Time	(d)
45872	RO	I4 Total Even Harm. Dist.	Unix Time	(d)
45873	RO	Va Total Harmonic Dist.	Unix Time	(d)
45874	RO	Vb Total Harmonic Dist.	Unix Time	(d)
45875	RO	Vc Total Harmonic Dist.	Unix Time	(d)
45876	RO	V aux. Total Harmonic Dist.	Unix Time	(d)
45877	RO	Ia Total Harmonic Dist.	Unix Time	(d)
45878	RO	Ib Total Harmonic Dist.	Unix Time	(d)
45879	RO	Ic Total Harmonic Dist.	Unix Time	(d)
45880	RO	I4 Total Harmonic Dist.	Unix Time	(d)
45881	RO	Va fundamental Dist.	Unix Time	(d)
45882	RO	Vb fundamental Dist.	Unix Time	(d)
45883	RO	Vc fundamental Dist.	Unix Time	(d)
45884	RO	V aux. fundamental Dist.	Unix Time	(d)
45885	RO	Ia fundamental Dist.	Unix Time	(d)
45886	RO	Ib fundamental Dist.	Unix Time	(d)
45887	RO	Ic fundamental Dist.	Unix Time	(d)
45888	RO	I4 fundamental Dist.	Unix Time	(d)
45889	RO	Va Harmonic #2 Dist.	Unix Time	(d)
45890	RO	Vb Harmonic #2 Dist.	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
45953	RO	Va Harmonic #10 Dist.	Unix Time	(d)	46056	RO	I4 (Neutral) K-Factor	0.1	
45954	RO	Vb Harmonic #10 Dist.	Unix Time	(d)	46057	RO	Va Total Odd Harm. Dist.	0.1 %	
45955	RO	Vc Harmonic #10 Dist.	Unix Time	(d)	46058	RO	Vb Total Odd Harm. Dist.	0.1 %	
45956	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)	46059	RO	Vc Total Odd Harm. Dist.	0.1 %	
45957	RO	Ia Harmonic #10 Dist.	Unix Time	(d)	46060	RO	V aux. Total Odd Harm. Dist.	0.1 %	
45958	RO	Ib Harmonic #10 Dist.	Unix Time	(d)	46061	RO	Ia Total Odd Harm. Dist.	0.1 %	
45959	RO	Ic Harmonic #10 Dist.	Unix Time	(d)	46062	RO	Ib Total Odd Harm. Dist.	0.1 %	
45960	RO	I4 Harmonic #10 Dist.	Unix Time	(d)	46063	RO	Ic Total Odd Harm. Dist.	0.1 %	
45961	RO	Va Harmonic #11 Dist.	Unix Time	(d)	46064	RO	I4 Total Odd Harm. Dist.	0.1 %	
45962	RO	Vb Harmonic #11 Dist.	Unix Time	(d)	46065	RO	Va Total Even Harm. Dist.	0.1 %	
45963	RO	Vc Harmonic #11 Dist.	Unix Time	(d)	46066	RO	Vb Total Even Harm. Dist.	0.1 %	
45964	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)	46067	RO	Vc Total Even Harm. Dist.	0.1 %	
45965	RO	Ia Harmonic #11 Dist.	Unix Time	(d)	46068	RO	V aux. Total Even Harm. Dist.	0.1 %	
45966	RO	Ib Harmonic #11 Dist.	Unix Time	(d)	46069	RO	Ia Total Even Harm. Dist.	0.1 %	
45967	RO	Ic Harmonic #11 Dist.	Unix Time	(d)	46070	RO	Ib Total Even Harm. Dist.	0.1 %	
45968	RO	I4 Harmonic #11 Dist.	Unix Time	(d)	46071	RO	Ic Total Even Harm. Dist.	0.1 %	
45969	RO	Va Harmonic #12 Dist.	Unix Time	(d)	46072	RO	I4 Total Even Harm. Dist.	0.1 %	
45970	RO	Vb Harmonic #12 Dist.	Unix Time	(d)	46073	RO	Va Total Harmonic Dist.	0.1 %	
45971	RO	Vc Harmonic #12 Dist.	Unix Time	(d)	46074	RO	Vb Total Harmonic Dist.	0.1 %	
45972	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)	46075	RO	Vc Total Harmonic Dist.	0.1 %	
45973	RO	Ia Harmonic #12 Dist.	Unix Time	(d)	46076	RO	V aux. Total Harmonic Dist.	0.1 %	
45974	RO	Ib Harmonic #12 Dist.	Unix Time	(d)	46077	RO	Ia Total Harmonic Dist.	0.1 %	
45975	RO	Ic Harmonic #12 Dist.	Unix Time	(d)	46078	RO	Ib Total Harmonic Dist.	0.1 %	
45976	RO	I4 Harmonic #12 Dist.	Unix Time	(d)	46079	RO	Ic Total Harmonic Dist.	0.1 %	
45977	RO	Va Harmonic #13 Dist.	Unix Time	(d)	46080	RO	I4 Total Harmonic Dist.	0.1 %	
45978	RO	Vb Harmonic #13 Dist.	Unix Time	(d)	46081	RO	Va fundamental Dist.	0.1 %	
45979	RO	Vc Harmonic #13 Dist.	Unix Time	(d)	46082	RO	Vb fundamental Dist.	0.1 %	
45980	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)	46083	RO	Vc fundamental Dist.	0.1 %	
45981	RO	Ia Harmonic #13 Dist.	Unix Time	(d)	46084	RO	V aux. fundamental Dist.	0.1 %	
45982	RO	Ib Harmonic #13 Dist.	Unix Time	(d)	46085	RO	Ia fundamental Dist.	0.1 %	
45983	RO	Ic Harmonic #13 Dist.	Unix Time	(d)	46086	RO	Ib fundamental Dist.	0.1 %	
45984	RO	I4 Harmonic #13 Dist.	Unix Time	(d)	46087	RO	Ic fundamental Dist.	0.1 %	
45985	RO	Va Harmonic #14 Dist.	Unix Time	(d)	46088	RO	I4 fundamental Dist.	0.1 %	
45986	RO	Vb Harmonic #14 Dist.	Unix Time	(d)	46089	RO	Va Harmonic #2 Dist.	0.1 %	
45987	RO	Vc Harmonic #14 Dist.	Unix Time	(d)	46090	RO	Vb Harmonic #2 Dist.	0.1 %	
45988	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)	46091	RO	Vc Harmonic #2 Dist.	0.1 %	
45989	RO	Ia Harmonic #14 Dist.	Unix Time	(d)	46092	RO	V aux. Harmonic #2 Dist.	0.1 %	
45990	RO	Ib Harmonic #14 Dist.	Unix Time	(d)	46093	RO	Ia Harmonic #2 Dist.	0.1 %	
45991	RO	Ic Harmonic #14 Dist.	Unix Time	(d)	46094	RO	Ib Harmonic #2 Dist.	0.1 %	
45992	RO	I4 Harmonic #14 Dist.	Unix Time	(d)	46095	RO	Ic Harmonic #2 Dist.	0.1 %	
45993	RO	Va Harmonic #15 Dist.	Unix Time	(d)	46096	RO	I4 Harmonic #2 Dist.	0.1 %	
45994	RO	Vb Harmonic #15 Dist.	Unix Time	(d)	46097	RO	Va Harmonic #3 Dist.	0.1 %	
45995	RO	Vc Harmonic #15 Dist.	Unix Time	(d)	46098	RO	Vb Harmonic #3 Dist.	0.1 %	
45996	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)	46099	RO	Vc Harmonic #3 Dist.	0.1 %	
45997	RO	Ia Harmonic #15 Dist.	Unix Time	(d)	46100	RO	V aux. Harmonic #3 Dist.	0.1 %	
45998	RO	Ib Harmonic #15 Dist.	Unix Time	(d)	46101	RO	Ia Harmonic #3 Dist.	0.1 %	
45999	RO	Ic Harmonic #15 Dist.	Unix Time	(d)	46102	RO	Ib Harmonic #3 Dist.	0.1 %	
46000	RO	I4 Harmonic #15 Dist.	Unix Time	(d)	46103	RO	Ic Harmonic #3 Dist.	0.1 %	
					46104	RO	I4 Harmonic #3 Dist.	0.1 %	
					46105	RO	Va Harmonic #4 Dist.	0.1 %	
					46106	RO	Vb Harmonic #4 Dist.	0.1 %	
					46107	RO	Vc Harmonic #4 Dist.	0.1 %	
					46108	RO	V aux. Harmonic #4 Dist.	0.1 %	
					46109	RO	Ia Harmonic #4 Dist.	0.1 %	
					46110	RO	Ib Harmonic #4 Dist.	0.1 %	
					46111	RO	Ic Harmonic #4 Dist.	0.1 %	
					46112	RO	I4 Harmonic #4 Dist.	0.1 %	
					46113	RO	Va Harmonic #5 Dist.	0.1 %	
					46114	RO	Vb Harmonic #5 Dist.	0.1 %	
					46115	RO	Vc Harmonic #5 Dist.	0.1 %	
					46116	RO	V aux. Harmonic #5 Dist.	0.1 %	
					46117	RO	Ia Harmonic #5 Dist.	0.1 %	

THERMAL DEMAND HARMONIC MEASUREMENTS			
46049	RO	Va K-Factor	0.1
46050	RO	Vb K-Factor	0.1
46051	RO	Vc K-Factor	0.1
46052	RO	V aux. K-Factor	0.1
46053	RO	Ia K-Factor	0.1
46054	RO	Ib K-Factor	0.1
46055	RO	Ic K-Factor	0.1

46118	RO	Ib Harmonic #5 Dist.	0.1 %
46119	RO	Ic Harmonic #5 Dist.	0.1 %
46120	RO	I4 Harmonic #5 Dist.	0.1 %
46121	RO	Va Harmonic #6 Dist.	0.1 %
46122	RO	Vb Harmonic #6 Dist.	0.1 %
46123	RO	Vc Harmonic #6 Dist.	0.1 %
46124	RO	V aux. Harmonic #6 Dist.	0.1 %
46125	RO	Ia Harmonic #6 Dist.	0.1 %
46126	RO	Ib Harmonic #6 Dist.	0.1 %
46127	RO	Ic Harmonic #6 Dist.	0.1 %
46128	RO	I4 Harmonic #6 Dist.	0.1 %
46129	RO	Va Harmonic #7 Dist.	0.1 %
46130	RO	Vb Harmonic #7 Dist.	0.1 %
46131	RO	Vc Harmonic #7 Dist.	0.1 %
46132	RO	V aux. Harmonic #7 Dist.	0.1 %
46133	RO	Ia Harmonic #7 Dist.	0.1 %
46134	RO	Ib Harmonic #7 Dist.	0.1 %
46135	RO	Ic Harmonic #7 Dist.	0.1 %
46136	RO	I4 Harmonic #7 Dist.	0.1 %
46137	RO	Va Harmonic #8 Dist.	0.1 %
46138	RO	Vb Harmonic #8 Dist.	0.1 %
46139	RO	Vc Harmonic #8 Dist.	0.1 %
46140	RO	V aux. Harmonic #8 Dist.	0.1 %
46141	RO	Ia Harmonic #8 Dist.	0.1 %
46142	RO	Ib Harmonic #8 Dist.	0.1 %
46143	RO	Ic Harmonic #8 Dist.	0.1 %
46144	RO	I4 Harmonic #8 Dist.	0.1 %
46145	RO	Va Harmonic #9 Dist.	0.1 %
46146	RO	Vb Harmonic #9 Dist.	0.1 %
46147	RO	Vc Harmonic #9 Dist.	0.1 %
46148	RO	V aux. Harmonic #9 Dist.	0.1 %
46149	RO	Ia Harmonic #9 Dist.	0.1 %
46150	RO	Ib Harmonic #9 Dist.	0.1 %
46151	RO	Ic Harmonic #9 Dist.	0.1 %
46152	RO	I4 Harmonic #9 Dist.	0.1 %
46153	RO	Va Harmonic #10 Dist.	0.1 %
46154	RO	Vb Harmonic #10 Dist.	0.1 %
46155	RO	Vc Harmonic #10 Dist.	0.1 %
46156	RO	V aux. Harmonic #10 Dist.	0.1 %
46157	RO	Ia Harmonic #10 Dist.	0.1 %
46158	RO	Ib Harmonic #10 Dist.	0.1 %
46159	RO	Ic Harmonic #10 Dist.	0.1 %
46160	RO	I4 Harmonic #10 Dist.	0.1 %
46161	RO	Va Harmonic #11 Dist.	0.1 %
46162	RO	Vb Harmonic #11 Dist.	0.1 %
46163	RO	Vc Harmonic #11 Dist.	0.1 %
46164	RO	V aux. Harmonic #11 Dist.	0.1 %
46165	RO	Ia Harmonic #11 Dist.	0.1 %
46166	RO	Ib Harmonic #11 Dist.	0.1 %
46167	RO	Ic Harmonic #11 Dist.	0.1 %
46168	RO	I4 Harmonic #11 Dist.	0.1 %
46169	RO	Va Harmonic #12 Dist.	0.1 %
46170	RO	Vb Harmonic #12 Dist.	0.1 %
46171	RO	Vc Harmonic #12 Dist.	0.1 %
46172	RO	V aux. Harmonic #12 Dist.	0.1 %
46173	RO	Ia Harmonic #12 Dist.	0.1 %
46174	RO	Ib Harmonic #12 Dist.	0.1 %
46175	RO	Ic Harmonic #12 Dist.	0.1 %
46176	RO	I4 Harmonic #12 Dist.	0.1 %
46177	RO	Va Harmonic #13 Dist.	0.1 %
46178	RO	Vb Harmonic #13 Dist.	0.1 %
46179	RO	Vc Harmonic #13 Dist.	0.1 %
46180	RO	V aux. Harmonic #13 Dist.	0.1 %
46181	RO	Ia Harmonic #13 Dist.	0.1 %
46182	RO	Ib Harmonic #13 Dist.	0.1 %
46183	RO	Ic Harmonic #13 Dist.	0.1 %
46184	RO	I4 Harmonic #13 Dist.	0.1 %
46185	RO	Va Harmonic #14 Dist.	0.1 %
46186	RO	Vb Harmonic #14 Dist.	0.1 %
46187	RO	Vc Harmonic #14 Dist.	0.1 %
46188	RO	V aux. Harmonic #14 Dist.	0.1 %
46189	RO	Ia Harmonic #14 Dist.	0.1 %
46190	RO	Ib Harmonic #14 Dist.	0.1 %
46191	RO	Ic Harmonic #14 Dist.	0.1 %
46192	RO	I4 Harmonic #14 Dist.	0.1 %
46193	RO	Va Harmonic #15 Dist.	0.1 %
46194	RO	Vb Harmonic #15 Dist.	0.1 %
46195	RO	Vc Harmonic #15 Dist.	0.1 %
46196	RO	V aux. Harmonic #15 Dist.	0.1 %
46197	RO	Ia Harmonic #15 Dist.	0.1 %
46198	RO	Ib Harmonic #15 Dist.	0.1 %
46199	RO	Ic Harmonic #15 Dist.	0.1 %
46200	RO	I4 Harmonic #15 Dist.	0.1 %

MINIMUM THERMAL DEMAND HARMONIC MEASUREMENTS

46249	RO	Va K-Factor	0.1
46250	RO	Vb K-Factor	0.1
46251	RO	Vc K-Factor	0.1
46252	RO	V aux. K-Factor	0.1
46253	RO	Ia K-Factor	0.1
46254	RO	Ib K-Factor	0.1
46255	RO	Ic K-Factor	0.1
46256	RO	I4 (Neutral) K-Factor	0.1
46257	RO	Va Total Odd Harm. Dist.	0.1 %
46258	RO	Vb Total Odd Harm. Dist.	0.1 %
46259	RO	Vc Total Odd Harm. Dist.	0.1 %
46260	RO	V aux. Total Odd Harm. Dist.	0.1 %
46261	RO	Ia Total Odd Harm. Dist.	0.1 %
46262	RO	Ib Total Odd Harm. Dist.	0.1 %
46263	RO	Ic Total Odd Harm. Dist.	0.1 %
46264	RO	I4 Total Odd Harm. Dist.	0.1 %
46265	RO	Va Total Even Harm. Dist.	0.1 %
46266	RO	Vb Total Even Harm. Dist.	0.1 %
46267	RO	Vc Total Even Harm. Dist.	0.1 %
46268	RO	V aux. Total Even Harm. Dist.	0.1 %
46269	RO	Ia Total Even Harm. Dist.	0.1 %
46270	RO	Ib Total Even Harm. Dist.	0.1 %
46271	RO	Ic Total Even Harm. Dist.	0.1 %
46272	RO	I4 Total Even Harm. Dist.	0.1 %
46273	RO	Va Total Harmonic Dist.	0.1 %
46274	RO	Vb Total Harmonic Dist.	0.1 %
46275	RO	Vc Total Harmonic Dist.	0.1 %
46276	RO	V aux. Total Harmonic Dist.	0.1 %
46277	RO	Ia Total Harmonic Dist.	0.1 %
46278	RO	Ib Total Harmonic Dist.	0.1 %
46279	RO	Ic Total Harmonic Dist.	0.1 %
46280	RO	I4 Total Harmonic Dist.	0.1 %
46281	RO	Va fundamental Dist.	0.1 %
46282	RO	Vb fundamental Dist.	0.1 %

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
46283	RO	Vc fundamental Dist.	0.1 %		46345	RO	Va Harmonic #9 Dist.	0.1 %	
46284	RO	V aux. fundamental Dist.	0.1 %		46346	RO	Vb Harmonic #9 Dist.	0.1 %	
46285	RO	Ia fundamental Dist.	0.1 %		46347	RO	Vc Harmonic #9 Dist.	0.1 %	
46286	RO	Ib fundamental Dist.	0.1 %		46348	RO	V aux. Harmonic #9 Dist.	0.1 %	
46287	RO	Ic fundamental Dist.	0.1 %		46349	RO	Ia Harmonic #9 Dist.	0.1 %	
46288	RO	I4 fundamental Dist.	0.1 %		46350	RO	Ib Harmonic #9 Dist.	0.1 %	
46289	RO	Va Harmonic #2 Dist.	0.1 %		46351	RO	Ic Harmonic #9 Dist.	0.1 %	
46290	RO	Vb Harmonic #2 Dist.	0.1 %		46352	RO	I4 Harmonic #9 Dist.	0.1 %	
46291	RO	Vc Harmonic #2 Dist.	0.1 %		46353	RO	Va Harmonic #10 Dist.	0.1 %	
46292	RO	V aux. Harmonic #2 Dist.	0.1 %		46354	RO	Vb Harmonic #10 Dist.	0.1 %	
46293	RO	Ia Harmonic #2 Dist.	0.1 %		46355	RO	Vc Harmonic #10 Dist.	0.1 %	
46294	RO	Ib Harmonic #2 Dist.	0.1 %		46356	RO	V aux. Harmonic #10 Dist.	0.1 %	
46295	RO	Ic Harmonic #2 Dist.	0.1 %		46357	RO	Ia Harmonic #10 Dist.	0.1 %	
46296	RO	I4 Harmonic #2 Dist.	0.1 %		46358	RO	Ib Harmonic #10 Dist.	0.1 %	
46297	RO	Va Harmonic #3 Dist.	0.1 %		46359	RO	Ic Harmonic #10 Dist.	0.1 %	
46298	RO	Vb Harmonic #3 Dist.	0.1 %		46360	RO	I4 Harmonic #10 Dist.	0.1 %	
46299	RO	Vc Harmonic #3 Dist.	0.1 %		46361	RO	Va Harmonic #11 Dist.	0.1 %	
46300	RO	V aux. Harmonic #3 Dist.	0.1 %		46362	RO	Vb Harmonic #11 Dist.	0.1 %	
46301	RO	Ia Harmonic #3 Dist.	0.1 %		46363	RO	Vc Harmonic #11 Dist.	0.1 %	
46302	RO	Ib Harmonic #3 Dist.	0.1 %		46364	RO	V aux. Harmonic #11 Dist.	0.1 %	
46303	RO	Ic Harmonic #3 Dist.	0.1 %		46365	RO	Ia Harmonic #11 Dist.	0.1 %	
46304	RO	I4 Harmonic #3 Dist.	0.1 %		46366	RO	Ib Harmonic #11 Dist.	0.1 %	
46305	RO	Va Harmonic #4 Dist.	0.1 %		46367	RO	Ic Harmonic #11 Dist.	0.1 %	
46306	RO	Vb Harmonic #4 Dist.	0.1 %		46368	RO	I4 Harmonic #11 Dist.	0.1 %	
46307	RO	Vc Harmonic #4 Dist.	0.1 %		46369	RO	Va Harmonic #12 Dist.	0.1 %	
46308	RO	V aux. Harmonic #4 Dist.	0.1 %		46370	RO	Vb Harmonic #12 Dist.	0.1 %	
46309	RO	Ia Harmonic #4 Dist.	0.1 %		46371	RO	Vc Harmonic #12 Dist.	0.1 %	
46310	RO	Ib Harmonic #4 Dist.	0.1 %		46372	RO	V aux. Harmonic #12 Dist.	0.1 %	
46311	RO	Ic Harmonic #4 Dist.	0.1 %		46373	RO	Ia Harmonic #12 Dist.	0.1 %	
46312	RO	I4 Harmonic #4 Dist.	0.1 %		46374	RO	Ib Harmonic #12 Dist.	0.1 %	
46313	RO	Va Harmonic #5 Dist.	0.1 %		46375	RO	Ic Harmonic #12 Dist.	0.1 %	
46314	RO	Vb Harmonic #5 Dist.	0.1 %		46376	RO	I4 Harmonic #12 Dist.	0.1 %	
46315	RO	Vc Harmonic #5 Dist.	0.1 %		46377	RO	Va Harmonic #13 Dist.	0.1 %	
46316	RO	V aux. Harmonic #5 Dist.	0.1 %		46378	RO	Vb Harmonic #13 Dist.	0.1 %	
46317	RO	Ia Harmonic #5 Dist.	0.1 %		46379	RO	Vc Harmonic #13 Dist.	0.1 %	
46318	RO	Ib Harmonic #5 Dist.	0.1 %		46380	RO	V aux. Harmonic #13 Dist.	0.1 %	
46319	RO	Ic Harmonic #5 Dist.	0.1 %		46381	RO	Ia Harmonic #13 Dist.	0.1 %	
46320	RO	I4 Harmonic #5 Dist.	0.1 %		46382	RO	Ib Harmonic #13 Dist.	0.1 %	
46321	RO	Va Harmonic #6 Dist.	0.1 %		46383	RO	Ic Harmonic #13 Dist.	0.1 %	
46322	RO	Vb Harmonic #6 Dist.	0.1 %		46384	RO	I4 Harmonic #13 Dist.	0.1 %	
46323	RO	Vc Harmonic #6 Dist.	0.1 %		46385	RO	Va Harmonic #14 Dist.	0.1 %	
46324	RO	V aux. Harmonic #6 Dist.	0.1 %		46386	RO	Vb Harmonic #14 Dist.	0.1 %	
46325	RO	Ia Harmonic #6 Dist.	0.1 %		46387	RO	Vc Harmonic #14 Dist.	0.1 %	
46326	RO	Ib Harmonic #6 Dist.	0.1 %		46388	RO	V aux. Harmonic #14 Dist.	0.1 %	
46327	RO	Ic Harmonic #6 Dist.	0.1 %		46389	RO	Ia Harmonic #14 Dist.	0.1 %	
46328	RO	I4 Harmonic #6 Dist.	0.1 %		46390	RO	Ib Harmonic #14 Dist.	0.1 %	
46329	RO	Va Harmonic #7 Dist.	0.1 %		46391	RO	Ic Harmonic #14 Dist.	0.1 %	
46330	RO	Vb Harmonic #7 Dist.	0.1 %		46392	RO	I4 Harmonic #14 Dist.	0.1 %	
46331	RO	Vc Harmonic #7 Dist.	0.1 %		46393	RO	Va Harmonic #15 Dist.	0.1 %	
46332	RO	V aux. Harmonic #7 Dist.	0.1 %		46394	RO	Vb Harmonic #15 Dist.	0.1 %	
46333	RO	Ia Harmonic #7 Dist.	0.1 %		46395	RO	Vc Harmonic #15 Dist.	0.1 %	
46334	RO	Ib Harmonic #7 Dist.	0.1 %		46396	RO	V aux. Harmonic #15 Dist.	0.1 %	
46335	RO	Ic Harmonic #7 Dist.	0.1 %		46397	RO	Ia Harmonic #15 Dist.	0.1 %	
46336	RO	I4 Harmonic #7 Dist.	0.1 %		46398	RO	Ib Harmonic #15 Dist.	0.1 %	
46337	RO	Va Harmonic #8 Dist.	0.1 %		46399	RO	Ic Harmonic #15 Dist.	0.1 %	
46338	RO	Vb Harmonic #8 Dist.	0.1 %		46400	RO	I4 Harmonic #15 Dist.	0.1 %	
46339	RO	Vc Harmonic #8 Dist.	0.1 %						
46340	RO	V aux. Harmonic #8 Dist.	0.1 %						
46341	RO	Ia Harmonic #8 Dist.	0.1 %						
46342	RO	Ib Harmonic #8 Dist.	0.1 %						
46343	RO	Ic Harmonic #8 Dist.	0.1 %						
46344	RO	I4 Harmonic #8 Dist.	0.1 %						

MINIMUM THERMAL DEMAND HARMONIC TIMESTAMPS

46449	RO	Va K-Factor	Unix Time	(d)	46507	RO	Vc Harmonic #4 Dist.	Unix Time	(d)
46450	RO	Vb K-Factor	Unix Time	(d)	46508	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)
46451	RO	Vc K-Factor	Unix Time	(d)	46509	RO	Ia Harmonic #4 Dist.	Unix Time	(d)
46452	RO	V aux. K-Factor	Unix Time	(d)	46510	RO	Ib Harmonic #4 Dist.	Unix Time	(d)
46453	RO	Ia K-Factor	Unix Time	(d)	46511	RO	Ic Harmonic #4 Dist.	Unix Time	(d)
46454	RO	Ib K-Factor	Unix Time	(d)	46512	RO	I4 Harmonic #4 Dist.	Unix Time	(d)
46455	RO	Ic K-Factor	Unix Time	(d)	46513	RO	Va Harmonic #5 Dist.	Unix Time	(d)
46456	RO	I4 (Neutral) K-Factor	Unix Time	(d)	46514	RO	Vb Harmonic #5 Dist.	Unix Time	(d)
46457	RO	Va Total Odd Harm. Dist.	Unix Time	(d)	46515	RO	Vc Harmonic #5 Dist.	Unix Time	(d)
46458	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)	46516	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)
46465	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)	46517	RO	Ia Harmonic #5 Dist.	Unix Time	(d)
46460	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)	46518	RO	Ib Harmonic #5 Dist.	Unix Time	(d)
46461	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)	46519	RO	Ic Harmonic #5 Dist.	Unix Time	(d)
46462	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)	46520	RO	I4 Harmonic #5 Dist.	Unix Time	(d)
46463	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)	46521	RO	Va Harmonic #6 Dist.	Unix Time	(d)
46464	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)	46522	RO	Vb Harmonic #6 Dist.	Unix Time	(d)
46465	RO	Va Total Even Harm. Dist.	Unix Time	(d)	46523	RO	Vc Harmonic #6 Dist.	Unix Time	(d)
46466	RO	Vb Total Even Harm. Dist.	Unix Time	(d)	46524	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)
46467	RO	Vc Total Even Harm. Dist.	Unix Time	(d)	46525	RO	Ia Harmonic #6 Dist.	Unix Time	(d)
46468	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)	46526	RO	Ib Harmonic #6 Dist.	Unix Time	(d)
46469	RO	Ia Total Even Harm. Dist.	Unix Time	(d)	46527	RO	Ic Harmonic #6 Dist.	Unix Time	(d)
46470	RO	Ib Total Even Harm. Dist.	Unix Time	(d)	46528	RO	I4 Harmonic #6 Dist.	Unix Time	(d)
46471	RO	Ic Total Even Harm. Dist.	Unix Time	(d)	46529	RO	Va Harmonic #7 Dist.	Unix Time	(d)
46472	RO	I4 Total Even Harm. Dist.	Unix Time	(d)	46530	RO	Vb Harmonic #7 Dist.	Unix Time	(d)
46473	RO	Va Total Harmonic Dist.	Unix Time	(d)	46531	RO	Vc Harmonic #7 Dist.	Unix Time	(d)
46474	RO	Vb Total Harmonic Dist.	Unix Time	(d)	46532	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)
46475	RO	Vc Total Harmonic Dist.	Unix Time	(d)	46533	RO	Ia Harmonic #7 Dist.	Unix Time	(d)
46476	RO	V aux. Total Harmonic Dist.	Unix Time	(d)	46534	RO	Ib Harmonic #7 Dist.	Unix Time	(d)
46477	RO	Ia Total Harmonic Dist.	Unix Time	(d)	46535	RO	Ic Harmonic #7 Dist.	Unix Time	(d)
46478	RO	Ib Total Harmonic Dist.	Unix Time	(d)	46536	RO	I4 Harmonic #7 Dist.	Unix Time	(d)
46479	RO	Ic Total Harmonic Dist.	Unix Time	(d)	46537	RO	Va Harmonic #8 Dist.	Unix Time	(d)
46480	RO	I4 Total Harmonic Dist.	Unix Time	(d)	46538	RO	Vb Harmonic #8 Dist.	Unix Time	(d)
46481	RO	Va fundamental Dist.	Unix Time	(d)	46539	RO	Vc Harmonic #8 Dist.	Unix Time	(d)
46482	RO	Vb fundamental Dist.	Unix Time	(d)	46540	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)
46483	RO	Vc fundamental Dist.	Unix Time	(d)	46541	RO	Ia Harmonic #8 Dist.	Unix Time	(d)
46484	RO	V aux. fundamental Dist.	Unix Time	(d)	46542	RO	Ib Harmonic #8 Dist.	Unix Time	(d)
46485	RO	Ia fundamental Dist.	Unix Time	(d)	46543	RO	Ic Harmonic #8 Dist.	Unix Time	(d)
46486	RO	Ib fundamental Dist.	Unix Time	(d)	46544	RO	I4 Harmonic #8 Dist.	Unix Time	(d)
46487	RO	Ic fundamental Dist.	Unix Time	(d)	46545	RO	Va Harmonic #9 Dist.	Unix Time	(d)
46488	RO	I4 fundamental Dist.	Unix Time	(d)	46546	RO	Vb Harmonic #9 Dist.	Unix Time	(d)
46489	RO	Va Harmonic #2 Dist.	Unix Time	(d)	46547	RO	Vc Harmonic #9 Dist.	Unix Time	(d)
46490	RO	Vb Harmonic #2 Dist.	Unix Time	(d)	46548	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)
46491	RO	Vc Harmonic #2 Dist.	Unix Time	(d)	46549	RO	Ia Harmonic #9 Dist.	Unix Time	(d)
46492	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)	46550	RO	Ib Harmonic #9 Dist.	Unix Time	(d)
46493	RO	Ia Harmonic #2 Dist.	Unix Time	(d)	46551	RO	Ic Harmonic #9 Dist.	Unix Time	(d)
46494	RO	Ib Harmonic #2 Dist.	Unix Time	(d)	46552	RO	I4 Harmonic #9 Dist.	Unix Time	(d)
46495	RO	Ic Harmonic #2 Dist.	Unix Time	(d)	46553	RO	Va Harmonic #10 Dist.	Unix Time	(d)
46496	RO	I4 Harmonic #2 Dist.	Unix Time	(d)	46554	RO	Vb Harmonic #10 Dist.	Unix Time	(d)
46497	RO	Va Harmonic #3 Dist.	Unix Time	(d)	46555	RO	Vc Harmonic #10 Dist.	Unix Time	(d)
46498	RO	Vb Harmonic #3 Dist.	Unix Time	(d)	46556	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)
46499	RO	Vc Harmonic #3 Dist.	Unix Time	(d)	46557	RO	Ia Harmonic #10 Dist.	Unix Time	(d)
46500	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)	46558	RO	Ib Harmonic #10 Dist.	Unix Time	(d)
46501	RO	Ia Harmonic #3 Dist.	Unix Time	(d)	46559	RO	Ic Harmonic #10 Dist.	Unix Time	(d)
46502	RO	Ib Harmonic #3 Dist.	Unix Time	(d)	46560	RO	I4 Harmonic #10 Dist.	Unix Time	(d)
46503	RO	Ic Harmonic #3 Dist.	Unix Time	(d)	46561	RO	Va Harmonic #11 Dist.	Unix Time	(d)
46504	RO	I4 Harmonic #3 Dist.	Unix Time	(d)	46562	RO	Vb Harmonic #11 Dist.	Unix Time	(d)
46505	RO	Va Harmonic #4 Dist.	Unix Time	(d)	46563	RO	Vc Harmonic #11 Dist.	Unix Time	(d)
46506	RO	Vb Harmonic #4 Dist.	Unix Time	(d)	46564	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)
					46565	RO	Ia Harmonic #11 Dist.	Unix Time	(d)
					46566	RO	Ib Harmonic #11 Dist.	Unix Time	(d)
					46567	RO	Ic Harmonic #11 Dist.	Unix Time	(d)
					46568	RO	I4 Harmonic #11 Dist.	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
46569	RO	Va Harmonic #12 Dist.	Unix Time	(d)	46672	RO	I4 Total Even Harm. Dist.	0.1 %	
46570	RO	Vb Harmonic #12 Dist.	Unix Time	(d)	46673	RO	Va Total Harmonic Dist.	0.1 %	
46571	RO	Vc Harmonic #12 Dist.	Unix Time	(d)	46674	RO	Vb Total Harmonic Dist.	0.1 %	
46572	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)	46675	RO	Vc Total Harmonic Dist.	0.1 %	
46573	RO	Ia Harmonic #12 Dist.	Unix Time	(d)	46676	RO	V aux. Total Harmonic Dist.	0.1 %	
46574	RO	Ib Harmonic #12 Dist.	Unix Time	(d)	46677	RO	Ia Total Harmonic Dist.	0.1 %	
46575	RO	Ic Harmonic #12 Dist.	Unix Time	(d)	46678	RO	Ib Total Harmonic Dist.	0.1 %	
46576	RO	I4 Harmonic #12 Dist.	Unix Time	(d)	46679	RO	Ic Total Harmonic Dist.	0.1 %	
46577	RO	Va Harmonic #13 Dist.	Unix Time	(d)	46680	RO	I4 Total Harmonic Dist.	0.1 %	
46578	RO	Vb Harmonic #13 Dist.	Unix Time	(d)	46681	RO	Va fundamental Dist.	0.1 %	
46579	RO	Vc Harmonic #13 Dist.	Unix Time	(d)	46682	RO	Vb fundamental Dist.	0.1 %	
46580	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)	46683	RO	Vc fundamental Dist.	0.1 %	
46581	RO	Ia Harmonic #13 Dist.	Unix Time	(d)	46684	RO	V aux. fundamental Dist.	0.1 %	
46582	RO	Ib Harmonic #13 Dist.	Unix Time	(d)	46685	RO	Ia fundamental Dist.	0.1 %	
46583	RO	Ic Harmonic #13 Dist.	Unix Time	(d)	46686	RO	Ib fundamental Dist.	0.1 %	
46584	RO	I4 Harmonic #13 Dist.	Unix Time	(d)	46687	RO	Ic fundamental Dist.	0.1 %	
46585	RO	Va Harmonic #14 Dist.	Unix Time	(d)	46688	RO	I4 fundamental Dist.	0.1 %	
46586	RO	Vb Harmonic #14 Dist.	Unix Time	(d)	46689	RO	Va Harmonic #2 Dist.	0.1 %	
46587	RO	Vc Harmonic #14 Dist.	Unix Time	(d)	46690	RO	Vb Harmonic #2 Dist.	0.1 %	
46588	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)	46691	RO	Vc Harmonic #2 Dist.	0.1 %	
46589	RO	Ia Harmonic #14 Dist.	Unix Time	(d)	46692	RO	V aux. Harmonic #2 Dist.	0.1 %	
46590	RO	Ib Harmonic #14 Dist.	Unix Time	(d)	46693	RO	Ia Harmonic #2 Dist.	0.1 %	
46591	RO	Ic Harmonic #14 Dist.	Unix Time	(d)	46694	RO	Ib Harmonic #2 Dist.	0.1 %	
46592	RO	I4 Harmonic #14 Dist.	Unix Time	(d)	46695	RO	Ic Harmonic #2 Dist.	0.1 %	
46593	RO	Va Harmonic #15 Dist.	Unix Time	(d)	46696	RO	I4 Harmonic #2 Dist.	0.1 %	
46594	RO	Vb Harmonic #15 Dist.	Unix Time	(d)	46697	RO	Va Harmonic #3 Dist.	0.1 %	
46595	RO	Vc Harmonic #15 Dist.	Unix Time	(d)	46698	RO	Vb Harmonic #3 Dist.	0.1 %	
46596	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)	46699	RO	Vc Harmonic #3 Dist.	0.1 %	
46597	RO	Ia Harmonic #15 Dist.	Unix Time	(d)	46700	RO	V aux. Harmonic #3 Dist.	0.1 %	
46598	RO	Ib Harmonic #15 Dist.	Unix Time	(d)	46701	RO	Ia Harmonic #3 Dist.	0.1 %	
46599	RO	Ic Harmonic #15 Dist.	Unix Time	(d)	46702	RO	Ib Harmonic #3 Dist.	0.1 %	
46600	RO	I4 Harmonic #15 Dist.	Unix Time	(d)	46703	RO	Ic Harmonic #3 Dist.	0.1 %	
					46704	RO	I4 Harmonic #3 Dist.	0.1 %	
					46705	RO	Va Harmonic #4 Dist.	0.1 %	
					46706	RO	Vb Harmonic #4 Dist.	0.1 %	
					46707	RO	Vc Harmonic #4 Dist.	0.1 %	
					46708	RO	V aux. Harmonic #4 Dist.	0.1 %	
					46709	RO	Ia Harmonic #4 Dist.	0.1 %	
					46710	RO	Ib Harmonic #4 Dist.	0.1 %	
					46711	RO	Ic Harmonic #4 Dist.	0.1 %	
					46712	RO	I4 Harmonic #4 Dist.	0.1 %	
					46713	RO	Va Harmonic #5 Dist.	0.1 %	
					46714	RO	Vb Harmonic #5 Dist.	0.1 %	
					46715	RO	Vc Harmonic #5 Dist.	0.1 %	
					46716	RO	V aux. Harmonic #5 Dist.	0.1 %	
					46717	RO	Ia Harmonic #5 Dist.	0.1 %	
					46718	RO	Ib Harmonic #5 Dist.	0.1 %	
					46719	RO	Ic Harmonic #5 Dist.	0.1 %	
					46720	RO	I4 Harmonic #5 Dist.	0.1 %	
					46721	RO	Va Harmonic #6 Dist.	0.1 %	
					46722	RO	Vb Harmonic #6 Dist.	0.1 %	
					46723	RO	Vc Harmonic #6 Dist.	0.1 %	
					46724	RO	V aux. Harmonic #6 Dist.	0.1 %	
					46725	RO	Ia Harmonic #6 Dist.	0.1 %	
					46726	RO	Ib Harmonic #6 Dist.	0.1 %	
					46727	RO	Ic Harmonic #6 Dist.	0.1 %	
					46728	RO	I4 Harmonic #6 Dist.	0.1 %	
					46729	RO	Va Harmonic #7 Dist.	0.1 %	
					46730	RO	Vb Harmonic #7 Dist.	0.1 %	
					46731	RO	Vc Harmonic #7 Dist.	0.1 %	
					46732	RO	V aux. Harmonic #7 Dist.	0.1 %	
					46733	RO	Ia Harmonic #7 Dist.	0.1 %	

MAXIMUM THERMAL DEMAND HARMONIC MEASUREMENTS

46649	RO	Va K-Factor	0.1	
46650	RO	Vb K-Factor	0.1	
46651	RO	Vc K-Factor	0.1	
46652	RO	V aux. K-Factor	0.1	
46653	RO	Ia K-Factor	0.1	
46654	RO	Ib K-Factor	0.1	
46655	RO	Ic K-Factor	0.1	
46656	RO	I4 (Neutral) K-Factor	0.1	
46657	RO	Va Total Odd Harm. Dist.	0.1 %	
46658	RO	Vb Total Odd Harm. Dist.	0.1 %	
46659	RO	Vc Total Odd Harm. Dist.	0.1 %	
46660	RO	V aux. Total Odd Harm. Dist.	0.1 %	
46661	RO	Ia Total Odd Harm. Dist.	0.1 %	
46662	RO	Ib Total Odd Harm. Dist.	0.1 %	
46663	RO	Ic Total Odd Harm. Dist.	0.1 %	
46664	RO	I4 Total Odd Harm. Dist.	0.1 %	
46665	RO	Va Total Even Harm. Dist.	0.1 %	
46666	RO	Vb Total Even Harm. Dist.	0.1 %	
46667	RO	Vc Total Even Harm. Dist.	0.1 %	
46668	RO	V aux. Total Even Harm. Dist.	0.1 %	
46669	RO	Ia Total Even Harm. Dist.	0.1 %	
46670	RO	Ib Total Even Harm. Dist.	0.1 %	
46671	RO	Ic Total Even Harm. Dist.	0.1 %	

46734	RO	Ib Harmonic #7 Dist.	0.1 %
46735	RO	Ic Harmonic #7 Dist.	0.1 %
46736	RO	I4 Harmonic #7 Dist.	0.1 %
46737	RO	Va Harmonic #8 Dist.	0.1 %
46738	RO	Vb Harmonic #8 Dist.	0.1 %
46739	RO	Vc Harmonic #8 Dist.	0.1 %
46740	RO	V aux. Harmonic #8 Dist.	0.1 %
46741	RO	Ia Harmonic #8 Dist.	0.1 %
46742	RO	Ib Harmonic #8 Dist.	0.1 %
46743	RO	Ic Harmonic #8 Dist.	0.1 %
46744	RO	I4 Harmonic #8 Dist.	0.1 %
46745	RO	Va Harmonic #9 Dist.	0.1 %
46746	RO	Vb Harmonic #9 Dist.	0.1 %
46747	RO	Vc Harmonic #9 Dist.	0.1 %
46748	RO	V aux. Harmonic #9 Dist.	0.1 %
46749	RO	Ia Harmonic #9 Dist.	0.1 %
46750	RO	Ib Harmonic #9 Dist.	0.1 %
46751	RO	Ic Harmonic #9 Dist.	0.1 %
46752	RO	I4 Harmonic #9 Dist.	0.1 %
46753	RO	Va Harmonic #10 Dist.	0.1 %
46754	RO	Vb Harmonic #10 Dist.	0.1 %
46755	RO	Vc Harmonic #10 Dist.	0.1 %
46756	RO	V aux. Harmonic #10 Dist.	0.1 %
46757	RO	Ia Harmonic #10 Dist.	0.1 %
46758	RO	Ib Harmonic #10 Dist.	0.1 %
46759	RO	Ic Harmonic #10 Dist.	0.1 %
46760	RO	I4 Harmonic #10 Dist.	0.1 %
46761	RO	Va Harmonic #11 Dist.	0.1 %
46762	RO	Vb Harmonic #11 Dist.	0.1 %
46763	RO	Vc Harmonic #11 Dist.	0.1 %
46764	RO	V aux. Harmonic #11 Dist.	0.1 %
46765	RO	Ia Harmonic #11 Dist.	0.1 %
46766	RO	Ib Harmonic #11 Dist.	0.1 %
46767	RO	Ic Harmonic #11 Dist.	0.1 %
46768	RO	I4 Harmonic #11 Dist.	0.1 %
46769	RO	Va Harmonic #12 Dist.	0.1 %
46770	RO	Vb Harmonic #12 Dist.	0.1 %
46771	RO	Vc Harmonic #12 Dist.	0.1 %
46772	RO	V aux. Harmonic #12 Dist.	0.1 %
46773	RO	Ia Harmonic #12 Dist.	0.1 %
46774	RO	Ib Harmonic #12 Dist.	0.1 %
46775	RO	Ic Harmonic #12 Dist.	0.1 %
46776	RO	I4 Harmonic #12 Dist.	0.1 %
46777	RO	Va Harmonic #13 Dist.	0.1 %
46778	RO	Vb Harmonic #13 Dist.	0.1 %
46779	RO	Vc Harmonic #13 Dist.	0.1 %
46780	RO	V aux. Harmonic #13 Dist.	0.1 %
46781	RO	Ia Harmonic #13 Dist.	0.1 %
46782	RO	Ib Harmonic #13 Dist.	0.1 %
46783	RO	Ic Harmonic #13 Dist.	0.1 %
46784	RO	I4 Harmonic #13 Dist.	0.1 %
46785	RO	Va Harmonic #14 Dist.	0.1 %
46786	RO	Vb Harmonic #14 Dist.	0.1 %
46787	RO	Vc Harmonic #14 Dist.	0.1 %
46788	RO	V aux. Harmonic #14 Dist.	0.1 %
46789	RO	Ia Harmonic #14 Dist.	0.1 %
46790	RO	Ib Harmonic #14 Dist.	0.1 %
46791	RO	Ic Harmonic #14 Dist.	0.1 %
46792	RO	I4 Harmonic #14 Dist.	0.1 %
46793	RO	Va Harmonic #15 Dist.	0.1 %
46794	RO	Vb Harmonic #15 Dist.	0.1 %
46795	RO	Vc Harmonic #15 Dist.	0.1 %

46796	RO	V aux. Harmonic #15 Dist.	0.1 %
46797	RO	Ia Harmonic #15 Dist.	0.1 %
46798	RO	Ib Harmonic #15 Dist.	0.1 %
46799	RO	Ic Harmonic #15 Dist.	0.1 %
46800	RO	I4 Harmonic #15 Dist.	0.1 %

MAXIMUM THERMAL DEMAND HARMONIC TIMESTAMPS

46849	RO	Va K-Factor	Unix Time	(d)
46850	RO	Vb K-Factor	Unix Time	(d)
46851	RO	Vc K-Factor	Unix Time	(d)
46852	RO	V aux. K-Factor	Unix Time	(d)
46853	RO	Ia K-Factor	Unix Time	(d)
46854	RO	Ib K-Factor	Unix Time	(d)
46855	RO	Ic K-Factor	Unix Time	(d)
46856	RO	I4 (Neutral) K-Factor	Unix Time	(d)
46857	RO	Va Total Odd Harm. Dist.	Unix Time	(d)
46858	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)
46865	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)
46860	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)
46861	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)
46866	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)
46867	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)
46864	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)
46865	RO	Va Total Even Harm. Dist.	Unix Time	(d)
46866	RO	Vb Total Even Harm. Dist.	Unix Time	(d)
46867	RO	Vc Total Even Harm. Dist.	Unix Time	(d)
46868	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)
46869	RO	Ia Total Even Harm. Dist.	Unix Time	(d)
46870	RO	Ib Total Even Harm. Dist.	Unix Time	(d)
46871	RO	Ic Total Even Harm. Dist.	Unix Time	(d)
46872	RO	I4 Total Even Harm. Dist.	Unix Time	(d)
46873	RO	Va Total Harmonic Dist.	Unix Time	(d)
46874	RO	Vb Total Harmonic Dist.	Unix Time	(d)
46875	RO	Vc Total Harmonic Dist.	Unix Time	(d)
46876	RO	V aux. Total Harmonic Dist.	Unix Time	(d)
46877	RO	Ia Total Harmonic Dist.	Unix Time	(d)
46878	RO	Ib Total Harmonic Dist.	Unix Time	(d)
46879	RO	Ic Total Harmonic Dist.	Unix Time	(d)
46880	RO	I4 Total Harmonic Dist.	Unix Time	(d)
46881	RO	Va fundamental Dist.	Unix Time	(d)
46882	RO	Vb fundamental Dist.	Unix Time	(d)
46883	RO	Vc fundamental Dist.	Unix Time	(d)
46884	RO	V aux. fundamental Dist.	Unix Time	(d)
46885	RO	Ia fundamental Dist.	Unix Time	(d)
46886	RO	Ib fundamental Dist.	Unix Time	(d)
46887	RO	Ic fundamental Dist.	Unix Time	(d)
46888	RO	I4 fundamental Dist.	Unix Time	(d)
46889	RO	Va Harmonic #2 Dist.	Unix Time	(d)
46890	RO	Vb Harmonic #2 Dist.	Unix Time	(d)
46891	RO	Vc Harmonic #2 Dist.	Unix Time	(d)
46892	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)
46893	RO	Ia Harmonic #2 Dist.	Unix Time	(d)
46894	RO	Ib Harmonic #2 Dist.	Unix Time	(d)
46895	RO	Ic Harmonic #2 Dist.	Unix Time	(d)
46896	RO	I4 Harmonic #2 Dist.	Unix Time	(d)
46897	RO	Va Harmonic #3 Dist.	Unix Time	(d)
46898	RO	Vb Harmonic #3 Dist.	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
46899	RO	Vc Harmonic #3 Dist.	Unix Time	(d)	46961	RO	Va Harmonic #11 Dist.	Unix Time	(d)
46900	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)	46962	RO	Vb Harmonic #11 Dist.	Unix Time	(d)
46901	RO	la Harmonic #3 Dist.	Unix Time	(d)	46963	RO	Vc Harmonic #11 Dist.	Unix Time	(d)
46902	RO	lb Harmonic #3 Dist.	Unix Time	(d)	46964	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)
46903	RO	lc Harmonic #3 Dist.	Unix Time	(d)	46965	RO	la Harmonic #11 Dist.	Unix Time	(d)
46904	RO	l4 Harmonic #3 Dist.	Unix Time	(d)	46966	RO	lb Harmonic #11 Dist.	Unix Time	(d)
46905	RO	Va Harmonic #4 Dist.	Unix Time	(d)	46967	RO	lc Harmonic #11 Dist.	Unix Time	(d)
46906	RO	Vb Harmonic #4 Dist.	Unix Time	(d)	46968	RO	l4 Harmonic #11 Dist.	Unix Time	(d)
46907	RO	Vc Harmonic #4 Dist.	Unix Time	(d)	46969	RO	Va Harmonic #12 Dist.	Unix Time	(d)
46908	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)	46970	RO	Vb Harmonic #12 Dist.	Unix Time	(d)
46909	RO	la Harmonic #4 Dist.	Unix Time	(d)	46971	RO	Vc Harmonic #12 Dist.	Unix Time	(d)
46910	RO	lb Harmonic #4 Dist.	Unix Time	(d)	46972	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)
46911	RO	lc Harmonic #4 Dist.	Unix Time	(d)	46973	RO	la Harmonic #12 Dist.	Unix Time	(d)
46912	RO	l4 Harmonic #4 Dist.	Unix Time	(d)	46974	RO	lb Harmonic #12 Dist.	Unix Time	(d)
46913	RO	Va Harmonic #5 Dist.	Unix Time	(d)	46975	RO	lc Harmonic #12 Dist.	Unix Time	(d)
46914	RO	Vb Harmonic #5 Dist.	Unix Time	(d)	46976	RO	l4 Harmonic #12 Dist.	Unix Time	(d)
46915	RO	Vc Harmonic #5 Dist.	Unix Time	(d)	46977	RO	Va Harmonic #13 Dist.	Unix Time	(d)
46916	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)	46978	RO	Vb Harmonic #13 Dist.	Unix Time	(d)
46917	RO	la Harmonic #5 Dist.	Unix Time	(d)	46979	RO	Vc Harmonic #13 Dist.	Unix Time	(d)
46918	RO	lb Harmonic #5 Dist.	Unix Time	(d)	46980	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)
46919	RO	lc Harmonic #5 Dist.	Unix Time	(d)	46981	RO	la Harmonic #13 Dist.	Unix Time	(d)
46920	RO	l4 Harmonic #5 Dist.	Unix Time	(d)	46982	RO	lb Harmonic #13 Dist.	Unix Time	(d)
46921	RO	Va Harmonic #6 Dist.	Unix Time	(d)	46983	RO	lc Harmonic #13 Dist.	Unix Time	(d)
46922	RO	Vb Harmonic #6 Dist.	Unix Time	(d)	46984	RO	l4 Harmonic #13 Dist.	Unix Time	(d)
46923	RO	Vc Harmonic #6 Dist.	Unix Time	(d)	46985	RO	Va Harmonic #14 Dist.	Unix Time	(d)
46924	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)	46986	RO	Vb Harmonic #14 Dist.	Unix Time	(d)
46925	RO	la Harmonic #6 Dist.	Unix Time	(d)	46987	RO	Vc Harmonic #14 Dist.	Unix Time	(d)
46926	RO	lb Harmonic #6 Dist.	Unix Time	(d)	46988	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)
46927	RO	lc Harmonic #6 Dist.	Unix Time	(d)	46989	RO	la Harmonic #14 Dist.	Unix Time	(d)
46928	RO	l4 Harmonic #6 Dist.	Unix Time	(d)	46990	RO	lb Harmonic #14 Dist.	Unix Time	(d)
46929	RO	Va Harmonic #7 Dist.	Unix Time	(d)	46991	RO	lc Harmonic #14 Dist.	Unix Time	(d)
46930	RO	Vb Harmonic #7 Dist.	Unix Time	(d)	46992	RO	l4 Harmonic #14 Dist.	Unix Time	(d)
46931	RO	Vc Harmonic #7 Dist.	Unix Time	(d)	46993	RO	Va Harmonic #15 Dist.	Unix Time	(d)
46932	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)	46994	RO	Vb Harmonic #15 Dist.	Unix Time	(d)
46933	RO	la Harmonic #7 Dist.	Unix Time	(d)	46995	RO	Vc Harmonic #15 Dist.	Unix Time	(d)
46934	RO	lb Harmonic #7 Dist.	Unix Time	(d)	46996	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)
46935	RO	lc Harmonic #7 Dist.	Unix Time	(d)	46997	RO	la Harmonic #15 Dist.	Unix Time	(d)
46936	RO	l4 Harmonic #7 Dist.	Unix Time	(d)	46998	RO	lb Harmonic #15 Dist.	Unix Time	(d)
46937	RO	Va Harmonic #8 Dist.	Unix Time	(d)	46999	RO	lc Harmonic #15 Dist.	Unix Time	(d)
46938	RO	Vb Harmonic #8 Dist.	Unix Time	(d)	47000	RO	l4 Harmonic #15 Dist.	Unix Time	(d)
46939	RO	Vc Harmonic #8 Dist.	Unix Time	(d)					
46940	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)					
46941	RO	la Harmonic #8 Dist.	Unix Time	(d)					
46942	RO	lb Harmonic #8 Dist.	Unix Time	(d)					
46943	RO	lc Harmonic #8 Dist.	Unix Time	(d)					
46944	RO	l4 Harmonic #8 Dist.	Unix Time	(d)					
46945	RO	Va Harmonic #9 Dist.	Unix Time	(d)					
46946	RO	Vb Harmonic #9 Dist.	Unix Time	(d)					
46947	RO	Vc Harmonic #9 Dist.	Unix Time	(d)					
46948	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)					
46949	RO	la Harmonic #9 Dist.	Unix Time	(d)					
46950	RO	lb Harmonic #9 Dist.	Unix Time	(d)					
46951	RO	lc Harmonic #9 Dist.	Unix Time	(d)					
46952	RO	l4 Harmonic #9 Dist.	Unix Time	(d)					
46953	RO	Va Harmonic #10 Dist.	Unix Time	(d)					
46954	RO	Vb Harmonic #10 Dist.	Unix Time	(d)					
46955	RO	Vc Harmonic #10 Dist.	Unix Time	(d)					
46956	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)					
46957	RO	la Harmonic #10 Dist.	Unix Time	(d)					
46958	RO	lb Harmonic #10 Dist.	Unix Time	(d)					
46959	RO	lc Harmonic #10 Dist.	Unix Time	(d)					
46960	RO	l4 Harmonic #10 Dist.	Unix Time	(d)					

SLIDING DEMAND HARMONIC MEASUREMENTS				
Address	Type	Description	Units	Notes
47049	RO	Va K-Factor	0.1	
47050	RO	Vb K-Factor	0.1	
47051	RO	Vc K-Factor	0.1	
47052	RO	V aux. K-Factor	0.1	
47053	RO	la K-Factor	0.1	
47054	RO	lb K-Factor	0.1	
47055	RO	lc K-Factor	0.1	
47056	RO	l4 (Neutral) K-Factor	0.1	
47057	RO	Va Total Odd Harm. Dist.	0.1 %	
47058	RO	Vb Total Odd Harm. Dist.	0.1 %	
47059	RO	Vc Total Odd Harm. Dist.	0.1 %	
47060	RO	V aux. Total Odd Harm. Dist.	0.1 %	
47061	RO	la Total Odd Harm. Dist.	0.1 %	
47062	RO	lb Total Odd Harm. Dist.	0.1 %	
47063	RO	lc Total Odd Harm. Dist.	0.1 %	

47064	RO	I4 Total Odd Harm. Dist.	0.1 %	47126	RO	Ib Harmonic #6 Dist.	0.1 %
47065	RO	Va Total Even Harm. Dist	0.1 %	47127	RO	Ic Harmonic #6 Dist.	0.1 %
47066	RO	Vb Total Even Harm. Dist.	0.1 %	47128	RO	I4 Harmonic #6 Dist.	0.1 %
47067	RO	Vc Total Even Harm. Dist.	0.1 %	47129	RO	Va Harmonic #7 Dist.	0.1 %
47068	RO	V aux. Total Even Harm. Dist.	0.1 %	47130	RO	Vb Harmonic #7 Dist.	0.1 %
47069	RO	Ia Total Even Harm. Dist.	0.1 %	47131	RO	Vc Harmonic #7 Dist.	0.1 %
47070	RO	Ib Total Even Harm. Dist.	0.1 %	47132	RO	V aux. Harmonic #7 Dist.	0.1 %
47071	RO	Ic Total Even Harm. Dist.	0.1 %	47133	RO	Ia Harmonic #7 Dist.	0.1 %
47072	RO	I4 Total Even Harm. Dist.	0.1 %	47134	RO	Ib Harmonic #7 Dist.	0.1 %
47073	RO	Va Total Harmonic Dist.	0.1 %	47135	RO	Ic Harmonic #7 Dist.	0.1 %
47074	RO	Vb Total Harmonic Dist.	0.1 %	47136	RO	I4 Harmonic #7 Dist.	0.1 %
47075	RO	Vc Total Harmonic Dist.	0.1 %	47137	RO	Va Harmonic #8 Dist.	0.1 %
47076	RO	V aux. Total Harmonic Dist.	0.1 %	47138	RO	Vb Harmonic #8 Dist.	0.1 %
47077	RO	Ia Total Harmonic Dist.	0.1 %	47139	RO	Vc Harmonic #8 Dist.	0.1 %
47078	RO	Ib Total Harmonic Dist.	0.1 %	47140	RO	V aux. Harmonic #8 Dist.	0.1 %
47079	RO	Ic Total Harmonic Dist.	0.1 %	47141	RO	Ia Harmonic #8 Dist.	0.1 %
47080	RO	I4 Total Harmonic Dist.	0.1 %	47142	RO	Ib Harmonic #8 Dist.	0.1 %
47081	RO	Va fundamental Dist.	0.1 %	47143	RO	Ic Harmonic #8 Dist.	0.1 %
47082	RO	Vb fundamental Dist.	0.1 %	47144	RO	I4 Harmonic #8 Dist.	0.1 %
47083	RO	Vc fundamental Dist.	0.1 %	47145	RO	Va Harmonic #9 Dist.	0.1 %
47084	RO	V aux. fundamental Dist.	0.1 %	47146	RO	Vb Harmonic #9 Dist.	0.1 %
47085	RO	Ia fundamental Dist.	0.1 %	47147	RO	Vc Harmonic #9 Dist.	0.1 %
47086	RO	Ib fundamental Dist.	0.1 %	47148	RO	V aux. Harmonic #9 Dist.	0.1 %
47087	RO	Ic fundamental Dist.	0.1 %	47149	RO	Ia Harmonic #9 Dist.	0.1 %
47088	RO	I4 fundamental Dist.	0.1 %	47150	RO	Ib Harmonic #9 Dist.	0.1 %
47089	RO	Va Harmonic #2 Dist.	0.1 %	47151	RO	Ic Harmonic #9 Dist.	0.1 %
47090	RO	Vb Harmonic #2 Dist.	0.1 %	47152	RO	I4 Harmonic #9 Dist.	0.1 %
47091	RO	Vc Harmonic #2 Dist.	0.1 %	47153	RO	Va Harmonic #10 Dist.	0.1 %
47092	RO	V aux. Harmonic #2 Dist.	0.1 %	47154	RO	Vb Harmonic #10 Dist.	0.1 %
47093	RO	Ia Harmonic #2 Dist.	0.1 %	47155	RO	Vc Harmonic #10 Dist.	0.1 %
47094	RO	Ib Harmonic #2 Dist.	0.1 %	47156	RO	V aux. Harmonic #10 Dist.	0.1 %
47095	RO	Ic Harmonic #2 Dist.	0.1 %	47157	RO	Ia Harmonic #10 Dist.	0.1 %
47096	RO	I4 Harmonic #2 Dist.	0.1 %	47158	RO	Ib Harmonic #10 Dist.	0.1 %
47097	RO	Va Harmonic #3 Dist.	0.1 %	47159	RO	Ic Harmonic #10 Dist.	0.1 %
47098	RO	Vb Harmonic #3 Dist.	0.1 %	47160	RO	I4 Harmonic #10 Dist.	0.1 %
47099	RO	Vc Harmonic #3 Dist.	0.1 %	47161	RO	Va Harmonic #11 Dist.	0.1 %
47100	RO	V aux. Harmonic #3 Dist.	0.1 %	47162	RO	Vb Harmonic #11 Dist.	0.1 %
47101	RO	Ia Harmonic #3 Dist.	0.1 %	47163	RO	Vc Harmonic #11 Dist.	0.1 %
47102	RO	Ib Harmonic #3 Dist.	0.1 %	47164	RO	V aux. Harmonic #11 Dist.	0.1 %
47103	RO	Ic Harmonic #3 Dist.	0.1 %	47165	RO	Ia Harmonic #11 Dist.	0.1 %
47104	RO	I4 Harmonic #3 Dist.	0.1 %	47166	RO	Ib Harmonic #11 Dist.	0.1 %
47105	RO	Va Harmonic #4 Dist.	0.1 %	47167	RO	Ic Harmonic #11 Dist.	0.1 %
47106	RO	Vb Harmonic #4 Dist.	0.1 %	47168	RO	I4 Harmonic #11 Dist.	0.1 %
47107	RO	Vc Harmonic #4 Dist.	0.1 %	47169	RO	Va Harmonic #12 Dist.	0.1 %
47108	RO	V aux. Harmonic #4 Dist.	0.1 %	47170	RO	Vb Harmonic #12 Dist.	0.1 %
47109	RO	Ia Harmonic #4 Dist.	0.1 %	47171	RO	Vc Harmonic #12 Dist.	0.1 %
47110	RO	Ib Harmonic #4 Dist.	0.1 %	47172	RO	V aux. Harmonic #12 Dist.	0.1 %
47111	RO	Ic Harmonic #4 Dist.	0.1 %	47173	RO	Ia Harmonic #12 Dist.	0.1 %
47112	RO	I4 Harmonic #4 Dist.	0.1 %	47174	RO	Ib Harmonic #12 Dist.	0.1 %
47113	RO	Va Harmonic #5 Dist.	0.1 %	47175	RO	Ic Harmonic #12 Dist.	0.1 %
47114	RO	Vb Harmonic #5 Dist.	0.1 %	47176	RO	I4 Harmonic #12 Dist.	0.1 %
47115	RO	Vc Harmonic #5 Dist.	0.1 %	47177	RO	Va Harmonic #13 Dist.	0.1 %
47116	RO	V aux. Harmonic #5 Dist.	0.1 %	47178	RO	Vb Harmonic #13 Dist.	0.1 %
47117	RO	Ia Harmonic #5 Dist.	0.1 %	47179	RO	Vc Harmonic #13 Dist.	0.1 %
47118	RO	Ib Harmonic #5 Dist.	0.1 %	47180	RO	V aux. Harmonic #13 Dist.	0.1 %
47119	RO	Ic Harmonic #5 Dist.	0.1 %	47181	RO	Ia Harmonic #13 Dist.	0.1 %
47120	RO	I4 Harmonic #5 Dist.	0.1 %	47182	RO	Ib Harmonic #13 Dist.	0.1 %
47121	RO	Va Harmonic #6 Dist.	0.1 %	47183	RO	Ic Harmonic #13 Dist.	0.1 %
47122	RO	Vb Harmonic #6 Dist.	0.1 %	47184	RO	I4 Harmonic #13 Dist.	0.1 %
47123	RO	Vc Harmonic #6 Dist.	0.1 %	47185	RO	Va Harmonic #14 Dist.	0.1 %
47124	RO	V aux. Harmonic #6 Dist.	0.1 %	47186	RO	Vb Harmonic #14 Dist.	0.1 %
47125	RO	Ia Harmonic #6 Dist.	0.1 %	47187	RO	Vc Harmonic #14 Dist.	0.1 %

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
47188	RO	V aux. Harmonic #14 Dist.	0.1 %		47291	RO	Vc Harmonic #2 Dist.	0.1 %	
47189	RO	Ia Harmonic #14 Dist.	0.1 %		47292	RO	V aux. Harmonic #2 Dist.	0.1 %	
47190	RO	Ib Harmonic #14 Dist.	0.1 %		47293	RO	Ia Harmonic #2 Dist.	0.1 %	
47191	RO	Ic Harmonic #14 Dist.	0.1 %		47294	RO	Ib Harmonic #2 Dist.	0.1 %	
47192	RO	I4 Harmonic #14 Dist.	0.1 %		47295	RO	Ic Harmonic #2 Dist.	0.1 %	
47193	RO	Va Harmonic #15 Dist.	0.1 %		47296	RO	I4 Harmonic #2 Dist.	0.1 %	
47194	RO	Vb Harmonic #15 Dist.	0.1 %		47297	RO	Va Harmonic #3 Dist.	0.1 %	
47195	RO	Vc Harmonic #15 Dist.	0.1 %		47298	RO	Vb Harmonic #3 Dist.	0.1 %	
47196	RO	V aux. Harmonic #15 Dist.	0.1 %		47299	RO	Vc Harmonic #3 Dist.	0.1 %	
47197	RO	Ia Harmonic #15 Dist.	0.1 %		47300	RO	V aux. Harmonic #3 Dist.	0.1 %	
47198	RO	Ib Harmonic #15 Dist.	0.1 %		47301	RO	Ia Harmonic #3 Dist.	0.1 %	
47199	RO	Ic Harmonic #15 Dist.	0.1 %		47302	RO	Ib Harmonic #3 Dist.	0.1 %	
47200	RO	I4 Harmonic #15 Dist.	0.1 %		47303	RO	Ic Harmonic #3 Dist.	0.1 %	

MINIMUM SLIDING DEMAND HARMONIC MEASUREMENTS

47249	RO	Va K-Factor	0.1		47310	RO	Ib Harmonic #4 Dist.	0.1 %	
47250	RO	Vb K-Factor	0.1		47311	RO	Ic Harmonic #4 Dist.	0.1 %	
47251	RO	Vc K-Factor	0.1		47312	RO	I4 Harmonic #4 Dist.	0.1 %	
47252	RO	V aux. K-Factor	0.1		47313	RO	Va Harmonic #5 Dist.	0.1 %	
47253	RO	Ia K-Factor	0.1		47314	RO	Vb Harmonic #5 Dist.	0.1 %	
47254	RO	Ib K-Factor	0.1		47315	RO	Vc Harmonic #5 Dist.	0.1 %	
47255	RO	Ic K-Factor	0.1		47316	RO	V aux. Harmonic #5 Dist.	0.1 %	
47256	RO	I4 (Neutral) K-Factor	0.1		47317	RO	Ia Harmonic #5 Dist.	0.1 %	
47257	RO	Va Total Odd Harm. Dist.	0.1 %		47318	RO	Ib Harmonic #5 Dist.	0.1 %	
47258	RO	Vb Total Odd Harm. Dist.	0.1 %		47319	RO	Ic Harmonic #5 Dist.	0.1 %	
47259	RO	Vc Total Odd Harm. Dist.	0.1 %		47320	RO	I4 Harmonic #5 Dist.	0.1 %	
47260	RO	V aux. Total Odd Harm. Dist.	0.1 %		47321	RO	Va Harmonic #6 Dist.	0.1 %	
47261	RO	Ia Total Odd Harm. Dist.	0.1 %		47322	RO	Vb Harmonic #6 Dist.	0.1 %	
47262	RO	Ib Total Odd Harm. Dist.	0.1 %		47323	RO	Vc Harmonic #6 Dist.	0.1 %	
47263	RO	Ic Total Odd Harm. Dist.	0.1 %		47324	RO	V aux. Harmonic #6 Dist.	0.1 %	
47264	RO	I4 Total Odd Harm. Dist.	0.1 %		47325	RO	Ia Harmonic #6 Dist.	0.1 %	
47265	RO	Va Total Even Harm. Dist.	0.1 %		47326	RO	Ib Harmonic #6 Dist.	0.1 %	
47266	RO	Vb Total Even Harm. Dist.	0.1 %		47327	RO	Ic Harmonic #6 Dist.	0.1 %	
47267	RO	Vc Total Even Harm. Dist.	0.1 %		47328	RO	I4 Harmonic #6 Dist.	0.1 %	
47268	RO	V aux. Total Even Harm. Dist.	0.1 %		47329	RO	Va Harmonic #7 Dist.	0.1 %	
47269	RO	Ia Total Even Harm. Dist.	0.1 %		47330	RO	Vb Harmonic #7 Dist.	0.1 %	
47270	RO	Ib Total Even Harm. Dist.	0.1 %		47331	RO	Vc Harmonic #7 Dist.	0.1 %	
47271	RO	Ic Total Even Harm. Dist.	0.1 %		47332	RO	V aux. Harmonic #7 Dist.	0.1 %	
47272	RO	I4 Total Even Harm. Dist.	0.1 %		47333	RO	Ia Harmonic #7 Dist.	0.1 %	
47273	RO	Va Total Harmonic Dist.	0.1 %		47334	RO	Ib Harmonic #7 Dist.	0.1 %	
47274	RO	Vb Total Harmonic Dist.	0.1 %		47335	RO	Ic Harmonic #7 Dist.	0.1 %	
47275	RO	Vc Total Harmonic Dist.	0.1 %		47336	RO	I4 Harmonic #7 Dist.	0.1 %	
47276	RO	V aux. Total Harmonic Dist.	0.1 %		47337	RO	Va Harmonic #8 Dist.	0.1 %	
47277	RO	Ia Total Harmonic Dist.	0.1 %		47338	RO	Vb Harmonic #8 Dist.	0.1 %	
47278	RO	Ib Total Harmonic Dist.	0.1 %		47339	RO	Vc Harmonic #8 Dist.	0.1 %	
47279	RO	Ic Total Harmonic Dist.	0.1 %		47340	RO	V aux. Harmonic #8 Dist.	0.1 %	
47280	RO	I4 Total Harmonic Dist.	0.1 %		47341	RO	Ia Harmonic #8 Dist.	0.1 %	
47281	RO	Va fundamental Dist.	0.1 %		47342	RO	Ib Harmonic #8 Dist.	0.1 %	
47282	RO	Vb fundamental Dist.	0.1 %		47343	RO	Ic Harmonic #8 Dist.	0.1 %	
47283	RO	Vc fundamental Dist.	0.1 %		47344	RO	I4 Harmonic #8 Dist.	0.1 %	
47284	RO	V aux. fundamental Dist.	0.1 %		47345	RO	Va Harmonic #9 Dist.	0.1 %	
47285	RO	Ia fundamental Dist.	0.1 %		47346	RO	Vb Harmonic #9 Dist.	0.1 %	
47286	RO	Ib fundamental Dist.	0.1 %		47347	RO	Vc Harmonic #9 Dist.	0.1 %	
47287	RO	Ic fundamental Dist.	0.1 %		47348	RO	V aux. Harmonic #9 Dist.	0.1 %	
47288	RO	I4 fundamental Dist.	0.1 %		47349	RO	Ia Harmonic #9 Dist.	0.1 %	
47289	RO	Va Harmonic #2 Dist.	0.1 %		47350	RO	Ib Harmonic #9 Dist.	0.1 %	
47290	RO	Vb Harmonic #2 Dist.	0.1 %		47351	RO	Ic Harmonic #9 Dist.	0.1 %	
					47352	RO	I4 Harmonic #9 Dist.	0.1 %	

47353	RO	Va Harmonic #10 Dist.	0.1 %		
47354	RO	Vb Harmonic #10 Dist.	0.1 %		
47355	RO	Vc Harmonic #10 Dist.	0.1 %		
47356	RO	V aux. Harmonic #10 Dist.	0.1 %		
47357	RO	Ia Harmonic #10 Dist.	0.1 %		
47358	RO	Ib Harmonic #10 Dist.	0.1 %		
47359	RO	Ic Harmonic #10 Dist.	0.1 %		
47360	RO	I4 Harmonic #10 Dist.	0.1 %		
47361	RO	Va Harmonic #11 Dist.	0.1 %		
47362	RO	Vb Harmonic #11 Dist.	0.1 %		
47363	RO	Vc Harmonic #11 Dist.	0.1 %		
47364	RO	V aux. Harmonic #11 Dist.	0.1 %		
47365	RO	Ia Harmonic #11 Dist.	0.1 %		
47366	RO	Ib Harmonic #11 Dist.	0.1 %		
47367	RO	Ic Harmonic #11 Dist.	0.1 %		
47368	RO	I4 Harmonic #11 Dist.	0.1 %		
47369	RO	Va Harmonic #12 Dist.	0.1 %		
47370	RO	Vb Harmonic #12 Dist.	0.1 %		
47371	RO	Vc Harmonic #12 Dist.	0.1 %		
47372	RO	V aux. Harmonic #12 Dist.	0.1 %		
47373	RO	Ia Harmonic #12 Dist.	0.1 %		
47374	RO	Ib Harmonic #12 Dist.	0.1 %		
47375	RO	Ic Harmonic #12 Dist.	0.1 %		
47376	RO	I4 Harmonic #12 Dist.	0.1 %		
47377	RO	Va Harmonic #13 Dist.	0.1 %		
47378	RO	Vb Harmonic #13 Dist.	0.1 %		
47379	RO	Vc Harmonic #13 Dist.	0.1 %		
47380	RO	V aux. Harmonic #13 Dist.	0.1 %		
47381	RO	Ia Harmonic #13 Dist.	0.1 %		
47382	RO	Ib Harmonic #13 Dist.	0.1 %		
47383	RO	Ic Harmonic #13 Dist.	0.1 %		
47384	RO	I4 Harmonic #13 Dist.	0.1 %		
47385	RO	Va Harmonic #14 Dist.	0.1 %		
47386	RO	Vb Harmonic #14 Dist.	0.1 %		
47387	RO	Vc Harmonic #14 Dist.	0.1 %		
47388	RO	V aux. Harmonic #14 Dist.	0.1 %		
47389	RO	Ia Harmonic #14 Dist.	0.1 %		
47390	RO	Ib Harmonic #14 Dist.	0.1 %		
47391	RO	Ic Harmonic #14 Dist.	0.1 %		
47392	RO	I4 Harmonic #14 Dist.	0.1 %		
47393	RO	Va Harmonic #15 Dist.	0.1 %		
47394	RO	Vb Harmonic #15 Dist.	0.1 %		
47395	RO	Vc Harmonic #15 Dist.	0.1 %		
47396	RO	V aux. Harmonic #15 Dist.	0.1 %		
47397	RO	Ia Harmonic #15 Dist.	0.1 %		
47398	RO	Ib Harmonic #15 Dist.	0.1 %		
47399	RO	Ic Harmonic #15 Dist.	0.1 %		
47400	RO	I4 Harmonic #15 Dist.	0.1 %		
47456	RO	I4 (Neutral) K-Factor		Unix Time	(d)
47457	RO	Va Total Odd Harm. Dist.		Unix Time	(d)
47458	RO	Vb Total Odd Harm. Dist.		Unix Time	(d)
47465	RO	Vc Total Odd Harm. Dist.		Unix Time	(d)
47460	RO	V aux. Total Odd Harm. Dist.		Unix Time	(d)
47461	RO	Ia Total Odd Harm. Dist.		Unix Time	(d)
47466	RO	Ib Total Odd Harm. Dist.		Unix Time	(d)
47467	RO	Ic Total Odd Harm. Dist.		Unix Time	(d)
47464	RO	I4 Total Odd Harm. Dist.		Unix Time	(d)
47465	RO	Va Total Even Harm. Dist.		Unix Time	(d)
47466	RO	Vb Total Even Harm. Dist.		Unix Time	(d)
47467	RO	Vc Total Even Harm. Dist.		Unix Time	(d)
47468	RO	V aux. Total Even Harm. Dist.		Unix Time	(d)
47475	RO	Ia Total Even Harm. Dist.		Unix Time	(d)
47470	RO	Ib Total Even Harm. Dist.		Unix Time	(d)
47471	RO	Ic Total Even Harm. Dist.		Unix Time	(d)
47472	RO	I4 Total Even Harm. Dist.		Unix Time	(d)
47473	RO	Va Total Harmonic Dist.		Unix Time	(d)
47474	RO	Vb Total Harmonic Dist.		Unix Time	(d)
47475	RO	Vc Total Harmonic Dist.		Unix Time	(d)
47476	RO	V aux. Total Harmonic Dist.		Unix Time	(d)
47477	RO	Ia Total Harmonic Dist.		Unix Time	(d)
47478	RO	Ib Total Harmonic Dist.		Unix Time	(d)
47479	RO	Ic Total Harmonic Dist.		Unix Time	(d)
47480	RO	I4 Total Harmonic Dist.		Unix Time	(d)
47481	RO	Va fundamental Dist.		Unix Time	(d)
47482	RO	Vb fundamental Dist.		Unix Time	(d)
47483	RO	Vc fundamental Dist.		Unix Time	(d)
47484	RO	V aux. fundamental Dist.		Unix Time	(d)
47485	RO	Ia fundamental Dist.		Unix Time	(d)
47486	RO	Ib fundamental Dist.		Unix Time	(d)
47487	RO	Ic fundamental Dist.		Unix Time	(d)
47488	RO	I4 fundamental Dist.		Unix Time	(d)
47489	RO	Va Harmonic #2 Dist.		Unix Time	(d)
47490	RO	Vb Harmonic #2 Dist.		Unix Time	(d)
47491	RO	Vc Harmonic #2 Dist.		Unix Time	(d)
47492	RO	V aux. Harmonic #2 Dist.		Unix Time	(d)
47493	RO	Ia Harmonic #2 Dist.		Unix Time	(d)
47494	RO	Ib Harmonic #2 Dist.		Unix Time	(d)
47495	RO	Ic Harmonic #2 Dist.		Unix Time	(d)
47496	RO	I4 Harmonic #2 Dist.		Unix Time	(d)
47497	RO	Va Harmonic #3 Dist.		Unix Time	(d)
47498	RO	Vb Harmonic #3 Dist.		Unix Time	(d)
47499	RO	Vc Harmonic #3 Dist.		Unix Time	(d)
47500	RO	V aux. Harmonic #3 Dist.		Unix Time	(d)
47501	RO	Ia Harmonic #3 Dist.		Unix Time	(d)
47502	RO	Ib Harmonic #3 Dist.		Unix Time	(d)
47503	RO	Ic Harmonic #3 Dist.		Unix Time	(d)
47504	RO	I4 Harmonic #3 Dist.		Unix Time	(d)
47505	RO	Va Harmonic #4 Dist.		Unix Time	(d)
47506	RO	Vb Harmonic #4 Dist.		Unix Time	(d)
47507	RO	Vc Harmonic #4 Dist.		Unix Time	(d)
47508	RO	V aux. Harmonic #4 Dist.		Unix Time	(d)
47509	RO	Ia Harmonic #4 Dist.		Unix Time	(d)
47510	RO	Ib Harmonic #4 Dist.		Unix Time	(d)
47511	RO	Ic Harmonic #4 Dist.		Unix Time	(d)
47512	RO	I4 Harmonic #4 Dist.		Unix Time	(d)
47513	RO	Va Harmonic #5 Dist.		Unix Time	(d)
47514	RO	Vb Harmonic #5 Dist.		Unix Time	(d)
47515	RO	Vc Harmonic #5 Dist.		Unix Time	(d)
47516	RO	V aux. Harmonic #5 Dist.		Unix Time	(d)
47517	RO	Ia Harmonic #5 Dist.		Unix Time	(d)

MINIMUM SLIDING DEMAND HARMONIC TIMESTAMPS

47449	RO	Va K-Factor	Unix Time	(d)
47450	RO	Vb K-Factor	Unix Time	(d)
47451	RO	Vc K-Factor	Unix Time	(d)
47452	RO	V aux. K-Factor	Unix Time	(d)
47453	RO	Ia K-Factor	Unix Time	(d)
47454	RO	Ib K-Factor	Unix Time	(d)
47455	RO	Ic K-Factor	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
47518	RO	Ib Harmonic #5 Dist.	Unix Time	(d)	47580	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)
47519	RO	Ic Harmonic #5 Dist.	Unix Time	(d)	47581	RO	Ia Harmonic #13 Dist.	Unix Time	(d)
47520	RO	I4 Harmonic #5 Dist.	Unix Time	(d)	47582	RO	Ib Harmonic #13 Dist.	Unix Time	(d)
47521	RO	Va Harmonic #6 Dist.	Unix Time	(d)	47583	RO	Ic Harmonic #13 Dist.	Unix Time	(d)
47522	RO	Vb Harmonic #6 Dist.	Unix Time	(d)	47584	RO	I4 Harmonic #13 Dist.	Unix Time	(d)
47523	RO	Vc Harmonic #6 Dist.	Unix Time	(d)	47585	RO	Va Harmonic #14 Dist.	Unix Time	(d)
47524	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)	47586	RO	Vb Harmonic #14 Dist.	Unix Time	(d)
47525	RO	Ia Harmonic #6 Dist.	Unix Time	(d)	47587	RO	Vc Harmonic #14 Dist.	Unix Time	(d)
47526	RO	Ib Harmonic #6 Dist.	Unix Time	(d)	47588	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)
47527	RO	Ic Harmonic #6 Dist.	Unix Time	(d)	47589	RO	Ia Harmonic #14 Dist.	Unix Time	(d)
47528	RO	I4 Harmonic #6 Dist.	Unix Time	(d)	47590	RO	Ib Harmonic #14 Dist.	Unix Time	(d)
47529	RO	Va Harmonic #7 Dist.	Unix Time	(d)	47591	RO	Ic Harmonic #14 Dist.	Unix Time	(d)
47530	RO	Vb Harmonic #7 Dist.	Unix Time	(d)	47592	RO	I4 Harmonic #14 Dist.	Unix Time	(d)
47531	RO	Vc Harmonic #7 Dist.	Unix Time	(d)	47593	RO	Va Harmonic #15 Dist.	Unix Time	(d)
47532	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)	47594	RO	Vb Harmonic #15 Dist.	Unix Time	(d)
47533	RO	Ia Harmonic #7 Dist.	Unix Time	(d)	47595	RO	Vc Harmonic #15 Dist.	Unix Time	(d)
47534	RO	Ib Harmonic #7 Dist.	Unix Time	(d)	47596	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)
47535	RO	Ic Harmonic #7 Dist.	Unix Time	(d)	47597	RO	Ia Harmonic #15 Dist.	Unix Time	(d)
47536	RO	I4 Harmonic #7 Dist.	Unix Time	(d)	47598	RO	Ib Harmonic #15 Dist.	Unix Time	(d)
47537	RO	Va Harmonic #8 Dist.	Unix Time	(d)	47599	RO	Ic Harmonic #15 Dist.	Unix Time	(d)
47538	RO	Vb Harmonic #8 Dist.	Unix Time	(d)	47600	RO	I4 Harmonic #15 Dist.	Unix Time	(d)
47539	RO	Vc Harmonic #8 Dist.	Unix Time	(d)					
47540	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)					
47541	RO	Ia Harmonic #8 Dist.	Unix Time	(d)					
47542	RO	Ib Harmonic #8 Dist.	Unix Time	(d)					
47543	RO	Ic Harmonic #8 Dist.	Unix Time	(d)					
47544	RO	I4 Harmonic #8 Dist.	Unix Time	(d)					
47545	RO	Va Harmonic #9 Dist.	Unix Time	(d)					
47546	RO	Vb Harmonic #9 Dist.	Unix Time	(d)					
47547	RO	Vc Harmonic #9 Dist.	Unix Time	(d)					
47548	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)					
47549	RO	Ia Harmonic #9 Dist.	Unix Time	(d)					
47550	RO	Ib Harmonic #9 Dist.	Unix Time	(d)					
47551	RO	Ic Harmonic #9 Dist.	Unix Time	(d)					
47552	RO	I4 Harmonic #9 Dist.	Unix Time	(d)					
47553	RO	Va Harmonic #10 Dist.	Unix Time	(d)					
47554	RO	Vb Harmonic #10 Dist.	Unix Time	(d)					
47555	RO	Vc Harmonic #10 Dist.	Unix Time	(d)					
47556	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)					
47557	RO	Ia Harmonic #10 Dist.	Unix Time	(d)					
47558	RO	Ib Harmonic #10 Dist.	Unix Time	(d)					
47559	RO	Ic Harmonic #10 Dist.	Unix Time	(d)					
47560	RO	I4 Harmonic #10 Dist.	Unix Time	(d)					
47561	RO	Va Harmonic #11 Dist.	Unix Time	(d)					
47562	RO	Vb Harmonic #11 Dist.	Unix Time	(d)					
47563	RO	Vc Harmonic #11 Dist.	Unix Time	(d)					
47564	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)					
47565	RO	Ia Harmonic #11 Dist.	Unix Time	(d)					
47566	RO	Ib Harmonic #11 Dist.	Unix Time	(d)					
47567	RO	Ic Harmonic #11 Dist.	Unix Time	(d)					
47568	RO	I4 Harmonic #11 Dist.	Unix Time	(d)					
47569	RO	Va Harmonic #12 Dist.	Unix Time	(d)					
47570	RO	Vb Harmonic #12 Dist.	Unix Time	(d)					
47571	RO	Vc Harmonic #12 Dist.	Unix Time	(d)					
47572	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)					
47573	RO	Ia Harmonic #12 Dist.	Unix Time	(d)					
47574	RO	Ib Harmonic #12 Dist.	Unix Time	(d)					
47575	RO	Ic Harmonic #12 Dist.	Unix Time	(d)					
47576	RO	I4 Harmonic #12 Dist.	Unix Time	(d)					
47577	RO	Va Harmonic #13 Dist.	Unix Time	(d)					
47578	RO	Vb Harmonic #13 Dist.	Unix Time	(d)					
47579	RO	Vc Harmonic #13 Dist.	Unix Time	(d)					

MAXIMUM SLIDING DEMAND HARMONIC MEASUREMENTS

47649	RO	Va K-Factor	0.1	
47650	RO	Vb K-Factor	0.1	
47651	RO	Vc K-Factor	0.1	
47652	RO	V aux. K-Factor	0.1	
47653	RO	Ia K-Factor	0.1	
47654	RO	Ib K-Factor	0.1	
47655	RO	Ic K-Factor	0.1	
47656	RO	I4 (Neutral) K-Factor	0.1	
47657	RO	Va Total Odd Harm. Dist.	0.1 %	
47658	RO	Vb Total Odd Harm. Dist.	0.1 %	
47659	RO	Vc Total Odd Harm. Dist.	0.1 %	
47660	RO	V aux. Total Odd Harm. Dist.	0.1 %	
47661	RO	Ia Total Odd Harm. Dist.	0.1 %	
47662	RO	Ib Total Odd Harm. Dist.	0.1 %	
47663	RO	Ic Total Odd Harm. Dist.	0.1 %	
47664	RO	I4 Total Odd Harm. Dist.	0.1 %	
47665	RO	Va Total Even Harm. Dist.	0.1 %	
47666	RO	Vb Total Even Harm. Dist.	0.1 %	
47667	RO	Vc Total Even Harm. Dist.	0.1 %	
47668	RO	V aux. Total Even Harm. Dist.	0.1 %	
47669	RO	Ia Total Even Harm. Dist.	0.1 %	
47670	RO	Ib Total Even Harm. Dist.	0.1 %	
47671	RO	Ic Total Even Harm. Dist.	0.1 %	
47672	RO	I4 Total Even Harm. Dist.	0.1 %	
47673	RO	Va Total Harmonic Dist.	0.1 %	
47674	RO	Vb Total Harmonic Dist.	0.1 %	
47675	RO	Vc Total Harmonic Dist.	0.1 %	
47676	RO	V aux. Total Harmonic Dist.	0.1 %	
47677	RO	Ia Total Harmonic Dist.	0.1 %	
47678	RO	Ib Total Harmonic Dist.	0.1 %	
47679	RO	Ic Total Harmonic Dist.	0.1 %	
47680	RO	I4 Total Harmonic Dist.	0.1 %	
47681	RO	Va fundamental Dist.	0.1 %	
47682	RO	Vb fundamental Dist.	0.1 %	

47683	RO	Vc fundamental Dist.	0.1 %	47745	RO	Va Harmonic #9 Dist.	0.1 %
47684	RO	V aux. fundamental Dist.	0.1 %	47746	RO	Vb Harmonic #9 Dist.	0.1 %
47685	RO	la fundamental Dist.	0.1 %	47747	RO	Vc Harmonic #9 Dist.	0.1 %
47686	RO	lb fundamental Dist.	0.1 %	47748	RO	V aux. Harmonic #9 Dist.	0.1 %
47687	RO	lc fundamental Dist.	0.1 %	47749	RO	la Harmonic #9 Dist.	0.1 %
47688	RO	l4 fundamental Dist.	0.1 %	47750	RO	lb Harmonic #9 Dist.	0.1 %
47689	RO	Va Harmonic #2 Dist.	0.1 %	47751	RO	lc Harmonic #9 Dist.	0.1 %
47690	RO	Vb Harmonic #2 Dist.	0.1 %	47752	RO	l4 Harmonic #9 Dist.	0.1 %
47691	RO	Vc Harmonic #2 Dist.	0.1 %	47753	RO	Va Harmonic #10 Dist.	0.1 %
47692	RO	V aux. Harmonic #2 Dist.	0.1 %	47754	RO	Vb Harmonic #10 Dist.	0.1 %
47693	RO	la Harmonic #2 Dist.	0.1 %	47755	RO	Vc Harmonic #10 Dist.	0.1 %
47694	RO	lb Harmonic #2 Dist.	0.1 %	47756	RO	V aux. Harmonic #10 Dist.	0.1 %
47695	RO	lc Harmonic #2 Dist.	0.1 %	47757	RO	la Harmonic #10 Dist.	0.1 %
47696	RO	l4 Harmonic #2 Dist.	0.1 %	47758	RO	lb Harmonic #10 Dist.	0.1 %
47697	RO	Va Harmonic #3 Dist.	0.1 %	47759	RO	lc Harmonic #10 Dist.	0.1 %
47698	RO	Vb Harmonic #3 Dist.	0.1 %	47760	RO	l4 Harmonic #10 Dist.	0.1 %
47699	RO	Vc Harmonic #3 Dist.	0.1 %	47761	RO	Va Harmonic #11 Dist.	0.1 %
47700	RO	V aux. Harmonic #3 Dist.	0.1 %	47762	RO	Vb Harmonic #11 Dist.	0.1 %
47701	RO	la Harmonic #3 Dist.	0.1 %	47763	RO	Vc Harmonic #11 Dist.	0.1 %
47702	RO	lb Harmonic #3 Dist.	0.1 %	47764	RO	V aux. Harmonic #11 Dist.	0.1 %
47703	RO	lc Harmonic #3 Dist.	0.1 %	47765	RO	la Harmonic #11 Dist.	0.1 %
47704	RO	l4 Harmonic #3 Dist.	0.1 %	47766	RO	lb Harmonic #11 Dist.	0.1 %
47705	RO	Va Harmonic #4 Dist.	0.1 %	47767	RO	lc Harmonic #11 Dist.	0.1 %
47706	RO	Vb Harmonic #4 Dist.	0.1 %	47768	RO	l4 Harmonic #11 Dist.	0.1 %
47707	RO	Vc Harmonic #4 Dist.	0.1 %	47769	RO	Va Harmonic #12 Dist.	0.1 %
47708	RO	V aux. Harmonic #4 Dist.	0.1 %	47770	RO	Vb Harmonic #12 Dist.	0.1 %
47709	RO	la Harmonic #4 Dist.	0.1 %	47771	RO	Vc Harmonic #12 Dist.	0.1 %
47710	RO	lb Harmonic #4 Dist.	0.1 %	47772	RO	V aux. Harmonic #12 Dist.	0.1 %
47711	RO	lc Harmonic #4 Dist.	0.1 %	47773	RO	la Harmonic #12 Dist.	0.1 %
47712	RO	l4 Harmonic #4 Dist.	0.1 %	47774	RO	lb Harmonic #12 Dist.	0.1 %
47713	RO	Va Harmonic #5 Dist.	0.1 %	47775	RO	lc Harmonic #12 Dist.	0.1 %
47714	RO	Vb Harmonic #5 Dist.	0.1 %	47776	RO	l4 Harmonic #12 Dist.	0.1 %
47715	RO	Vc Harmonic #5 Dist.	0.1 %	47777	RO	Va Harmonic #13 Dist.	0.1 %
47716	RO	V aux. Harmonic #5 Dist.	0.1 %	47778	RO	Vb Harmonic #13 Dist.	0.1 %
47717	RO	la Harmonic #5 Dist.	0.1 %	47779	RO	Vc Harmonic #13 Dist.	0.1 %
47718	RO	lb Harmonic #5 Dist.	0.1 %	47780	RO	V aux. Harmonic #13 Dist.	0.1 %
47719	RO	lc Harmonic #5 Dist.	0.1 %	47781	RO	la Harmonic #13 Dist.	0.1 %
47720	RO	l4 Harmonic #5 Dist.	0.1 %	47782	RO	lb Harmonic #13 Dist.	0.1 %
47721	RO	Va Harmonic #6 Dist.	0.1 %	47783	RO	lc Harmonic #13 Dist.	0.1 %
47722	RO	Vb Harmonic #6 Dist.	0.1 %	47784	RO	l4 Harmonic #13 Dist.	0.1 %
47723	RO	Vc Harmonic #6 Dist.	0.1 %	47785	RO	Va Harmonic #14 Dist.	0.1 %
47724	RO	V aux. Harmonic #6 Dist.	0.1 %	47786	RO	Vb Harmonic #14 Dist.	0.1 %
47725	RO	la Harmonic #6 Dist.	0.1 %	47787	RO	Vc Harmonic #14 Dist.	0.1 %
47726	RO	lb Harmonic #6 Dist.	0.1 %	47788	RO	V aux. Harmonic #14 Dist.	0.1 %
47727	RO	lc Harmonic #6 Dist.	0.1 %	47789	RO	la Harmonic #14 Dist.	0.1 %
47728	RO	l4 Harmonic #6 Dist.	0.1 %	47790	RO	lb Harmonic #14 Dist.	0.1 %
47729	RO	Va Harmonic #7 Dist.	0.1 %	47791	RO	lc Harmonic #14 Dist.	0.1 %
47730	RO	Vb Harmonic #7 Dist.	0.1 %	47792	RO	l4 Harmonic #14 Dist.	0.1 %
47731	RO	Vc Harmonic #7 Dist.	0.1 %	47793	RO	Va Harmonic #15 Dist.	0.1 %
47732	RO	V aux. Harmonic #7 Dist.	0.1 %	47794	RO	Vb Harmonic #15 Dist.	0.1 %
47733	RO	la Harmonic #7 Dist.	0.1 %	47795	RO	Vc Harmonic #15 Dist.	0.1 %
47734	RO	lb Harmonic #7 Dist.	0.1 %	47796	RO	V aux. Harmonic #15 Dist.	0.1 %
47735	RO	lc Harmonic #7 Dist.	0.1 %	47797	RO	la Harmonic #15 Dist.	0.1 %
47736	RO	l4 Harmonic #7 Dist.	0.1 %	47798	RO	lb Harmonic #15 Dist.	0.1 %
47737	RO	Va Harmonic #8 Dist.	0.1 %	47799	RO	lc Harmonic #15 Dist.	0.1 %
47738	RO	Vb Harmonic #8 Dist.	0.1 %	47800	RO	l4 Harmonic #15 Dist.	0.1 %
47739	RO	Vc Harmonic #8 Dist.	0.1 %				
47740	RO	V aux. Harmonic #8 Dist.	0.1 %				
47741	RO	la Harmonic #8 Dist.	0.1 %				
47742	RO	lb Harmonic #8 Dist.	0.1 %				
47743	RO	lc Harmonic #8 Dist.	0.1 %				
47744	RO	l4 Harmonic #8 Dist.	0.1 %				

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
MAXIMUM SLIDING DEMAND HARMONIC TIMESTAMPS					47907	RO	Vc Harmonic #4 Dist.	Unix Time	(d)
47849	RO	Va K-Factor	Unix Time	(d)	47908	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)
47850	RO	Vb K-Factor	Unix Time	(d)	47909	RO	Ia Harmonic #4 Dist.	Unix Time	(d)
47851	RO	Vc K-Factor	Unix Time	(d)	47910	RO	Ib Harmonic #4 Dist.	Unix Time	(d)
47852	RO	V aux. K-Factor	Unix Time	(d)	47911	RO	Ic Harmonic #4 Dist.	Unix Time	(d)
47853	RO	Ia K-Factor	Unix Time	(d)	47912	RO	I4 Harmonic #4 Dist.	Unix Time	(d)
47854	RO	Ib K-Factor	Unix Time	(d)	47913	RO	Va Harmonic #5 Dist.	Unix Time	(d)
47855	RO	Ic K-Factor	Unix Time	(d)	47914	RO	Vb Harmonic #5 Dist.	Unix Time	(d)
47856	RO	I4 (Neutral) K-Factor	Unix Time	(d)	47915	RO	Vc Harmonic #5 Dist.	Unix Time	(d)
47857	RO	Va Total Odd Harm. Dist.	Unix Time	(d)	47916	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)
47858	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)	47917	RO	Ia Harmonic #5 Dist.	Unix Time	(d)
47865	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)	47918	RO	Ib Harmonic #5 Dist.	Unix Time	(d)
47860	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)	47919	RO	Ic Harmonic #5 Dist.	Unix Time	(d)
47861	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)	47920	RO	I4 Harmonic #5 Dist.	Unix Time	(d)
47866	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)	47921	RO	Va Harmonic #6 Dist.	Unix Time	(d)
47867	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)	47922	RO	Vb Harmonic #6 Dist.	Unix Time	(d)
47864	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)	47923	RO	Vc Harmonic #6 Dist.	Unix Time	(d)
47865	RO	Va Total Even Harm. Dist.	Unix Time	(d)	47924	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)
47866	RO	Vb Total Even Harm. Dist.	Unix Time	(d)	47925	RO	Ia Harmonic #6 Dist.	Unix Time	(d)
47867	RO	Vc Total Even Harm. Dist.	Unix Time	(d)	47926	RO	Ib Harmonic #6 Dist.	Unix Time	(d)
47868	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)	47927	RO	Ic Harmonic #6 Dist.	Unix Time	(d)
47875	RO	Ia Total Even Harm. Dist.	Unix Time	(d)	47928	RO	I4 Harmonic #6 Dist.	Unix Time	(d)
47870	RO	Ib Total Even Harm. Dist.	Unix Time	(d)	47929	RO	Va Harmonic #7 Dist.	Unix Time	(d)
47871	RO	Ic Total Even Harm. Dist.	Unix Time	(d)	47930	RO	Vb Harmonic #7 Dist.	Unix Time	(d)
47876	RO	I4 Total Even Harm. Dist.	Unix Time	(d)	47931	RO	Vc Harmonic #7 Dist.	Unix Time	(d)
47877	RO	Va Total Harmonic Dist.	Unix Time	(d)	47932	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)
47874	RO	Vb Total Harmonic Dist.	Unix Time	(d)	47933	RO	Ia Harmonic #7 Dist.	Unix Time	(d)
47875	RO	Vc Total Harmonic Dist.	Unix Time	(d)	47934	RO	Ib Harmonic #7 Dist.	Unix Time	(d)
47876	RO	V aux. Total Harmonic Dist.	Unix Time	(d)	47935	RO	Ic Harmonic #7 Dist.	Unix Time	(d)
47877	RO	Ia Total Harmonic Dist.	Unix Time	(d)	47936	RO	I4 Harmonic #7 Dist.	Unix Time	(d)
47878	RO	Ib Total Harmonic Dist.	Unix Time	(d)	47937	RO	Va Harmonic #8 Dist.	Unix Time	(d)
47879	RO	Ic Total Harmonic Dist.	Unix Time	(d)	47938	RO	Vb Harmonic #8 Dist.	Unix Time	(d)
47880	RO	I4 Total Harmonic Dist.	Unix Time	(d)	47939	RO	Vc Harmonic #8 Dist.	Unix Time	(d)
47881	RO	Va fundamental Dist.	Unix Time	(d)	47940	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)
47882	RO	Vb fundamental Dist.	Unix Time	(d)	47941	RO	Ia Harmonic #8 Dist.	Unix Time	(d)
47883	RO	Vc fundamental Dist.	Unix Time	(d)	47942	RO	Ib Harmonic #8 Dist.	Unix Time	(d)
47884	RO	V aux. fundamental Dist.	Unix Time	(d)	47943	RO	Ic Harmonic #8 Dist.	Unix Time	(d)
47885	RO	Ia fundamental Dist.	Unix Time	(d)	47944	RO	I4 Harmonic #8 Dist.	Unix Time	(d)
47886	RO	Ib fundamental Dist.	Unix Time	(d)	47945	RO	Va Harmonic #9 Dist.	Unix Time	(d)
47887	RO	Ic fundamental Dist.	Unix Time	(d)	47946	RO	Vb Harmonic #9 Dist.	Unix Time	(d)
47888	RO	I4 fundamental Dist.	Unix Time	(d)	47947	RO	Vc Harmonic #9 Dist.	Unix Time	(d)
47889	RO	Va Harmonic #2 Dist.	Unix Time	(d)	47948	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)
47890	RO	Vb Harmonic #2 Dist.	Unix Time	(d)	47949	RO	Ia Harmonic #9 Dist.	Unix Time	(d)
47891	RO	Vc Harmonic #2 Dist.	Unix Time	(d)	47950	RO	Ib Harmonic #9 Dist.	Unix Time	(d)
47892	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)	47951	RO	Ic Harmonic #9 Dist.	Unix Time	(d)
47893	RO	Ia Harmonic #2 Dist.	Unix Time	(d)	47952	RO	I4 Harmonic #9 Dist.	Unix Time	(d)
47894	RO	Ib Harmonic #2 Dist.	Unix Time	(d)	47953	RO	Va Harmonic #10 Dist.	Unix Time	(d)
47895	RO	Ic Harmonic #2 Dist.	Unix Time	(d)	47954	RO	Vb Harmonic #10 Dist.	Unix Time	(d)
47896	RO	I4 Harmonic #2 Dist.	Unix Time	(d)	47955	RO	Vc Harmonic #10 Dist.	Unix Time	(d)
47897	RO	Va Harmonic #3 Dist.	Unix Time	(d)	47956	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)
47898	RO	Vb Harmonic #3 Dist.	Unix Time	(d)	47957	RO	Ia Harmonic #10 Dist.	Unix Time	(d)
47899	RO	Vc Harmonic #3 Dist.	Unix Time	(d)	47958	RO	Ib Harmonic #10 Dist.	Unix Time	(d)
47900	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)	47959	RO	Ic Harmonic #10 Dist.	Unix Time	(d)
47901	RO	Ia Harmonic #3 Dist.	Unix Time	(d)	47960	RO	I4 Harmonic #10 Dist.	Unix Time	(d)
47902	RO	Ib Harmonic #3 Dist.	Unix Time	(d)	47961	RO	Va Harmonic #11 Dist.	Unix Time	(d)
47903	RO	Ic Harmonic #3 Dist.	Unix Time	(d)	47962	RO	Vb Harmonic #11 Dist.	Unix Time	(d)
47904	RO	I4 Harmonic #3 Dist.	Unix Time	(d)	47963	RO	Vc Harmonic #11 Dist.	Unix Time	(d)
47905	RO	Va Harmonic #4 Dist.	Unix Time	(d)	47964	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)
47906	RO	Vb Harmonic #4 Dist.	Unix Time	(d)	47965	RO	Ia Harmonic #11 Dist.	Unix Time	(d)
					47966	RO	Ib Harmonic #11 Dist.	Unix Time	(d)
					47967	RO	Ic Harmonic #11 Dist.	Unix Time	(d)
					47968	RO	I4 Harmonic #11 Dist.	Unix Time	(d)

47969	RO	Va Harmonic #12 Dist.	Unix Time	(d)	48072	RO	I4 Total Even Harm. Dist.	0.1 %
47970	RO	Vb Harmonic #12 Dist.	Unix Time	(d)	48073	RO	Va Total Harmonic Dist.	0.1 %
47971	RO	Vc Harmonic #12 Dist.	Unix Time	(d)	48074	RO	Vb Total Harmonic Dist.	0.1 %
47972	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)	48075	RO	Vc Total Harmonic Dist.	0.1 %
47973	RO	Ia Harmonic #12 Dist.	Unix Time	(d)	48076	RO	V aux. Total Harmonic Dist.	0.1 %
47974	RO	Ib Harmonic #12 Dist.	Unix Time	(d)	48077	RO	Ia Total Harmonic Dist.	0.1 %
47975	RO	Ic Harmonic #12 Dist.	Unix Time	(d)	48078	RO	Ib Total Harmonic Dist.	0.1 %
47976	RO	I4 Harmonic #12 Dist.	Unix Time	(d)	48079	RO	Ic Total Harmonic Dist.	0.1 %
47977	RO	Va Harmonic #13 Dist.	Unix Time	(d)	48080	RO	I4 Total Harmonic Dist.	0.1 %
47978	RO	Vb Harmonic #13 Dist.	Unix Time	(d)	48081	RO	Va fundamental Dist.	0.1 %
47979	RO	Vc Harmonic #13 Dist.	Unix Time	(d)	48082	RO	Vb fundamental Dist.	0.1 %
47980	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)	48083	RO	Vc fundamental Dist.	0.1 %
47981	RO	Ia Harmonic #13 Dist.	Unix Time	(d)	48084	RO	V aux. fundamental Dist.	0.1 %
47982	RO	Ib Harmonic #13 Dist.	Unix Time	(d)	48085	RO	Ia fundamental Dist.	0.1 %
47983	RO	Ic Harmonic #13 Dist.	Unix Time	(d)	48086	RO	Ib fundamental Dist.	0.1 %
47984	RO	I4 Harmonic #13 Dist.	Unix Time	(d)	48087	RO	Ic fundamental Dist.	0.1 %
47985	RO	Va Harmonic #14 Dist.	Unix Time	(d)	48088	RO	I4 fundamental Dist.	0.1 %
47986	RO	Vb Harmonic #14 Dist.	Unix Time	(d)	48089	RO	Va Harmonic #2 Dist.	0.1 %
47987	RO	Vc Harmonic #14 Dist.	Unix Time	(d)	48090	RO	Vb Harmonic #2 Dist.	0.1 %
47988	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)	48091	RO	Vc Harmonic #2 Dist.	0.1 %
47989	RO	Ia Harmonic #14 Dist.	Unix Time	(d)	48092	RO	V aux. Harmonic #2 Dist.	0.1 %
47990	RO	Ib Harmonic #14 Dist.	Unix Time	(d)	48093	RO	Ia Harmonic #2 Dist.	0.1 %
47991	RO	Ic Harmonic #14 Dist.	Unix Time	(d)	48094	RO	Ib Harmonic #2 Dist.	0.1 %
47992	RO	I4 Harmonic #14 Dist.	Unix Time	(d)	48095	RO	Ic Harmonic #2 Dist.	0.1 %
47993	RO	Va Harmonic #15 Dist.	Unix Time	(d)	48096	RO	I4 Harmonic #2 Dist.	0.1 %
47994	RO	Vb Harmonic #15 Dist.	Unix Time	(d)	48097	RO	Va Harmonic #3 Dist.	0.1 %
47995	RO	Vc Harmonic #15 Dist.	Unix Time	(d)	48098	RO	Vb Harmonic #3 Dist.	0.1 %
47996	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)	48099	RO	Vc Harmonic #3 Dist.	0.1 %
47997	RO	Ia Harmonic #15 Dist.	Unix Time	(d)	48100	RO	V aux. Harmonic #3 Dist.	0.1 %
47998	RO	Ib Harmonic #15 Dist.	Unix Time	(d)	48101	RO	Ia Harmonic #3 Dist.	0.1 %
47999	RO	Ic Harmonic #15 Dist.	Unix Time	(d)	48102	RO	Ib Harmonic #3 Dist.	0.1 %
48000	RO	I4 Harmonic #15 Dist.	Unix Time	(d)	48103	RO	Ic Harmonic #3 Dist.	0.1 %
					48104	RO	I4 Harmonic #3 Dist.	0.1 %
					48105	RO	Va Harmonic #4 Dist.	0.1 %
					48106	RO	Vb Harmonic #4 Dist.	0.1 %
					48107	RO	Vc Harmonic #4 Dist.	0.1 %
					48108	RO	V aux. Harmonic #4 Dist.	0.1 %
					48109	RO	Ia Harmonic #4 Dist.	0.1 %
					48110	RO	Ib Harmonic #4 Dist.	0.1 %
					48111	RO	Ic Harmonic #4 Dist.	0.1 %
					48112	RO	I4 Harmonic #4 Dist.	0.1 %
					48113	RO	Va Harmonic #5 Dist.	0.1 %
					48114	RO	Vb Harmonic #5 Dist.	0.1 %
					48115	RO	Vc Harmonic #5 Dist.	0.1 %
					48116	RO	V aux. Harmonic #5 Dist.	0.1 %
					48117	RO	Ia Harmonic #5 Dist.	0.1 %
					48118	RO	Ib Harmonic #5 Dist.	0.1 %
					48119	RO	Ic Harmonic #5 Dist.	0.1 %
					48120	RO	I4 Harmonic #5 Dist.	0.1 %
					48121	RO	Va Harmonic #6 Dist.	0.1 %
					48122	RO	Vb Harmonic #6 Dist.	0.1 %
					48123	RO	Vc Harmonic #6 Dist.	0.1 %
					48124	RO	V aux. Harmonic #6 Dist.	0.1 %
					48125	RO	Ia Harmonic #6 Dist.	0.1 %
					48126	RO	Ib Harmonic #6 Dist.	0.1 %
					48127	RO	Ic Harmonic #6 Dist.	0.1 %
					48128	RO	I4 Harmonic #6 Dist.	0.1 %
					48129	RO	Va Harmonic #7 Dist.	0.1 %
					48130	RO	Vb Harmonic #7 Dist.	0.1 %
					48131	RO	Vc Harmonic #7 Dist.	0.1 %
					48132	RO	V aux. Harmonic #7 Dist.	0.1 %
					48133	RO	Ia Harmonic #7 Dist.	0.1 %

PREDICTED DEMAND HARMONIC MEASUREMENTS

48049	RO	Va K-Factor	0.1
48050	RO	Vb K-Factor	0.1
48051	RO	Vc K-Factor	0.1
48052	RO	V aux. K-Factor	0.1
48053	RO	Ia K-Factor	0.1
48054	RO	Ib K-Factor	0.1
48055	RO	Ic K-Factor	0.1
48056	RO	I4 (Neutral) K-Factor	0.1
48057	RO	Va Total Odd Harm. Dist.	0.1 %
48058	RO	Vb Total Odd Harm. Dist.	0.1 %
48059	RO	Vc Total Odd Harm. Dist.	0.1 %
48060	RO	V aux. Total Odd Harm. Dist.	0.1 %
48061	RO	Ia Total Odd Harm. Dist.	0.1 %
48062	RO	Ib Total Odd Harm. Dist.	0.1 %
48063	RO	Ic Total Odd Harm. Dist.	0.1 %
48064	RO	I4 Total Odd Harm. Dist.	0.1 %
48065	RO	Va Total Even Harm. Dist.	0.1 %
48066	RO	Vb Total Even Harm. Dist.	0.1 %
48067	RO	Vc Total Even Harm. Dist.	0.1 %
48068	RO	V aux. Total Even Harm. Dist.	0.1 %
48069	RO	Ia Total Even Harm. Dist.	0.1 %
48070	RO	Ib Total Even Harm. Dist.	0.1 %
48071	RO	Ic Total Even Harm. Dist.	0.1 %

48299	RO	Vc Harmonic #3 Dist.	0.1 %	48361	RO	Va Harmonic #11 Dist.	0.1 %
48300	RO	V aux. Harmonic #3 Dist.	0.1 %	48362	RO	Vb Harmonic #11 Dist.	0.1 %
48301	RO	Ia Harmonic #3 Dist.	0.1 %	48363	RO	Vc Harmonic #11 Dist.	0.1 %
48302	RO	Ib Harmonic #3 Dist.	0.1 %	48364	RO	V aux. Harmonic #11 Dist.	0.1 %
48303	RO	Ic Harmonic #3 Dist.	0.1 %	48365	RO	Ia Harmonic #11 Dist.	0.1 %
48304	RO	I4 Harmonic #3 Dist.	0.1 %	48366	RO	Ib Harmonic #11 Dist.	0.1 %
48305	RO	Va Harmonic #4 Dist.	0.1 %	48367	RO	Ic Harmonic #11 Dist.	0.1 %
48306	RO	Vb Harmonic #4 Dist.	0.1 %	48368	RO	I4 Harmonic #11 Dist.	0.1 %
48307	RO	Vc Harmonic #4 Dist.	0.1 %	48369	RO	Va Harmonic #12 Dist.	0.1 %
48308	RO	V aux. Harmonic #4 Dist.	0.1 %	48370	RO	Vb Harmonic #12 Dist.	0.1 %
48309	RO	Ia Harmonic #4 Dist.	0.1 %	48371	RO	Vc Harmonic #12 Dist.	0.1 %
48310	RO	Ib Harmonic #4 Dist.	0.1 %	48372	RO	V aux. Harmonic #12 Dist.	0.1 %
48311	RO	Ic Harmonic #4 Dist.	0.1 %	48373	RO	Ia Harmonic #12 Dist.	0.1 %
48312	RO	I4 Harmonic #4 Dist.	0.1 %	48374	RO	Ib Harmonic #12 Dist.	0.1 %
48313	RO	Va Harmonic #5 Dist.	0.1 %	48375	RO	Ic Harmonic #12 Dist.	0.1 %
48314	RO	Vb Harmonic #5 Dist.	0.1 %	48376	RO	I4 Harmonic #12 Dist.	0.1 %
48315	RO	Vc Harmonic #5 Dist.	0.1 %	48377	RO	Va Harmonic #13 Dist.	0.1 %
48316	RO	V aux. Harmonic #5 Dist.	0.1 %	48378	RO	Vb Harmonic #13 Dist.	0.1 %
48317	RO	Ia Harmonic #5 Dist.	0.1 %	48379	RO	Vc Harmonic #13 Dist.	0.1 %
48318	RO	Ib Harmonic #5 Dist.	0.1 %	48380	RO	V aux. Harmonic #13 Dist.	0.1 %
48319	RO	Ic Harmonic #5 Dist.	0.1 %	48381	RO	Ia Harmonic #13 Dist.	0.1 %
48320	RO	I4 Harmonic #5 Dist.	0.1 %	48382	RO	Ib Harmonic #13 Dist.	0.1 %
48321	RO	Va Harmonic #6 Dist.	0.1 %	48383	RO	Ic Harmonic #13 Dist.	0.1 %
48322	RO	Vb Harmonic #6 Dist.	0.1 %	48384	RO	I4 Harmonic #13 Dist.	0.1 %
48323	RO	Vc Harmonic #6 Dist.	0.1 %	48385	RO	Va Harmonic #14 Dist.	0.1 %
48324	RO	V aux. Harmonic #6 Dist.	0.1 %	48386	RO	Vb Harmonic #14 Dist.	0.1 %
48325	RO	Ia Harmonic #6 Dist.	0.1 %	48387	RO	Vc Harmonic #14 Dist.	0.1 %
48326	RO	Ib Harmonic #6 Dist.	0.1 %	48388	RO	V aux. Harmonic #14 Dist.	0.1 %
48327	RO	Ic Harmonic #6 Dist.	0.1 %	48389	RO	Ia Harmonic #14 Dist.	0.1 %
48328	RO	I4 Harmonic #6 Dist.	0.1 %	48390	RO	Ib Harmonic #14 Dist.	0.1 %
48329	RO	Va Harmonic #7 Dist.	0.1 %	48391	RO	Ic Harmonic #14 Dist.	0.1 %
48330	RO	Vb Harmonic #7 Dist.	0.1 %	48392	RO	I4 Harmonic #14 Dist.	0.1 %
48331	RO	Vc Harmonic #7 Dist.	0.1 %	48393	RO	Va Harmonic #15 Dist.	0.1 %
48332	RO	V aux. Harmonic #7 Dist.	0.1 %	48394	RO	Vb Harmonic #15 Dist.	0.1 %
48333	RO	Ia Harmonic #7 Dist.	0.1 %	48395	RO	Vc Harmonic #15 Dist.	0.1 %
48334	RO	Ib Harmonic #7 Dist.	0.1 %	48396	RO	V aux. Harmonic #15 Dist.	0.1 %
48335	RO	Ic Harmonic #7 Dist.	0.1 %	48397	RO	Ia Harmonic #15 Dist.	0.1 %
48336	RO	I4 Harmonic #7 Dist.	0.1 %	48398	RO	Ib Harmonic #15 Dist.	0.1 %
48337	RO	Va Harmonic #8 Dist.	0.1 %	48399	RO	Ic Harmonic #15 Dist.	0.1 %
48338	RO	Vb Harmonic #8 Dist.	0.1 %	48400	RO	I4 Harmonic #15 Dist.	0.1 %
48339	RO	Vc Harmonic #8 Dist.	0.1 %				
48340	RO	V aux. Harmonic #8 Dist.	0.1 %				
48341	RO	Ia Harmonic #8 Dist.	0.1 %				
48342	RO	Ib Harmonic #8 Dist.	0.1 %				
48343	RO	Ic Harmonic #8 Dist.	0.1 %				
48344	RO	I4 Harmonic #8 Dist.	0.1 %				
48345	RO	Va Harmonic #9 Dist.	0.1 %				
48346	RO	Vb Harmonic #9 Dist.	0.1 %				
48347	RO	Vc Harmonic #9 Dist.	0.1 %				
48348	RO	V aux. Harmonic #9 Dist.	0.1 %				
48349	RO	Ia Harmonic #9 Dist.	0.1 %				
48350	RO	Ib Harmonic #9 Dist.	0.1 %				
48351	RO	Ic Harmonic #9 Dist.	0.1 %				
48352	RO	I4 Harmonic #9 Dist.	0.1 %				
48353	RO	Va Harmonic #10 Dist.	0.1 %				
48354	RO	Vb Harmonic #10 Dist.	0.1 %				
48355	RO	Vc Harmonic #10 Dist.	0.1 %				
48356	RO	V aux. Harmonic #10 Dist.	0.1 %				
48357	RO	Ia Harmonic #10 Dist.	0.1 %				
48358	RO	Ib Harmonic #10 Dist.	0.1 %				
48359	RO	Ic Harmonic #10 Dist.	0.1 %				
48360	RO	I4 Harmonic #10 Dist.	0.1 %				

MINIMUM PREDICTED DEMAND HARMONIC TIMESTAMPS

48449	RO	Va K-Factor	Unix Time	(d)
48450	RO	Vb K-Factor	Unix Time	(d)
48451	RO	Vc K-Factor	Unix Time	(d)
48452	RO	V aux. K-Factor	Unix Time	(d)
48453	RO	Ia K-Factor	Unix Time	(d)
48454	RO	Ib K-Factor	Unix Time	(d)
48455	RO	Ic K-Factor	Unix Time	(d)
48456	RO	I4 (Neutral) K-Factor	Unix Time	(d)
48457	RO	Va Total Odd Harm. Dist.	Unix Time	(d)
48458	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)
48465	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)
48460	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)
48461	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)
48466	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)
48467	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
48464	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)	48526	RO	Ib Harmonic #6 Dist.	Unix Time	(d)
48465	RO	Va Total Even Harm. Dist	Unix Time	(d)	48527	RO	Ic Harmonic #6 Dist.	Unix Time	(d)
48466	RO	Vb Total Even Harm. Dist.	Unix Time	(d)	48528	RO	I4 Harmonic #6 Dist.	Unix Time	(d)
48467	RO	Vc Total Even Harm. Dist.	Unix Time	(d)	48529	RO	Va Harmonic #7 Dist.	Unix Time	(d)
48468	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)	48530	RO	Vb Harmonic #7 Dist.	Unix Time	(d)
48475	RO	Ia Total Even Harm. Dist.	Unix Time	(d)	48531	RO	Vc Harmonic #7 Dist.	Unix Time	(d)
48470	RO	Ib Total Even Harm. Dist.	Unix Time	(d)	48532	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)
48471	RO	Ic Total Even Harm. Dist.	Unix Time	(d)	48533	RO	Ia Harmonic #7 Dist.	Unix Time	(d)
48476	RO	I4 Total Even Harm. Dist.	Unix Time	(d)	48534	RO	Ib Harmonic #7 Dist.	Unix Time	(d)
48477	RO	Va Total Harmonic Dist.	Unix Time	(d)	48535	RO	Ic Harmonic #7 Dist.	Unix Time	(d)
48474	RO	Vb Total Harmonic Dist.	Unix Time	(d)	48536	RO	I4 Harmonic #7 Dist.	Unix Time	(d)
48475	RO	Vc Total Harmonic Dist.	Unix Time	(d)	48537	RO	Va Harmonic #8 Dist.	Unix Time	(d)
48476	RO	V aux. Total Harmonic Dist.	Unix Time	(d)	48538	RO	Vb Harmonic #8 Dist.	Unix Time	(d)
48477	RO	Ia Total Harmonic Dist.	Unix Time	(d)	48539	RO	Vc Harmonic #8 Dist.	Unix Time	(d)
48478	RO	Ib Total Harmonic Dist.	Unix Time	(d)	48540	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)
48485	RO	Ic Total Harmonic Dist.	Unix Time	(d)	48541	RO	Ia Harmonic #8 Dist.	Unix Time	(d)
48480	RO	I4 Total Harmonic Dist.	Unix Time	(d)	48542	RO	Ib Harmonic #8 Dist.	Unix Time	(d)
48481	RO	Va fundamental Dist.	Unix Time	(d)	48543	RO	Ic Harmonic #8 Dist.	Unix Time	(d)
48482	RO	Vb fundamental Dist.	Unix Time	(d)	48544	RO	I4 Harmonic #8 Dist.	Unix Time	(d)
48483	RO	Vc fundamental Dist.	Unix Time	(d)	48545	RO	Va Harmonic #9 Dist.	Unix Time	(d)
48484	RO	V aux. fundamental Dist.	Unix Time	(d)	48546	RO	Vb Harmonic #9 Dist.	Unix Time	(d)
48485	RO	Ia fundamental Dist.	Unix Time	(d)	48547	RO	Vc Harmonic #9 Dist.	Unix Time	(d)
48486	RO	Ib fundamental Dist.	Unix Time	(d)	48548	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)
48487	RO	Ic fundamental Dist.	Unix Time	(d)	48549	RO	Ia Harmonic #9 Dist.	Unix Time	(d)
48488	RO	I4 fundamental Dist.	Unix Time	(d)	48550	RO	Ib Harmonic #9 Dist.	Unix Time	(d)
48489	RO	Va Harmonic #2 Dist.	Unix Time	(d)	48551	RO	Ic Harmonic #9 Dist.	Unix Time	(d)
48490	RO	Vb Harmonic #2 Dist.	Unix Time	(d)	48552	RO	I4 Harmonic #9 Dist.	Unix Time	(d)
48491	RO	Vc Harmonic #2 Dist.	Unix Time	(d)	48553	RO	Va Harmonic #10 Dist.	Unix Time	(d)
48492	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)	48554	RO	Vb Harmonic #10 Dist.	Unix Time	(d)
48493	RO	Ia Harmonic #2 Dist.	Unix Time	(d)	48555	RO	Vc Harmonic #10 Dist.	Unix Time	(d)
48494	RO	Ib Harmonic #2 Dist.	Unix Time	(d)	48556	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)
48495	RO	Ic Harmonic #2 Dist.	Unix Time	(d)	48557	RO	Ia Harmonic #10 Dist.	Unix Time	(d)
48496	RO	I4 Harmonic #2 Dist.	Unix Time	(d)	48558	RO	Ib Harmonic #10 Dist.	Unix Time	(d)
48497	RO	Va Harmonic #3 Dist.	Unix Time	(d)	48559	RO	Ic Harmonic #10 Dist.	Unix Time	(d)
48498	RO	Vb Harmonic #3 Dist.	Unix Time	(d)	48560	RO	I4 Harmonic #10 Dist.	Unix Time	(d)
48499	RO	Vc Harmonic #3 Dist.	Unix Time	(d)	48561	RO	Va Harmonic #11 Dist.	Unix Time	(d)
48500	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)	48562	RO	Vb Harmonic #11 Dist.	Unix Time	(d)
48501	RO	Ia Harmonic #3 Dist.	Unix Time	(d)	48563	RO	Vc Harmonic #11 Dist.	Unix Time	(d)
48502	RO	Ib Harmonic #3 Dist.	Unix Time	(d)	48564	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)
48503	RO	Ic Harmonic #3 Dist.	Unix Time	(d)	48565	RO	Ia Harmonic #11 Dist.	Unix Time	(d)
48504	RO	I4 Harmonic #3 Dist.	Unix Time	(d)	48566	RO	Ib Harmonic #11 Dist.	Unix Time	(d)
48505	RO	Va Harmonic #4 Dist.	Unix Time	(d)	48567	RO	Ic Harmonic #11 Dist.	Unix Time	(d)
48506	RO	Vb Harmonic #4 Dist.	Unix Time	(d)	48568	RO	I4 Harmonic #11 Dist.	Unix Time	(d)
48507	RO	Vc Harmonic #4 Dist.	Unix Time	(d)	48569	RO	Va Harmonic #12 Dist.	Unix Time	(d)
48508	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)	48570	RO	Vb Harmonic #12 Dist.	Unix Time	(d)
48509	RO	Ia Harmonic #4 Dist.	Unix Time	(d)	48571	RO	Vc Harmonic #12 Dist.	Unix Time	(d)
48510	RO	Ib Harmonic #4 Dist.	Unix Time	(d)	48572	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)
48511	RO	Ic Harmonic #4 Dist.	Unix Time	(d)	48573	RO	Ia Harmonic #12 Dist.	Unix Time	(d)
48512	RO	I4 Harmonic #4 Dist.	Unix Time	(d)	48574	RO	Ib Harmonic #12 Dist.	Unix Time	(d)
48513	RO	Va Harmonic #5 Dist.	Unix Time	(d)	48575	RO	Ic Harmonic #12 Dist.	Unix Time	(d)
48514	RO	Vb Harmonic #5 Dist.	Unix Time	(d)	48576	RO	I4 Harmonic #12 Dist.	Unix Time	(d)
48515	RO	Vc Harmonic #5 Dist.	Unix Time	(d)	48577	RO	Va Harmonic #13 Dist.	Unix Time	(d)
48516	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)	48578	RO	Vb Harmonic #13 Dist.	Unix Time	(d)
48517	RO	Ia Harmonic #5 Dist.	Unix Time	(d)	48579	RO	Vc Harmonic #13 Dist.	Unix Time	(d)
48518	RO	Ib Harmonic #5 Dist.	Unix Time	(d)	48580	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)
48519	RO	Ic Harmonic #5 Dist.	Unix Time	(d)	48581	RO	Ia Harmonic #13 Dist.	Unix Time	(d)
48520	RO	I4 Harmonic #5 Dist.	Unix Time	(d)	48582	RO	Ib Harmonic #13 Dist.	Unix Time	(d)
48521	RO	Va Harmonic #6 Dist.	Unix Time	(d)	48583	RO	Ic Harmonic #13 Dist.	Unix Time	(d)
48522	RO	Vb Harmonic #6 Dist.	Unix Time	(d)	48584	RO	I4 Harmonic #13 Dist.	Unix Time	(d)
48523	RO	Vc Harmonic #6 Dist.	Unix Time	(d)	48585	RO	Va Harmonic #14 Dist.	Unix Time	(d)
48524	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)	48586	RO	Vb Harmonic #14 Dist.	Unix Time	(d)
48525	RO	Ia Harmonic #6 Dist.	Unix Time	(d)	48587	RO	Vc Harmonic #14 Dist.	Unix Time	(d)

48588	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)	48691	RO	Vc Harmonic #2 Dist.	0.1 %
48589	RO	Ia Harmonic #14 Dist.	Unix Time	(d)	48692	RO	V aux. Harmonic #2 Dist.	0.1 %
48590	RO	Ib Harmonic #14 Dist.	Unix Time	(d)	48693	RO	Ia Harmonic #2 Dist.	0.1 %
48591	RO	Ic Harmonic #14 Dist.	Unix Time	(d)	48694	RO	Ib Harmonic #2 Dist.	0.1 %
48592	RO	I4 Harmonic #14 Dist.	Unix Time	(d)	48695	RO	Ic Harmonic #2 Dist.	0.1 %
48593	RO	Va Harmonic #15 Dist.	Unix Time	(d)	48696	RO	I4 Harmonic #2 Dist.	0.1 %
48594	RO	Vb Harmonic #15 Dist.	Unix Time	(d)	48697	RO	Va Harmonic #3 Dist.	0.1 %
48595	RO	Vc Harmonic #15 Dist.	Unix Time	(d)	48698	RO	Vb Harmonic #3 Dist.	0.1 %
48596	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)	48699	RO	Vc Harmonic #3 Dist.	0.1 %
48597	RO	Ia Harmonic #15 Dist.	Unix Time	(d)	48700	RO	V aux. Harmonic #3 Dist.	0.1 %
48598	RO	Ib Harmonic #15 Dist.	Unix Time	(d)	48701	RO	Ia Harmonic #3 Dist.	0.1 %
48599	RO	Ic Harmonic #15 Dist.	Unix Time	(d)	48702	RO	Ib Harmonic #3 Dist.	0.1 %
48600	RO	I4 Harmonic #15 Dist.	Unix Time	(d)	48703	RO	Ic Harmonic #3 Dist.	0.1 %
					48704	RO	I4 Harmonic #3 Dist.	0.1 %
					48705	RO	Va Harmonic #4 Dist.	0.1 %
					48706	RO	Vb Harmonic #4 Dist.	0.1 %
					48707	RO	Vc Harmonic #4 Dist.	0.1 %
					48708	RO	V aux. Harmonic #4 Dist.	0.1 %
					48709	RO	Ia Harmonic #4 Dist.	0.1 %
					48710	RO	Ib Harmonic #4 Dist.	0.1 %
					48711	RO	Ic Harmonic #4 Dist.	0.1 %
					48712	RO	I4 Harmonic #4 Dist.	0.1 %
					48713	RO	Va Harmonic #5 Dist.	0.1 %
					48714	RO	Vb Harmonic #5 Dist.	0.1 %
					48715	RO	Vc Harmonic #5 Dist.	0.1 %
					48716	RO	V aux. Harmonic #5 Dist.	0.1 %
					48717	RO	Ia Harmonic #5 Dist.	0.1 %
					48718	RO	Ib Harmonic #5 Dist.	0.1 %
					48719	RO	Ic Harmonic #5 Dist.	0.1 %
					48720	RO	I4 Harmonic #5 Dist.	0.1 %
					48721	RO	Va Harmonic #6 Dist.	0.1 %
					48722	RO	Vb Harmonic #6 Dist.	0.1 %
					48723	RO	Vc Harmonic #6 Dist.	0.1 %
					48724	RO	V aux. Harmonic #6 Dist.	0.1 %
					48725	RO	Ia Harmonic #6 Dist.	0.1 %
					48726	RO	Ib Harmonic #6 Dist.	0.1 %
					48727	RO	Ic Harmonic #6 Dist.	0.1 %
					48728	RO	I4 Harmonic #6 Dist.	0.1 %
					48729	RO	Va Harmonic #7 Dist.	0.1 %
					48730	RO	Vb Harmonic #7 Dist.	0.1 %
					48731	RO	Vc Harmonic #7 Dist.	0.1 %
					48732	RO	V aux. Harmonic #7 Dist.	0.1 %
					48733	RO	Ia Harmonic #7 Dist.	0.1 %
					48734	RO	Ib Harmonic #7 Dist.	0.1 %
					48735	RO	Ic Harmonic #7 Dist.	0.1 %
					48736	RO	I4 Harmonic #7 Dist.	0.1 %
					48737	RO	Va Harmonic #8 Dist.	0.1 %
					48738	RO	Vb Harmonic #8 Dist.	0.1 %
					48739	RO	Vc Harmonic #8 Dist.	0.1 %
					48740	RO	V aux. Harmonic #8 Dist.	0.1 %
					48741	RO	Ia Harmonic #8 Dist.	0.1 %
					48742	RO	Ib Harmonic #8 Dist.	0.1 %
					48743	RO	Ic Harmonic #8 Dist.	0.1 %
					48744	RO	I4 Harmonic #8 Dist.	0.1 %
					48745	RO	Va Harmonic #9 Dist.	0.1 %
					48746	RO	Vb Harmonic #9 Dist.	0.1 %
					48747	RO	Vc Harmonic #9 Dist.	0.1 %
					48748	RO	V aux. Harmonic #9 Dist.	0.1 %
					48749	RO	Ia Harmonic #9 Dist.	0.1 %
					48750	RO	Ib Harmonic #9 Dist.	0.1 %
					48751	RO	Ic Harmonic #9 Dist.	0.1 %
					48752	RO	I4 Harmonic #9 Dist.	0.1 %

MAXIMUM PREDICTED DEMAND HARMONIC MEASUREMENTS

48649	RO	Va K-Factor	0.1					
48650	RO	Vb K-Factor	0.1					
48651	RO	Vc K-Factor	0.1					
48652	RO	V aux. K-Factor	0.1					
48653	RO	Ia K-Factor	0.1					
48654	RO	Ib K-Factor	0.1					
48655	RO	Ic K-Factor	0.1					
48656	RO	I4 (Neutral) K-Factor	0.1					
48657	RO	Va Total Odd Harm. Dist.	0.1 %					
48658	RO	Vb Total Odd Harm. Dist.	0.1 %					
48659	RO	Vc Total Odd Harm. Dist.	0.1 %					
48660	RO	V aux. Total Odd Harm. Dist.	0.1 %					
48661	RO	Ia Total Odd Harm. Dist.	0.1 %					
48662	RO	Ib Total Odd Harm. Dist.	0.1 %					
48663	RO	Ic Total Odd Harm. Dist.	0.1 %					
48664	RO	I4 Total Odd Harm. Dist.	0.1 %					
48665	RO	Va Total Even Harm. Dist.	0.1 %					
48666	RO	Vb Total Even Harm. Dist.	0.1 %					
48667	RO	Vc Total Even Harm. Dist.	0.1 %					
48668	RO	V aux. Total Even Harm. Dist.	0.1 %					
48669	RO	Ia Total Even Harm. Dist.	0.1 %					
48670	RO	Ib Total Even Harm. Dist.	0.1 %					
48671	RO	Ic Total Even Harm. Dist.	0.1 %					
48672	RO	I4 Total Even Harm. Dist.	0.1 %					
48673	RO	Va Total Harmonic Dist.	0.1 %					
48674	RO	Vb Total Harmonic Dist.	0.1 %					
48675	RO	Vc Total Harmonic Dist.	0.1 %					
48676	RO	V aux. Total Harmonic Dist.	0.1 %					
48677	RO	Ia Total Harmonic Dist.	0.1 %					
48678	RO	Ib Total Harmonic Dist.	0.1 %					
48679	RO	Ic Total Harmonic Dist.	0.1 %					
48680	RO	I4 Total Harmonic Dist.	0.1 %					
48681	RO	Va fundamental Dist.	0.1 %					
48682	RO	Vb fundamental Dist.	0.1 %					
48683	RO	Vc fundamental Dist.	0.1 %					
48684	RO	V aux. fundamental Dist.	0.1 %					
48685	RO	Ia fundamental Dist.	0.1 %					
48686	RO	Ib fundamental Dist.	0.1 %					
48687	RO	Ic fundamental Dist.	0.1 %					
48688	RO	I4 fundamental Dist.	0.1 %					
48689	RO	Va Harmonic #2 Dist.	0.1 %					
48690	RO	Vb Harmonic #2 Dist.	0.1 %					

Register					Register				
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes
48753	RO	Va Harmonic #10 Dist.	0.1 %		48856	RO	I4 (Neutral) K-Factor	Unix Time	(d)
48754	RO	Vb Harmonic #10 Dist.	0.1 %		48857	RO	Va Total Odd Harm. Dist.	Unix Time	(d)
48755	RO	Vc Harmonic #10 Dist.	0.1 %		48858	RO	Vb Total Odd Harm. Dist.	Unix Time	(d)
48756	RO	V aux. Harmonic #10 Dist.	0.1 %		48865	RO	Vc Total Odd Harm. Dist.	Unix Time	(d)
48757	RO	Ia Harmonic #10 Dist.	0.1 %		48860	RO	V aux. Total Odd Harm. Dist.	Unix Time	(d)
48758	RO	Ib Harmonic #10 Dist.	0.1 %		48861	RO	Ia Total Odd Harm. Dist.	Unix Time	(d)
48759	RO	Ic Harmonic #10 Dist.	0.1 %		48866	RO	Ib Total Odd Harm. Dist.	Unix Time	(d)
48760	RO	I4 Harmonic #10 Dist.	0.1 %		48867	RO	Ic Total Odd Harm. Dist.	Unix Time	(d)
48761	RO	Va Harmonic #11 Dist.	0.1 %		48864	RO	I4 Total Odd Harm. Dist.	Unix Time	(d)
48762	RO	Vb Harmonic #11 Dist.	0.1 %		48865	RO	Va Total Even Harm. Dist.	Unix Time	(d)
48763	RO	Vc Harmonic #11 Dist.	0.1 %		48866	RO	Vb Total Even Harm. Dist.	Unix Time	(d)
48764	RO	V aux. Harmonic #11 Dist.	0.1 %		48867	RO	Vc Total Even Harm. Dist.	Unix Time	(d)
48765	RO	Ia Harmonic #11 Dist.	0.1 %		48868	RO	V aux. Total Even Harm. Dist.	Unix Time	(d)
48766	RO	Ib Harmonic #11 Dist.	0.1 %		48875	RO	Ia Total Even Harm. Dist.	Unix Time	(d)
48767	RO	Ic Harmonic #11 Dist.	0.1 %		48870	RO	Ib Total Even Harm. Dist.	Unix Time	(d)
48768	RO	I4 Harmonic #11 Dist.	0.1 %		48871	RO	Ic Total Even Harm. Dist.	Unix Time	(d)
48769	RO	Va Harmonic #12 Dist.	0.1 %		48876	RO	I4 Total Even Harm. Dist.	Unix Time	(d)
48770	RO	Vb Harmonic #12 Dist.	0.1 %		48877	RO	Va Total Harmonic Dist.	Unix Time	(d)
48771	RO	Vc Harmonic #12 Dist.	0.1 %		48874	RO	Vb Total Harmonic Dist.	Unix Time	(d)
48772	RO	V aux. Harmonic #12 Dist.	0.1 %		48875	RO	Vc Total Harmonic Dist.	Unix Time	(d)
48773	RO	Ia Harmonic #12 Dist.	0.1 %		48876	RO	V aux. Total Harmonic Dist.	Unix Time	(d)
48774	RO	Ib Harmonic #12 Dist.	0.1 %		48877	RO	Ia Total Harmonic Dist.	Unix Time	(d)
48775	RO	Ic Harmonic #12 Dist.	0.1 %		48878	RO	Ib Total Harmonic Dist.	Unix Time	(d)
48776	RO	I4 Harmonic #12 Dist.	0.1 %		48885	RO	Ic Total Harmonic Dist.	Unix Time	(d)
48777	RO	Va Harmonic #13 Dist.	0.1 %		48880	RO	I4 Total Harmonic Dist.	Unix Time	(d)
48778	RO	Vb Harmonic #13 Dist.	0.1 %		48881	RO	Va fundamental Dist.	Unix Time	(d)
48779	RO	Vc Harmonic #13 Dist.	0.1 %		48886	RO	Vb fundamental Dist.	Unix Time	(d)
48780	RO	V aux. Harmonic #13 Dist.	0.1 %		48887	RO	Vc fundamental Dist.	Unix Time	(d)
48781	RO	Ia Harmonic #13 Dist.	0.1 %		48884	RO	V aux. fundamental Dist.	Unix Time	(d)
48782	RO	Ib Harmonic #13 Dist.	0.1 %		48885	RO	Ia fundamental Dist.	Unix Time	(d)
48783	RO	Ic Harmonic #13 Dist.	0.1 %		48886	RO	Ib fundamental Dist.	Unix Time	(d)
48784	RO	I4 Harmonic #13 Dist.	0.1 %		48887	RO	Ic fundamental Dist.	Unix Time	(d)
48785	RO	Va Harmonic #14 Dist.	0.1 %		48888	RO	I4 fundamental Dist.	Unix Time	(d)
48786	RO	Vb Harmonic #14 Dist.	0.1 %		48889	RO	Va Harmonic #2 Dist.	Unix Time	(d)
48787	RO	Vc Harmonic #14 Dist.	0.1 %		48890	RO	Vb Harmonic #2 Dist.	Unix Time	(d)
48788	RO	V aux. Harmonic #14 Dist.	0.1 %		48891	RO	Vc Harmonic #2 Dist.	Unix Time	(d)
48789	RO	Ia Harmonic #14 Dist.	0.1 %		48892	RO	V aux. Harmonic #2 Dist.	Unix Time	(d)
48790	RO	Ib Harmonic #14 Dist.	0.1 %		48893	RO	Ia Harmonic #2 Dist.	Unix Time	(d)
48791	RO	Ic Harmonic #14 Dist.	0.1 %		48894	RO	Ib Harmonic #2 Dist.	Unix Time	(d)
48792	RO	I4 Harmonic #14 Dist.	0.1 %		48895	RO	Ic Harmonic #2 Dist.	Unix Time	(d)
48793	RO	Va Harmonic #15 Dist.	0.1 %		48896	RO	I4 Harmonic #2 Dist.	Unix Time	(d)
48794	RO	Vb Harmonic #15 Dist.	0.1 %		48897	RO	Va Harmonic #3 Dist.	Unix Time	(d)
48795	RO	Vc Harmonic #15 Dist.	0.1 %		48898	RO	Vb Harmonic #3 Dist.	Unix Time	(d)
48796	RO	V aux. Harmonic #15 Dist.	0.1 %		48899	RO	Vc Harmonic #3 Dist.	Unix Time	(d)
48797	RO	Ia Harmonic #15 Dist.	0.1 %		48900	RO	V aux. Harmonic #3 Dist.	Unix Time	(d)
48798	RO	Ib Harmonic #15 Dist.	0.1 %		48901	RO	Ia Harmonic #3 Dist.	Unix Time	(d)
48799	RO	Ic Harmonic #15 Dist.	0.1 %		48902	RO	Ib Harmonic #3 Dist.	Unix Time	(d)
48800	RO	I4 Harmonic #15 Dist.	0.1 %		48903	RO	Ic Harmonic #3 Dist.	Unix Time	(d)
					48904	RO	I4 Harmonic #3 Dist.	Unix Time	(d)
					48905	RO	Va Harmonic #4 Dist.	Unix Time	(d)
					48906	RO	Vb Harmonic #4 Dist.	Unix Time	(d)
					48907	RO	Vc Harmonic #4 Dist.	Unix Time	(d)
					48908	RO	V aux. Harmonic #4 Dist.	Unix Time	(d)
					48909	RO	Ia Harmonic #4 Dist.	Unix Time	(d)
					48910	RO	Ib Harmonic #4 Dist.	Unix Time	(d)
					48911	RO	Ic Harmonic #4 Dist.	Unix Time	(d)
					48912	RO	I4 Harmonic #4 Dist.	Unix Time	(d)
					48913	RO	Va Harmonic #5 Dist.	Unix Time	(d)
					48914	RO	Vb Harmonic #5 Dist.	Unix Time	(d)
					48915	RO	Vc Harmonic #5 Dist.	Unix Time	(d)
					48916	RO	V aux. Harmonic #5 Dist.	Unix Time	(d)
					48917	RO	Ia Harmonic #5 Dist.	Unix Time	(d)

MAXIMUM PREDICTED DEMAND HARMONIC TIMESTAMPS

48849	RO	Va K-Factor	Unix Time	(d)
48850	RO	Vb K-Factor	Unix Time	(d)
48851	RO	Vc K-Factor	Unix Time	(d)
48852	RO	V aux. K-Factor	Unix Time	(d)
48853	RO	Ia K-Factor	Unix Time	(d)
48854	RO	Ib K-Factor	Unix Time	(d)
48855	RO	Ic K-Factor	Unix Time	(d)

48918	RO	Ib Harmonic #5 Dist.	Unix Time	(d)	48980	RO	V aux. Harmonic #13 Dist.	Unix Time	(d)
48919	RO	Ic Harmonic #5 Dist.	Unix Time	(d)	48981	RO	Ia Harmonic #13 Dist.	Unix Time	(d)
48920	RO	I4 Harmonic #5 Dist.	Unix Time	(d)	48982	RO	Ib Harmonic #13 Dist.	Unix Time	(d)
48921	RO	Va Harmonic #6 Dist.	Unix Time	(d)	48983	RO	Ic Harmonic #13 Dist.	Unix Time	(d)
48922	RO	Vb Harmonic #6 Dist.	Unix Time	(d)	48984	RO	I4 Harmonic #13 Dist.	Unix Time	(d)
48923	RO	Vc Harmonic #6 Dist.	Unix Time	(d)	48985	RO	Va Harmonic #14 Dist.	Unix Time	(d)
48924	RO	V aux. Harmonic #6 Dist.	Unix Time	(d)	48986	RO	Vb Harmonic #14 Dist.	Unix Time	(d)
48925	RO	Ia Harmonic #6 Dist.	Unix Time	(d)	48987	RO	Vc Harmonic #14 Dist.	Unix Time	(d)
48926	RO	Ib Harmonic #6 Dist.	Unix Time	(d)	48988	RO	V aux. Harmonic #14 Dist.	Unix Time	(d)
48927	RO	Ic Harmonic #6 Dist.	Unix Time	(d)	48989	RO	Ia Harmonic #14 Dist.	Unix Time	(d)
48928	RO	I4 Harmonic #6 Dist.	Unix Time	(d)	48990	RO	Ib Harmonic #14 Dist.	Unix Time	(d)
48929	RO	Va Harmonic #7 Dist.	Unix Time	(d)	48991	RO	Ic Harmonic #14 Dist.	Unix Time	(d)
48930	RO	Vb Harmonic #7 Dist.	Unix Time	(d)	48992	RO	I4 Harmonic #14 Dist.	Unix Time	(d)
48931	RO	Vc Harmonic #7 Dist.	Unix Time	(d)	48993	RO	Va Harmonic #15 Dist.	Unix Time	(d)
48932	RO	V aux. Harmonic #7 Dist.	Unix Time	(d)	48994	RO	Vb Harmonic #15 Dist.	Unix Time	(d)
48933	RO	Ia Harmonic #7 Dist.	Unix Time	(d)	48995	RO	Vc Harmonic #15 Dist.	Unix Time	(d)
48934	RO	Ib Harmonic #7 Dist.	Unix Time	(d)	48996	RO	V aux. Harmonic #15 Dist.	Unix Time	(d)
48935	RO	Ic Harmonic #7 Dist.	Unix Time	(d)	48997	RO	Ia Harmonic #15 Dist.	Unix Time	(d)
48936	RO	I4 Harmonic #7 Dist.	Unix Time	(d)	48998	RO	Ib Harmonic #15 Dist.	Unix Time	(d)
48937	RO	Va Harmonic #8 Dist.	Unix Time	(d)	48999	RO	Ic Harmonic #15 Dist.	Unix Time	(d)
48938	RO	Vb Harmonic #8 Dist.	Unix Time	(d)	49000	RO	I4 Harmonic #15 Dist.	Unix Time	(d)
48939	RO	Vc Harmonic #8 Dist.	Unix Time	(d)					
48940	RO	V aux. Harmonic #8 Dist.	Unix Time	(d)					
48941	RO	Ia Harmonic #8 Dist.	Unix Time	(d)					
48942	RO	Ib Harmonic #8 Dist.	Unix Time	(d)					
48943	RO	Ic Harmonic #8 Dist.	Unix Time	(d)					
48944	RO	I4 Harmonic #8 Dist.	Unix Time	(d)					
48945	RO	Va Harmonic #9 Dist.	Unix Time	(d)					
48946	RO	Vb Harmonic #9 Dist.	Unix Time	(d)					
48947	RO	Vc Harmonic #9 Dist.	Unix Time	(d)					
48948	RO	V aux. Harmonic #9 Dist.	Unix Time	(d)					
48949	RO	Ia Harmonic #9 Dist.	Unix Time	(d)					
48950	RO	Ib Harmonic #9 Dist.	Unix Time	(d)					
48951	RO	Ic Harmonic #9 Dist.	Unix Time	(d)					
48952	RO	I4 Harmonic #9 Dist.	Unix Time	(d)					
48953	RO	Va Harmonic #10 Dist.	Unix Time	(d)					
48954	RO	Vb Harmonic #10 Dist.	Unix Time	(d)					
48955	RO	Vc Harmonic #10 Dist.	Unix Time	(d)					
48956	RO	V aux. Harmonic #10 Dist.	Unix Time	(d)					
48957	RO	Ia Harmonic #10 Dist.	Unix Time	(d)					
48958	RO	Ib Harmonic #10 Dist.	Unix Time	(d)					
48959	RO	Ic Harmonic #10 Dist.	Unix Time	(d)					
48960	RO	I4 Harmonic #10 Dist.	Unix Time	(d)					
48961	RO	Va Harmonic #11 Dist.	Unix Time	(d)					
48962	RO	Vb Harmonic #11 Dist.	Unix Time	(d)					
48963	RO	Vc Harmonic #11 Dist.	Unix Time	(d)					
48964	RO	V aux. Harmonic #11 Dist.	Unix Time	(d)					
48965	RO	Ia Harmonic #11 Dist.	Unix Time	(d)					
48966	RO	Ib Harmonic #11 Dist.	Unix Time	(d)					
48967	RO	Ic Harmonic #11 Dist.	Unix Time	(d)					
48968	RO	I4 Harmonic #11 Dist.	Unix Time	(d)					
48969	RO	Va Harmonic #12 Dist.	Unix Time	(d)					
48970	RO	Vb Harmonic #12 Dist.	Unix Time	(d)					
48971	RO	Vc Harmonic #12 Dist.	Unix Time	(d)					
48972	RO	V aux. Harmonic #12 Dist.	Unix Time	(d)					
48973	RO	Ia Harmonic #12 Dist.	Unix Time	(d)					
48974	RO	Ib Harmonic #12 Dist.	Unix Time	(d)					
48975	RO	Ic Harmonic #12 Dist.	Unix Time	(d)					
48976	RO	I4 Harmonic #12 Dist.	Unix Time	(d)					
48977	RO	Va Harmonic #13 Dist.	Unix Time	(d)					
48978	RO	Vb Harmonic #13 Dist.	Unix Time	(d)					
48979	RO	Vc Harmonic #13 Dist.	Unix Time	(d)					

Register				Register					
Address	Type	Description	Units	Notes	Address	Type	Description	Units	Notes

REGISTER MAP NOTES

Register Types: RO = Read Only
 RW = Read/Write
 WO = Write Only

- (a) Register not valid in DELTA mode.
- (b) Register not valid in SINGLE PHASE mode.
- (c) Register size dependent: 16 BIT = MWH/MVARH/MVAH
 32 BIT = GWH/GVARH/GVAH
- (d) In 32-bit mode, register is expressed in **LONG WORD** format.
 *Any registers not annotated with "(d)" are expressed in **MOD-10000** format when in 32-bit mode.*
- (e) Waveform Recorder registers are available only in 16-bit mode.

POLARITY REGISTERS												
	Real Time	Thermal demand	Minimum real time	Sliding window demand	Maximum real time	Minimum thermal demand	Maximum thermal demand	Minimum sliding window demand	Maximum sliding window demand	Predicted demand	Minimum predicted demand	Maximum predicted demand
BIT	40050	40150	40350	40550	40650	40850	41050	41250	41450	41650	41750	41950
0	40031	40131	40331	40531	40631	40831	41031	41231	41431	41631	41731	41931
1	40032	40132	40332	40532	40632	40832	41032	41232	41432	41632	41732	41932
2	40033	40133	40333	40533	40633	40833	41033	41233	41433	41633	41733	41933
3	40034	40134	40334	40534	40634	40834	41034	41234	41434	41634	41734	41934
4	40035	40135	40335	40535	40635	40835	41035	41235	41435	41635	41735	41935
5	40036	40136	40336	40536	40636	40836	41036	41236	41436	41636	41736	41936
6	40037	40137	40337	40537	40637	40837	41037	41237	41437	41637	41737	41937
7	40038	40138	40338	40538	40638	40838	41038	41238	41438	41638	41738	41938
8	40042	40142	40342	40542	40642	40842	41042	41242	41442	41642	41742	41942
9	40039	40139	40339	40539	40639	40839	41039	41239	41439	41639	41739	41939
10	40040	40140	40340	40540	40640	40840	41040	41240	41440	41640	41740	41940
11	40041	40141	40341	40541	40641	40841	41041	41241	41441	41641	41741	41941
12	40020	40120	40320	40520	40620	40820	41020	41220	41420	41620	41720	41920
13	RESERVED FOR FUTURE USE											
14	40057/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	40067/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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