

# PowerHawk 4000 and 6000 series meters

## MODBUS Guide

930-130-01-A.10  
06/2015



# Safety Information

## Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### **⚠ DANGER**

**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **⚠ WARNING**

**WARNING** indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

### **⚠ CAUTION**

**CAUTION** indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

### **NOTICE**

**NOTICE** is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

## Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Triacta for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

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## Introduction

This guide describes the MODBUS functionality supported by the PowerHawk 4000 and 6000 series meters MODBUS device interface. The supported PowerHawk model numbers are listed in Table 1.

**Table 1: PowerHawk meters with MODBUS support**

PowerHawk meter	Associated current transformer
4206-120V 4206-230V 4206-240V	0.333V secondary output CT
4224-120V 4224-230V 4224-240V	0.333V secondary output CT
4306-120V 4306-230V 4306-240V	80 mA secondary output CT
4324-120V 4324-230V 4324-240V	80 mA secondary output CT
6203-V120 6203-V230 6203-V240	0.333V secondary output CT
6212-V120 6212-V230 6212-V240	0.333V secondary output CT
6303-V120 6303-V230 6303-V240	80 mA secondary output CT
6312-V120 6312-V230 6312-V240	80 mA secondary output CT
6403-V120 6403-V230 6403-V240	5 A secondary output CT
6412-V120 6412-V230 6412-V240	5 A secondary output CT

Note: 120V and 240V meters use 60 Hz supply current, and 230V meters use 50 Hz supply current.

## MODBUS data format

The MODBUS register map and data types for each supported PowerHawk device are listed in “Appendix A: MODBUS register map table” on page 12.

For all PowerHawk devices, the MODBUS address is set at 1, and the MODBUS port is fixed at 502; these settings are not programmable.

MODBUS registers are native 16-bit, so larger data types are packed into multiple registers. 32-bit values (either IEEE standard 754 float or integer) are stored in two consecutive 16-bit MODBUS registers in Big-Endian order (B3:B2:B1:B0)

The MODBUS registers are “1-based” numbers; for example 0 = 40001, 2 = 40003, 4 = 40005, etc.

### Maximum Number of Addresses

The MODBUS protocol specifies the maximum number of addresses that can be read or written at one time. This limits the amount of data that can be transferred in a single command to a maximum 255 bytes. For a read command, the limit is 2000 coils (or discrete inputs) or 125 registers. For a write command, the limit is 1968 coils or 123 registers.

## MODBUS function codes

The PowerHawk MODBUS interface supports the following MODBUS function codes to read and write data from the PowerHawk meter:

- Function 3 - Read Holding Registers
- Function 6 - Write Single Register
- Function 16 - Write Multiple Registers
- Function 17 - Report Slave ID

## Register types and descriptions

This section describes the types of PowerHawk registers that can be read or written to, the information each register type provides, and the format in which the data is provided.

### Cumulative and instantaneous data registers

Cumulative registers report the total measured units starting from when the meter was commissioned, or when the register last overflowed, to present. When a cumulative register reaches 999,999,999 units, the register overflows and starts back at 0. All cumulative and instantaneous data registers are reported as 32-bit values (two 16-bit registers) and are updated every 5 seconds.

### Per meter point

The following data registers are reported for each meter point “x”. The number of meter points (x) is determined by the model number and configuration of the meter.

- Meter x Wh Delivered/Received - cumulative totals of Active (Real) Power (Watt hours) delivered and received.
- Meter x VARh Delivered/Received - cumulative totals of Reactive Power (Volt Ampere Reactive hours) delivered and received
- Meter x VAh - cumulative totals of Apparent Power (Volt Ampere hours)
- Meter x W - instantaneous Active (Real) Power
- Meter x VAR - instantaneous Reactive Power (Volt Ampere Reactive)
- Meter x VA - instantaneous Apparent Power (Volt Ampere)
- Meter x pf - instantaneous Power Factor

### Per meter element

The following data registers are reported for each meter element “p” on each meter point “x”.

*NOTE: Depending on the programming for each element, elements 1, 2 and 3 may, or may not, correspond to phases A, B and C.*

- Meter x-p Current - instantaneous Current per phase (Amperes)
- Meter x-p Voltage - instantaneous Voltage per phase (Volts)
- Meter x-p W - instantaneous Active (Real) Power per phase (Amperes)
- Meter x-p VAR - instantaneous Reactive Power (Volt Ampere Reactive) per phase
- Meter x-p VA - instantaneous Apparent Power (Volt Ampere) per phase

### Pulse input registers

The two pulse input registers show the current pulse count on each of the two separate pulse inputs of the PowerHawk meter. They are reported as 32-bit unsigned integers.

- Pulse 1 Input
- Pulse 2 Input

### Model and version registers

The model and version registers identify the individual meter type and its configuration.

- Model - reports the model number, and the voltage, phase and circuit configuration of the meter in eight consecutive 16-bit unsigned integer registers.

The eight consecutive Model registers are to be interpreted as a 15-character string as shown in the following format (including hyphens):

*mmmm-vvvv-pp-cc*

Where:

*mmmm* is the meter type

*vvvv* is the voltage

*pp* is the number of phases

*cc* is the number of circuits

Example: 4324-120V-3P-08

The complete list of supported PowerHawk meters and configurations is listed in Table 1.

- Firmware Version - is reported in the three least significant digits of a 16-bit unsigned integer register. The three digits (xyz) are to be interpreted as follows:

*Version x.yz*

## Interval data registers (data logging function)

The following registers can be used to obtain the historical interval data measurements that are stored in a meter. These registers are directly related to the data in the meter TR3 data log files. For each meter, the record types that are reported and the size of the data time interval are specified by the programmed configuration for that meter.

### Record\_ID (R/W)

Record\_ID is a 32-bit unsigned integer that increments by one for each recorded data interval. Record\_ID is used to track which interval data interval records have been read, and to specify which data interval record to start reading at.

The Record\_ID register must be written to at least once during each MODBUS client session to identify the first interval data registers to be read.

- If interval data exists in memory with a matching Record\_ID, this data will be read from the following interval data registers.
- If the requested Record\_ID is smaller than the lowest available Record\_ID, the interval data with the lowest available Record\_ID will be read.
- If the requested Record\_ID number is higher than the highest available Record\_ID, the interval data with the highest available Record\_ID will be read.

The Record\_ID automatically increments to the next record each time all of the interval data registers for each time interval have been read. When the Record\_ID stops changing, this indicates that all available Record\_IDs have been read.

Selecting the **Reset Dial Readings** button in the Triacta PowerHawk Configuration Tool will reset the Record\_ID register to zero and erase all of the existing interval data from the meter memory.

### Data\_TIMESTAMP (R/W)

The data/time indicated by the Data\_TIMESTAMP register marks the END of the time interval for the data interval records that are being read.

The data in this register is configured as a 32-bit unsigned integer in Unix (Epoch) format which is interpreted as follows:

YYYY/MM/DD,HH:MM

If the meter loses power, the internal clock will continue to keep time, and the next timestamp shows the first new interval after power was restored.

If the internal clock for the meter is set with a new time, the next stored interval timestamp will be based on the new time. The timestamps for existing interval data that are stored in memory are not changed.

In both of the above conditions, the Record ID will continue to increment by one for each new interval data record.

### **Data\_RECORDTYPE**

The record type identifies the description and data format of the data to be read in the INT\_DATA registers. For a complete list of record types and descriptions, refer to the *Triacta Application Note: PowerHawk Data Formats*.

### **INT\_DATA**

The number of INT\_DATA registers is specified by the model number, and the phase and meter point configuration. For example, a 6312-3P-08 has eight valid INT\_DATA registers, one for each meter point.

The INT\_DATA registers for each meter point are read from MODBUS registers 2704 to 2704+n-1.

### **Formatting**

Table 2 shows an example of how interval data logging registers are formatted for a meter with a 3-phase, 8-meter-point (3P-08) configuration.

Table 2: Example of an interval data logging register

Address	Name	Value	Type
2700	MBREG_TIMESTAMP	1344616200	Int 32
2702	Pulse Count Interval	15	Int 32
2704	INT_DATA (pulse input 1)	8.5	Float 32
2706	INT_DATA(pulse input 2)	5.5	Float 32
2702	Wh Interval Rec.	28	Int 32
2704-2718	INT_DATA MP1-8	0	Int 32
2702	VARh Interval Del.	29	Int 32
2704-2718	INT_DATA MP1-8	4	Int 32
2702	VARh Rec.	30	Int 32
2704-2718	INT_DATA MP1-8	0	Int 32
2702	VAh Interval	31	Int 32
2704-2718	INT_DATA MP1-8	4199	Int 32
2702	Peak Current 1	40	Int 32
2704-2718	INT_DATA MP1-8	60.029636	Float 32
2702	Peak Current 2	41	Int 32
2704-2718	INT_DATA MP1-8	60.08001	Float 32
2702	Peak Current 3	42	Int 32
2704-2718	INT_DATA MP1-8	60.055447	Float 32
2702	Present Demand	44	Int 32
2704-2718	INT_DATA MP1-8	49896	Int 32
2702	Wh Interval	1	Int 32
2704-2718	INT_DATA MP1-8	4158	Int 32
2702	Phase 1 Voltage	23	Int 32
2704-2718	INT_DATA MP1-8	281	Float 32
2702	Phase 2 Voltage	24	Int 32
2704-2718	INT_DATA MP1-8	281	Float 32
2702	Phase 3 Voltage	25	Int 32
2704-2718	INT_DATA MP1-8	278	Float 32
2702	Pulse Count Register	38	Int 32
2704	INT_DATA Pulse Input 1	8.5	Float 32
2706	INT_DATA Pulse Input 2	5.5	Float 32
2702	Wh Register Rcv.	33	Int 32
2704-2718	INT_DATA MP1-8	0	Float 32
2702	VARh Register Rcv.	35	Int 32
2704-2718	INT_DATA MP1-8	0	Float 32
2702	VARh Register Del.	34	Int 32
2704-2718	INT_DATA MP1-8	15	Int 32
2702	VAh Register	36	Int 32
2704-2718	INT_DATA MP1-8	13440	Int 32
2702	Wh Cumulative	2	Int 32
2704-2718	INT_DATA MP1-8	13305	Int 32

**To read interval data, proceed as follows:**

1. Write the Record\_ID register with the first Record ID to be retrieved.
2. Read the Record\_ID register to confirm the Record ID for the interval data which will be read next.
3. Read the Data\_TIMESTAMP register to identify the END of the time interval for the data interval records that are being read.
4. Read the Data\_RECORDTYPE register to view the record type for the data currently mapped.
5. Read the desired number of data records from the INT\_DATA registers.

6. To read subsequent data record types, repeat steps 2 to 5 until the Record\_ID register reports a different Record\_ID. This indicates that all of the available records for the time interval have been read.
7. To read subsequent data intervals, repeat steps 2 to 6 until both the Record\_ID and Data\_RECORDTYPE registers stay the same. This indicates that all of the available interval data records have been read.

*NOTE: A MODBUS slave can support multiple sessions to an arbitrary number of MODBUS masters. Each MODBUS master is responsible for keeping track of which Record\_ID was last read*

**To read interval data for meter firmware versions lower than 1.5x (Record\_ID register is not supported), proceed as follows:**

1. Write the Data\_TIMESTAMP register with the first timestamp of the first data interval to be retrieved.
2. Read the Data\_TIMESTAMP register to confirm the time interval for the interval data that will be read next.
3. Read the Data\_RECORDTYPE register to view the record type for the data currently mapped.
4. Read the desired number of data records from the INT\_DATA registers.
5. To read subsequent records, repeat steps 2 to 4 until the Data\_TIMESTAMP register reports a different timestamp. This indicates that all of the available records for the time interval have been read.
6. To read subsequent data intervals, repeat steps 2 to 5 until the Data\_TIMESTAMP and Data\_RECORDTYPE registers stay the same. This indicates that all of the available interval data records have been read.

The Data\_TIMESTAMP register must be written to at least once during each MODBUS client session to identify the first interval data registers to be read.

The timestamp register automatically increments to the next interval each time all of the data registers in each time interval are read. When the timestamp stops changing, this indicates that all of the available time intervals have been read.

Written timestamps are interpreted as follows:

- If the requested timestamp is older than, or equal to, the oldest available record, the oldest timestamp is returned.
- If the requested timestamp is newer than the newest available record, the newest timestamp is returned.
- If the requested timestamp falls between intervals, the next full interval timestamp is returned.
- If the requested timestamp is exactly within an interval boundary, that same timestamp is returned.

## Set UTC timestamp register

Writing to this register configures the meter with a specific date and time. This function can be used if access to an NTP network time source is not available.

Reading this register returns the current timestamp of the meter.

- Set UTC Time Stamp (R/W) - the data in this register is configured as a 32-bit unsigned integer in Unix (Epoch) format that is interpreted as follows:

YYYY/MM/DD,HH:MM

A valid password must first be written to the Password Protection registers to enable writing to this register (see “Password protection” on page 8).

## Energy demand data registers

The following energy demand data registers can be used to read the Peak Demand and Present Demand for each meter point.

To enable each respective set of demand data registers, each demand type must be enabled in the Types tab of the Report section of the PowerHawk Configuration Tool during meter configuration. The demand calculation type (Block Demand or Sliding Window Demand) and the demand interval duration are also specified during meter configuration.

- Meter x Peak Demand TS - the peak demand timestamp identifies the end of the demand time interval during which the peak demand shown in the Peak Demand register was recorded.
- Meter x Peak Demand - the peak demand (Watts) is the highest demand measured over any demand time interval starting from when the meter was commissioned or when the last Global Demand Reset occurred.
- Meter x Present Demand - the present demand (Watts) is the demand calculated for the most recent demand time interval.

*NOTE: Meter x Present Demand and the demand interval TIMESTAMP can also be read via the interval data (INT\_DATA) registers. If demand data is to be recorded for every demand time interval, the recommended method to be used is the “Interval data registers (data logging function)” on page 4.*

- Global Demand Reset - writing any value to this register will reset all of the peak demand registers to zero for every meter point.

A valid password must first be written to the Password Protection registers to enable writing to this register (see “Password protection” on page 8).

## Password protection

To enable write functions to the Global Demand Reset or Set UTC Time Stamp registers, the user must write a valid password to the Util Password registers. This must be done once for each active MODBUS client session.

Table 3 lists the reserved password register addresses and the associated values that must be entered for the PowerHawk default password (“password”).

**Table 3: Reserved password register addresses**

Address	Name	Value	Type	Radix
3950	Util Password	28769 (0x7061/pa)	Int 16	16
3951	Util Password	29555 (0x7373/ss)	Int 16	16
3952	Util Password	30575 (0x776f / wo)	Int 16	16
3953	Util Password	29284 (0x7264 / rd)	Int 16	16
3954	Util Password		Int 16	16
3955	Util Password		Int 16	16
3956	Util Password		Int 16	16
3957	Util Password		Int 16	16
3958	Util Password		Int 16	16
3959	Util Password		Int 16	16
3960	Util Password		Int 16	16
3961	Util Password		Int 16	16
3962	Util Password		Int 16	16
3963	Util Password		Int 16	16
3964	Util Password		Int 16	16
3965	Util Password		Int 16	16
3966	Util Password		Int 16	16
3967	Util Password		Int 16	16
3968	Util Password		Int 16	16
3969	Util Password		Int 16	16

Write functions remain enabled for as long as the MODBUS client session is active. To turn MODBUS write register protection back ON, disconnect the current MODBUS client session, then reconnect and start a new session.

## Report slave ID

The MODBUS function 17 (Report Slave ID) is supported for PowerHawk meters on both MODBUS RTU and TCP/IP. The format of the MODBUS reply from a PowerHawk meter is:

Field Name	Contents
Slave Address	Echo of Slave Address
Function	17 (0x11)
Byte Count	nn
Slave ID	xx
Run Indicator Status	0xff (Always OnN)
Additional Data	Device Description
Error Check (LRC or CRC)	—

The Slave IDs and Device Descriptions are listed as shown in Table 4. The Device Description field is written in the following format:

Triacta, Powerhawk, model number, firmware revision, build number

*NOTE: Table 4 lists the 120V product versions only in the Device Description column; the 230V and 240V versions of the products have the same slave IDs and follow the same format, but with a different voltage listed in the Device Description field.*

**Table 4: MODBUS slave ID and associated device description**

Meter type	Slave ID	Device Description
<b>6212 and 4224</b>		
3P-08	01	Triacta,Powerhawk,6212-120V-3P-08,1.40,xxxx Triacta,Powerhawk,4224-120V-3P-08,1.40,xxxx
1P-12	02	Triacta,Powerhawk,6212-120V-1P-12,1.40,xxxx Triacta,Powerhawk,4224-120V-1P-12,1.40,xxxx
2P-12	02	Triacta,Powerhawk,6212-120V-2P-12,1.40,xxxx Triacta,Powerhawk,4224-120V-2P-12,1.40,xxxx
1P-24	03	Triacta,Powerhawk,6212-120V-1P-24,1.40,xxxx Triacta,Powerhawk,4224-120V-1P-24,1.40,xxxx
2P-24	03	Triacta,Powerhawk,6212-120V-2P-24,1.40,xxxx Triacta,Powerhawk,4224-120V-2P-24,1.40,xxxx

Meter type	Slave ID	Device Description
<b>6312 and 4324</b>		
3P-08	01	Triacta,Powerhawk,6312-120V-3P-08,1.40,xxxx Triacta,Powerhawk,4324-120V-3P-08,1.40,xxxx
1P-12	02	Triacta,Powerhawk,6312-120V-1P-12,1.40,xxxx Triacta,Powerhawk,4324-120V-1P-12,1.40,xxxx
2P-12	02	Triacta,Powerhawk,6312-120V-2P-12,1.40,xxxx Triacta,Powerhawk,4324-120V-2P-12,1.40,xxxx
1P-24	03	Triacta,Powerhawk,6312-120V-1P-24,1.40,xxxx Triacta,Powerhawk,4324-120V-1P-24,1.40,xxxx
2P-24	03	Triacta,Powerhawk,6312-120V-2P-24,1.40,xxxx Triacta,Powerhawk,4324-120V-2P-24,1.40,xxxx
<b>6412</b>		
3P-08	01	Triacta,Powerhawk,6412-120V-3P-08,1.40,xxxx
1P-12	02	Triacta,Powerhawk,6412-120V-1P-12,1.40,xxxx
2P-12	02	Triacta,Powerhawk,6412-120V-2P-12,1.40,xxxx
1P-24	03	Triacta,Powerhawk,6412-120V-1P-24,1.40,xxxx
2P-24	03	Triacta,Powerhawk,6412-120V-2P-24,1.40,xxxx
<b>6203 and 4206</b>		
3P-02	04	Triacta,Powerhawk,6203-120V-3P-02,1.40,xxxx Triacta,Powerhawk,4206-120V-3P-02,1.40,xxxx
1P-03	05	Triacta,Powerhawk,6203-120V-1P-03,1.40,xxxx Triacta,Powerhawk,4206-120V-1P-03,1.40,xxxx
2P-03	05	Triacta,Powerhawk,6203-120V-2P-03,1.40,xxxx Triacta,Powerhawk,4206-120V-2P-03,1.40,xxxx
1P-06	06	Triacta,Powerhawk,6203-120V-1P-06,1.40,xxxx Triacta,Powerhawk,4206-120V-1P-06,1.40,xxxx
2P-06	06	Triacta,Powerhawk,6203-120V-2P-06,1.40,xxxx Triacta,Powerhawk,4206-120V-2P-06,1.40,xxxx
<b>6303 and 4306</b>		
3P-02	04	Triacta,Powerhawk,6303-120V-3P-02,1.40,xxxx Triacta,Powerhawk,4306-120V-3P-02,1.40,xxxx
1P-03	05	Triacta,Powerhawk,6303-120V-1P-03,1.40,xxxx Triacta,Powerhawk,4306-120V-1P-03,1.40,xxxx
2P-03	05	Triacta,Powerhawk,6303-120V-2P-03,1.40,xxxx Triacta,Powerhawk,4306-120V-2P-03,1.40,xxxx
1P-06	06	Triacta,Powerhawk,6303-120V-1P-06,1.40,xxxx Triacta,Powerhawk,4306-120V-1P-06,1.40,xxxx
2P-06	06	Triacta,Powerhawk,6303-120V-2P-06,1.40,xxxx Triacta,Powerhawk,4306-120V-2P-06,1.40,xxx

## Appendix A: MODBUS register map table

The following table lists the each MODBUS register name, with associated address and register type. The meter type and configuration supported by each register is indicated with a ✓. All registers are read only unless specified otherwise.

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	0	Meter 1 Wh delivered	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2	Meter 2 Wh delivered	Int 32 unsigned
✓	✓	✓	✓	✓		4	Meter 3 Wh delivered	Int 32 unsigned
✓	✓	✓	✓			6	Meter 4 Wh delivered	Int 32 unsigned
✓	✓	✓	✓			8	Meter 5 Wh delivered	Int 32 unsigned
✓	✓	✓	✓			10	Meter 6 Wh delivered	Int 32 unsigned
✓	✓	✓				12	Meter 7 Wh delivered	Int 32 unsigned
✓	✓	✓				14	Meter 8 Wh delivered	Int 32 unsigned
✓	✓					16	Meter 9 Wh delivered	Int 32 unsigned
✓	✓					18	Meter 10 Wh delivered	Int 32 unsigned
✓	✓					20	Meter 11 Wh delivered	Int 32 unsigned
✓	✓					22	Meter 12 Wh delivered	Int 32 unsigned
✓						24	Meter 13 Wh delivered	Int 32 unsigned
✓						26	Meter 14 Wh delivered	Int 32 unsigned
✓						28	Meter 15 Wh delivered	Int 32 unsigned
✓						30	Meter 16 Wh delivered	Int 32 unsigned
✓						32	Meter 17 Wh delivered	Int 32 unsigned
✓						34	Meter 18 Wh delivered	Int 32 unsigned
✓						36	Meter 19 Wh delivered	Int 32 unsigned
✓						38	Meter 20 Wh delivered	Int 32 unsigned
✓						40	Meter 21 Wh delivered	Int 32 unsigned
✓						42	Meter 22 Wh delivered	Int 32 unsigned
✓						44	Meter 23 Wh delivered	Int 32 unsigned
✓						46	Meter 24 Wh delivered	Int 32 unsigned
✓	✓	✓	✓	✓	✓	100	Meter 1 Wh received	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	102	Meter 2 Wh received	Int 32 unsigned
✓	✓	✓	✓	✓		104	Meter 3 Wh received	Int 32 unsigned
✓	✓	✓	✓			106	Meter 4 Wh received	Int 32 unsigned
✓	✓	✓	✓			108	Meter 5 Wh received	Int 32 unsigned
✓	✓	✓	✓			110	Meter 6 Wh received	Int 32 unsigned
✓	✓	✓				112	Meter 7 Wh received	Int 32 unsigned
✓	✓	✓				114	Meter 8 Wh received	Int 32 unsigned
✓	✓					116	Meter 9 Wh received	Int 32 unsigned
✓	✓					118	Meter 10 Wh received	Int 32 unsigned
✓	✓					120	Meter 11 Wh received	Int 32 unsigned
✓	✓					122	Meter 12 Wh received	Int 32 unsigned
✓						124	Meter 13 Wh received	Int 32 unsigned
✓						126	Meter 14 Wh received	Int 32 unsigned
✓						128	Meter 15 Wh received	Int 32 unsigned
✓						130	Meter 16 Wh received	Int 32 unsigned
✓						132	Meter 17 Wh received	Int 32 unsigned
✓						134	Meter 18 Wh received	Int 32 unsigned
✓						136	Meter 19 Wh received	Int 32 unsigned
✓						138	Meter 20 Wh received	Int 32 unsigned
✓						140	Meter 21 Wh received	Int 32 unsigned
✓						142	Meter 22 Wh received	Int 32 unsigned
✓						144	Meter 23 Wh received	Int 32 unsigned
✓						146	Meter 24 <b>Wh received</b>	Int 32 unsigned
✓	✓	✓	✓	✓	✓	200	Meter 1 VARh delivered	Int 32 unsigned
✓	✓	✓	✓	✓	✓	202	Meter 2 VARh delivered	Int 32 unsigned
✓	✓	✓	✓	✓		204	Meter 3 VARh delivered	Int 32 unsigned
✓	✓	✓	✓			206	Meter 4 VARh delivered	Int 32 unsigned
✓	✓	✓	✓			208	Meter 5 VARh delivered	Int 32 unsigned
✓	✓	✓	✓			210	Meter 6 VARh delivered	Int 32 unsigned
✓	✓	✓				212	Meter 7 VARh delivered	Int 32 unsigned
✓	✓	✓				214	Meter 8 VARh delivered	Int 32 unsigned
✓	✓					216	Meter 9 VARh delivered	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓					218	Meter 10 VARh delivered	Int 32 unsigned
✓	✓					220	Meter 11 VARh delivered	Int 32 unsigned
✓	✓					222	Meter 12 VARh delivered	Int 32 unsigned
✓						224	Meter 13 VARh delivered	Int 32 unsigned
✓						226	Meter 14 VARh delivered	Int 32 unsigned
✓						228	Meter 15 VARh delivered	Int 32 unsigned
✓						230	Meter 16 VARh delivered	Int 32 unsigned
✓						232	Meter 17VARh delivered	Int 32 unsigned
✓						234	Meter 18 VARh delivered	Int 32 unsigned
✓						236	Meter 19 VARh delivered	Int 32 unsigned
✓						238	Meter 20 VARh delivered	Int 32 unsigned
✓						240	Meter 21 VARh delivered	Int 32 unsigned
✓						242	Meter 22 VARh delivered	Int 32 unsigned
✓						244	Meter 23 VARh delivered	Int 32 unsigned
✓						246	Meter 24 VARh delivered	Int 32 unsigned
✓	✓	✓	✓	✓	✓	300	Meter 1 VARh received	Int 32 unsigned
✓	✓	✓	✓	✓	✓	302	Meter 2 VARh received	Int 32 unsigned
✓	✓	✓	✓	✓		304	Meter 3 VARh received	Int 32 unsigned
✓	✓	✓	✓			306	Meter 4 VARh received	Int 32 unsigned
✓	✓	✓	✓			308	Meter 5 VARh received	Int 32 unsigned
✓	✓	✓	✓			310	Meter 6 VARh received	Int 32 unsigned
✓	✓	✓				312	Meter 7 VARh received	Int 32 unsigned
✓	✓	✓				314	Meter 8 VARh received	Int 32 unsigned
✓	✓					316	Meter 9 VARh received	Int 32 unsigned
✓	✓					318	Meter 10 VARh received	Int 32 unsigned
✓	✓					320	Meter 11 VARh received	Int 32 unsigned
✓	✓					322	Meter 12 VARh received	Int 32 unsigned
✓						324	Meter 13 VARh received	Int 32 unsigned
✓						326	Meter 14 VARh received	Int 32 unsigned
✓						328	Meter 15 VARh received	Int 32 unsigned
✓						330	Meter 16 VARh received	Int 32 unsigned
✓						332	Meter 17VARh received	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓						334	Meter 18 VARh received	Int 32 unsigned
✓						336	Meter 19 VARh received	Int 32 unsigned
✓						338	Meter 20 VARh received	Int 32 unsigned
✓						340	Meter 21 VARh received	Int 32 unsigned
✓						342	Meter 22 VARh received	Int 32 unsigned
✓						344	Meter 23 VARh received	Int 32 unsigned
✓						346	Meter 24 VARh received	Int 32 unsigned
✓	✓	✓	✓	✓	✓	400	Meter 1 VAh	Int 32 unsigned
✓	✓	✓	✓	✓	✓	402	Meter 2 VAh	Int 32 unsigned
✓	✓	✓	✓	✓		404	Meter 3 VAh	Int 32 unsigned
✓	✓	✓	✓			406	Meter 4 VAh	Int 32 unsigned
✓	✓	✓	✓			408	Meter 5 VAh	Int 32 unsigned
✓	✓	✓	✓			410	Meter 6 VAh	Int 32 unsigned
✓	✓	✓				412	Meter 7 VAh	Int 32 unsigned
✓	✓	✓				414	Meter 8 VAh	Int 32 unsigned
✓	✓					416	Meter 9 VAh	Int 32 unsigned
✓	✓					418	Meter 10 VAh	Int 32 unsigned
✓	✓					420	Meter 11 VAh	Int 32 unsigned
✓	✓					422	Meter 12 VAh	Int 32 unsigned
✓						424	Meter 13 VAh	Int 32 unsigned
✓						426	Meter 14 VAh	Int 32 unsigned
✓						428	Meter 15 VAh	Int 32 unsigned
✓						430	Meter 16 VAh	Int 32 unsigned
✓						432	Meter 17 VAh	Int 32 unsigned
✓						434	Meter 18 VAh	Int 32 unsigned
✓						436	Meter 19 VAh	Int 32 unsigned
✓						438	Meter 20 VAh	Int 32 unsigned
✓						440	Meter 21 VAh	Int 32 unsigned
✓						442	Meter 22 VAh	Int 32 unsigned
✓						444	Meter 23 VAh	Int 32 unsigned
✓						446	Meter 24 VAh	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	600	Meter 1 W	Int 32 signed
✓	✓	✓	✓	✓	✓	602	Meter 2 W	Int 32 signed
✓	✓	✓	✓	✓		604	Meter 3 W	Int 32 signed
✓	✓	✓	✓			606	Meter 4 W	Int 32 signed
✓	✓	✓	✓			608	Meter 5 W	Int 32 signed
✓	✓	✓	✓			610	Meter 6 W	Int 32 signed
✓	✓	✓				612	Meter 7 W	Int 32 signed
✓	✓	✓				614	Meter 8 W	Int 32 signed
✓	✓					616	Meter 9 W	Int 32 signed
✓	✓					618	Meter 10 W	Int 32 signed
✓	✓					620	Meter 11 W	Int 32 signed
✓	✓					622	Meter 12 W	Int 32 signed
✓						624	Meter 13 W	Int 32 signed
✓						626	Meter 14 W	Int 32 signed
✓						628	Meter 15 W	Int 32 signed
✓						630	Meter 16 W	Int 32 signed
✓						632	Meter 17 W	Int 32 signed
✓						634	Meter 18 W	Int 32 signed
✓						636	Meter 19 W	Int 32 signed
✓						638	Meter 20 W	Int 32 signed
✓						640	Meter 21 W	Int 32 signed
✓						642	Meter 22 W	Int 32 signed
✓						644	Meter 23 W	Int 32 signed
✓						646	Meter 24 W	Int 32 signed
✓	✓	✓	✓	✓	✓	700	Meter 1 VAR	Int 32 signed
✓	✓	✓	✓	✓	✓	702	Meter 2 VAR	Int 32 signed
✓	✓	✓	✓	✓		704	Meter 3 VAR	Int 32 signed
✓	✓	✓	✓			706	Meter 4 VAR	Int 32 signed
✓	✓	✓	✓			708	Meter 5 VAR	Int 32 signed
✓	✓	✓	✓			710	Meter 6 VAR	Int 32 signed
✓	✓	✓				712	Meter 7 VAR	Int 32 signed
✓	✓	✓				714	Meter 8 VAR	Int 32 signed

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓					716	Meter 9 VAR	Int 32 signed
✓	✓					718	Meter 10 VAR	Int 32 signed
✓	✓					720	Meter 11 VAR	Int 32 signed
✓	✓					722	Meter 12 VAR	Int 32 signed
✓						724	Meter 13 VAR	Int 32 signed
✓						726	Meter 14 VAR	Int 32 signed
✓						728	Meter 15 VAR	Int 32 signed
✓						730	Meter 16 VAR	Int 32 signed
✓						732	Meter 17 VAR	Int 32 signed
✓						734	Meter 18 VAR	Int 32 signed
✓						736	Meter 19 VAR	Int 32 signed
✓						738	Meter 20 VAR	Int 32 signed
✓						740	Meter 21 VAR	Int 32 signed
✓						742	Meter 22 VAR	Int 32 signed
✓						744	Meter 23 VAR	Int 32 signed
✓						746	Meter 24 VAR	Int 32 signed
✓	✓	✓	✓	✓	✓	800	Meter 1 VA	Int 32 unsigned
✓	✓	✓	✓	✓	✓	802	Meter 2 VA	Int 32 unsigned
✓	✓	✓	✓	✓		804	Meter 3 VA	Int 32 unsigned
✓	✓	✓	✓			806	Meter 4 VA	Int 32 unsigned
✓	✓	✓	✓			808	Meter 5 VA	Int 32 unsigned
✓	✓	✓	✓			810	Meter 6 VA	Int 32 unsigned
✓	✓	✓				812	Meter 7 VA	Int 32 unsigned
✓	✓	✓				814	Meter 8 VA	Int 32 unsigned
✓	✓					816	Meter 9 VA	Int 32 unsigned
✓	✓					818	Meter 10 VA	Int 32 unsigned
✓	✓					820	Meter 11 VA	Int 32 unsigned
✓	✓					822	Meter 12 VA	Int 32 unsigned
✓						824	Meter 13 VA	Int 32 unsigned
✓						826	Meter 14 VA	Int 32 unsigned
✓						828	Meter 15 VA	Int 32 unsigned
✓						830	Meter 16 VA	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓						832	Meter 17 VA	Int 32 unsigned
✓						834	Meter 18 VA	Int 32 unsigned
✓						836	Meter 19 VA	Int 32 unsigned
✓						838	Meter 20 VA	Int 32 unsigned
✓						840	Meter 21 VA	Int 32 unsigned
✓						842	Meter 22 VA	Int 32 unsigned
✓						844	Meter 23 VA	Int 32 unsigned
✓						846	Meter 24 VA	Int 32 unsigned
✓	✓	✓	✓	✓	✓	900	Meter 1 pf	Float 32
✓	✓	✓	✓	✓	✓	902	Meter 2 pf	Float 32
✓	✓	✓	✓	✓		904	Meter 3 pf	Float 32
✓	✓	✓	✓			906	Meter 4 pf	Float 32
✓	✓	✓	✓			908	Meter 5 pf	Float 32
✓	✓	✓	✓			910	Meter 6 pf	Float 32
✓	✓	✓				912	Meter 7 pf	Float 32
✓	✓	✓				914	Meter 8 pf	Float 32
✓	✓					916	Meter 9 pf	Float 32
✓	✓					918	Meter 10 pf	Float 32
✓	✓					920	Meter 11 pf	Float 32
✓	✓					922	Meter 12 pf	Float 32
✓						924	Meter 13 pf	Float 32
✓						926	Meter 14 pf	Float 32
✓						928	Meter 15 pf	Float 32
✓						930	Meter 16 pf	Float 32
✓						932	Meter 17 pf	Float 32
✓						934	Meter 18 pf	Float 32
✓						936	Meter 19 pf	Float 32
✓						938	Meter 20 pf	Float 32
✓						940	Meter 21 pf	Float 32
✓						942	Meter 22 pf	Float 32
✓						944	Meter 23 pf	Float 32
✓						946	Meter 24 pf	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	1000	Meter 1-1 Current	Float 32
✓	✓	✓	✓	✓	✓	1002	Meter 2-1 Current	Float 32
✓	✓	✓	✓	✓		1004	Meter 3-1 Current	Float 32
✓	✓	✓	✓			1006	Meter 4-1 Current	Float 32
✓	✓	✓	✓			1008	Meter 5-1 Current	Float 32
✓	✓	✓	✓			1010	Meter 6-1 Current	Float 32
✓	✓	✓				1012	Meter 7-1 Current	Float 32
✓	✓	✓				1014	Meter 8-1 Current	Float 32
✓	✓					1016	Meter 9-1 Current	Float 32
✓	✓					1018	Meter 10-1 Current	Float 32
✓	✓					1020	Meter 11-1 Current	Float 32
✓	✓					1022	Meter 12-1 Current	Float 32
✓						1024	Meter 13-1 Current	Float 32
✓						1026	Meter 14-1 Current	Float 32
✓						1028	Meter 15-1 Current	Float 32
✓						1030	Meter 16-1 Current	Float 32
✓						1032	Meter 17-1 Current	Float 32
✓						1034	Meter 18-1 Current	Float 32
✓						1036	Meter 19-1 Current	Float 32
✓						1038	Meter 20-1 Current	Float 32
✓						1040	Meter 21-1 Current	Float 32
✓						1042	Meter 22-1 Current	Float 32
✓						1044	Meter 23-1 Current	Float 32
✓						1046	Meter 24-1 Current	Float 32
	✓	✓		✓	✓	1100	Meter 1-2 Current	Float 32
	✓	✓		✓	✓	1102	Meter 2-2 Current	Float 32
	✓	✓		✓		1104	Meter 3-2 Current	Float 32
	✓	✓				1106	Meter 4-2 Current	Float 32
	✓	✓				1108	Meter 5-2 Current	Float 32
	✓	✓				1110	Meter 6-2 Current	Float 32
	✓	✓				1112	Meter 7-2 Current	Float 32
	✓	✓				1114	Meter 8-2 Current	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
	✓					1116	Meter 9-2 Current	Float 32
	✓					1118	Meter 10-2 Current	Float 32
	✓					1120	Meter 11-2 Current	Float 32
	✓					1122	Meter 12-2 Current	Float 32
		✓			✓	1200	Meter 1-3 Current	Float 32
		✓			✓	1202	Meter 2-3 Current	Float 32
		✓				1204	Meter 3-3 Current	Float 32
		✓				1206	Meter 4-3 Current	Float 32
		✓				1208	Meter 5-3 Current	Float 32
		✓				1210	Meter 6-3 Current	Float 32
		✓				1212	Meter 7-3 Current	Float 32
		✓				1214	Meter 8-3 Current	Float 32
✓	✓	✓	✓	✓	✓	1300	Meter 1-1 Voltage	Float 32
✓	✓	✓	✓	✓	✓	1302	Meter 2-1 Voltage	Float 32
✓	✓	✓	✓	✓		1304	Meter 3-1 Voltage	Float 32
✓	✓	✓	✓			1306	Meter 4-1 Voltage	Float 32
✓	✓	✓	✓			1308	Meter 5-1 Voltage	Float 32
✓	✓	✓	✓			1310	Meter 6-1 Voltage	Float 32
✓	✓	✓				1312	Meter 7-1 Voltage	Float 32
✓	✓	✓				1314	Meter 8-1 Voltage	Float 32
✓	✓					1316	Meter 9-1 Voltage	Float 32
✓	✓					1318	Meter 10-1 Voltage	Float 32
✓	✓					1320	Meter 11-1 Voltage	Float 32
✓	✓					1322	Meter 12-1 Voltage	Float 32
✓						1324	Meter 13-1 Voltage	Float 32
✓						1326	Meter 14-1 Voltage	Float 32
✓						1328	Meter 15-1 Voltage	Float 32
✓						1330	Meter 16-1 Voltage	Float 32
✓						1332	Meter 17-1 Voltage	Float 32
✓						1334	Meter 18-1 Voltage	Float 32
✓						1336	Meter 19-1 Voltage	Float 32
✓						1338	Meter 20-1 Voltage	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓						1340	Meter 21-1 Voltage	Float 32
✓						1342	Meter 22-1 Voltage	Float 32
✓						1344	Meter 23-1 Voltage	Float 32
✓						1346	Meter 24-1 Voltage	Float 32
	✓	✓		✓	✓	1400	Meter 1-2 Voltage	Float 32
	✓	✓		✓	✓	1402	Meter 2-2 Voltage	Float 32
	✓	✓		✓		1404	Meter 3-2 Voltage	Float 32
	✓	✓				1406	Meter 4-2 Voltage	Float 32
	✓	✓				1408	Meter 5-2 Voltage	Float 32
	✓	✓				1410	Meter 6-2 Voltage	Float 32
	✓	✓				1412	Meter 7-2 Voltage	Float 32
	✓	✓				1414	Meter 8-2 Voltage	Float 32
	✓					1416	Meter 9-2 Voltage	Float 32
	✓					1418	Meter 10-2 Voltage	Float 32
	✓					1420	Meter 11-2 Voltage	Float 32
	✓					1422	Meter 12-2 Voltage	Float 32
		✓			✓	1500	Meter 1-3 Voltage	Float 32
		✓			✓	1502	Meter 2-3 Voltage	Float 32
		✓				1504	Meter 3-3 Voltage	Float 32
		✓				1506	Meter 4-3 Voltage	Float 32
		✓				1508	Meter 5-3 Voltage	Float 32
		✓				1510	Meter 6-3 Voltage	Float 32
		✓				1512	Meter 7-3 Voltage	Float 32
		✓				1514	Meter 8-3 Voltage	Float 32
✓	✓	✓	✓	✓	✓	1600	Meter 1-1 W	Float 32
✓	✓	✓	✓	✓	✓	1602	Meter 2-1 W	Float 32
✓	✓	✓	✓	✓		1604	Meter 3-1 W	Float 32
✓	✓	✓	✓			1606	Meter 4-1 W	Float 32
✓	✓	✓	✓			1608	Meter 5-1 W	Float 32
✓	✓	✓	✓			1610	Meter 6-1 W	Float 32
✓	✓	✓				1612	Meter 7-1 W	Float 32
✓	✓	✓				1614	Meter 8-1 W	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓					1616	Meter 9-1 W	Float 32
✓	✓					1618	Meter 10-1 W	Float 32
✓	✓					1620	Meter 11-1 W	Float 32
✓	✓					1622	Meter 12-1 W	Float 32
✓						1624	Meter 13-1 W	Float 32
✓						1626	Meter 14-1 W	Float 32
✓						1628	Meter 15-1 W	Float 32
✓						1630	Meter 16-1 W	Float 32
✓						1632	Meter 17-1 W	Float 32
✓						1634	Meter 18-1 W	Float 32
✓						1636	Meter 19-1 W	Float 32
✓						1638	Meter 20-1 W	Float 32
✓						1640	Meter 21-1 W	Float 32
✓						1642	Meter 22-1 W	Float 32
✓						1644	Meter 23-1 W	Float 32
✓						1646	Meter 24-1 W	Float 32
	✓	✓		✓	✓	1700	Meter 1-2 W	Float 32
	✓	✓		✓	✓	1702	Meter 2-2 W	Float 32
	✓	✓		✓		1704	Meter 3-2 W	Float 32
	✓	✓				1706	Meter 4-2 W	Float 32
	✓	✓				1708	Meter 5-2 W	Float 32
	✓	✓				1710	Meter 6-2 W	Float 32
	✓	✓				1712	Meter 7-2 W	Float 32
	✓	✓				1414	Meter 8-2 W	Float 32
	✓					1716	Meter 9-2 W	Float 32
	✓					1718	Meter 10-2 W	Float 32
	✓					1720	Meter 11-2 W	Float 32
	✓					1722	Meter 12-2 W	Float 32
		✓			✓	1500	Meter 1-3 W	Float 32
		✓			✓	1802	Meter 2-3 W	Float 32
		✓				1804	Meter 3-3 W	Float 32
		✓				1806	Meter 4-3 W	Float 32
		✓				1808	Meter 5-3 W	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
		✓				1810	Meter 6-3 W	Float 32
		✓				1812	Meter 7-3 W	Float 32
		✓				1814	Meter 8-3 W	Float 32
✓	✓	✓	✓	✓	✓	1900	Meter 1-1 VAR	Float 32
✓	✓	✓	✓	✓	✓	1902	Meter 2-1 VAR	Float 32
✓	✓	✓	✓	✓		1904	Meter 3-1 VAR	Float 32
✓	✓	✓	✓			1906	Meter 4-1 VAR	Float 32
✓	✓	✓	✓			1908	Meter 5-1 VAR	Float 32
✓	✓	✓	✓			1910	Meter 6-1 VAR	Float 32
✓	✓	✓				1912	Meter 7-1 VAR	Float 32
✓	✓	✓				1914	Meter 8-1 VAR	Float 32
✓	✓					1916	Meter 9-1 VAR	Float 32
✓	✓					1918	Meter 10-1 VAR	Float 32
✓	✓					1920	Meter 11-1 VAR	Float 32
✓	✓					1922	Meter 12-1 VAR	Float 32
✓						1924	Meter 13-1 VAR	Float 32
✓						1926	Meter 14-1 VAR	Float 32
✓						1928	Meter 15-1 VAR	Float 32
✓						1930	Meter 16-1 VAR	Float 32
✓						1932	Meter 17-1 VAR	Float 32
✓						1934	Meter 18-1 VAR	Float 32
✓						1936	Meter 19-1 VAR	Float 32
✓						1938	Meter 20-1 VAR	Float 32
✓						1940	Meter 21-1 VAR	Float 32
✓						1942	Meter 22-1 VAR	Float 32
✓						1944	Meter 23-1 VAR	Float 32
✓						1946	Meter 24-1 VAR	Float 32
	✓	✓		✓	✓	2000	Meter 1-2 VAR	Float 32
	✓	✓		✓	✓	2002	Meter 2-2 VAR	Float 32
	✓	✓		✓		2004	Meter 3-2 VAR	Float 32
	✓	✓				2006	Meter 4-2 VAR	Float 32
	✓	✓				2008	Meter 5-2 VAR	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
	✓	✓				2010	Meter 6-2 VAR	Float 32
	✓	✓				2012	Meter 7-2 VAR	Float 32
	✓	✓				2014	Meter 8-2 VAR	Float 32
	✓					2016	Meter 9-2 VAR	Float 32
	✓					2018	Meter 10-2 VAR	Float 32
	✓					2020	Meter 11-2 VAR	Float 32
	✓					2022	Meter 12-2 VAR	Float 32
		✓			✓	2100	Meter 1-3 VAR	Float 32
		✓			✓	2102	Meter 2-3 VAR	Float 32
		✓				2104	Meter 3-3 VAR	Float 32
		✓				2106	Meter 4-3 VAR	Float 32
		✓				2108	Meter 5-3 VAR	Float 32
		✓				2110	Meter 6-3 VAR	Float 32
		✓				2112	Meter 7-3 VAR	Float 32
		✓				2114	Meter 8-3 VAR	Float 32
✓	✓	✓	✓	✓	✓	2200	Meter 1-1 VA	Float 32
✓	✓	✓	✓	✓	✓	2202	Meter 2-1 VA	Float 32
✓	✓	✓	✓	✓		2204	Meter 3-1 VA	Float 32
✓	✓	✓	✓			2206	Meter 4-1 VA	Float 32
✓	✓	✓	✓			2208	Meter 5-1 VA	Float 32
✓	✓	✓	✓			2210	Meter 6-1 VA	Float 32
✓	✓	✓				2212	Meter 7-1 VA	Float 32
✓	✓	✓				2214	Meter 8-1 VA	Float 32
✓	✓					2216	Meter 9-1 VA	Float 32
✓	✓					2218	Meter 10-1 VA	Float 32
✓	✓					2220	Meter 11-1 VA	Float 32
✓	✓					2222	Meter 12-1 VA	Float 32
✓						2224	Meter 13-1 VA	Float 32
✓						2226	Meter 14-1 VA	Float 32
✓						2228	Meter 15-1 VA	Float 32
✓						2230	Meter 16-1 VA	Float 32
✓						2232	Meter 17-1 VA	Float 32

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓						2234	Meter 18-1 VA	Float 32
✓						2236	Meter 19-1 VA	Float 32
✓						2238	Meter 20-1 VA	Float 32
✓						2240	Meter 21-1 VA	Float 32
✓						2242	Meter 22-1 VA	Float 32
✓						2244	Meter 23-1 VA	Float 32
✓						2246	Meter 24-1 VA	Float 32
	✓	✓		✓	✓	2300	Meter 1-2 VA	Float 32
	✓	✓		✓	✓	2302	Meter 2-2 VA	Float 32
	✓	✓		✓		2304	Meter 3-2 VA	Float 32
	✓	✓				2306	Meter 4-2 VA	Float 32
	✓	✓				2308	Meter 5-2 VA	Float 32
	✓	✓				2310	Meter 6-2 VA	Float 32
	✓	✓				2312	Meter 7-2 VA	Float 32
	✓	✓				2314	Meter 8-2 VA	Float 32
	✓					2316	Meter 9-2 VA	Float 32
	✓					2318	Meter 10-2 VA	Float 32
	✓					2320	Meter 11-2 VA	Float 32
	✓					2322	Meter 12-2 VA	Float 32
		✓			✓	2400	Meter 1-3 VA	Float 32
		✓			✓	2402	Meter 2-3 VA	Float 32
		✓				2404	Meter 3-3 VA	Float 32
		✓				2406	Meter 4-3 VA	Float 32
		✓				2408	Meter 5-3 VA	Float 32
		✓				2410	Meter 6-3 VA	Float 32
		✓				2412	Meter 7-3 VA	Float 32
		✓				2414	Meter 8-3 VA	Float 32
✓	✓	✓	✓	✓	✓	2500	Pulse 1 Input	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2502	Pulse 2 Input	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2600	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2601	Model	Int 16 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	2602	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2603	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2604	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2605	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2606	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2607	Model	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2611	Global Demand Reset	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2650	Firmware Version	Int 16 unsigned
✓	✓	✓	✓	✓	✓	2698	Record_ID (R/W)	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2700	Data_TIMESTAMP (R/W)	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2702	Data_RECORDTYPE	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2704	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2706	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2708	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2710	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2712	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2714	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2716	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2718	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2720	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2722	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2724	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2726	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2728	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2730	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2732	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2734	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2736	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2738	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2740	INT_DATA	See Table 2

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	2742	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2744	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2746	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2748	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2750	INT_DATA	See Table 2
✓	✓	✓	✓	✓	✓	2800	Set UTC Time Stamp (R/W)	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2900	Meter 1 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2902	Meter 1 Peak Demand	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2904	Meter 2 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓	✓	✓	2906	Meter 2 Peak Demand	Int 32 unsigned
✓	✓	✓	✓	✓		2908	Meter 3 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓	✓		2910	Meter 3 Peak Demand	Int 32 unsigned
✓	✓	✓	✓			2912	Meter 4 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓			2914	Meter 4 Peak Demand	Int 32 unsigned
✓	✓	✓	✓			2916	Meter 5 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓			2918	Meter 5 Peak Demand	Int 32 unsigned
✓	✓	✓	✓			2920	Meter 6 Peak Demand TS	Int 32 unsigned
✓	✓	✓	✓			2922	Meter 6 Peak Demand	Int 32 unsigned
✓	✓	✓				2924	Meter 7 Peak Demand TS	Int 32 unsigned
✓	✓	✓				2926	Meter 7 Peak Demand	Int 32 unsigned
✓	✓	✓				2928	Meter 8 Peak Demand TS	Int 32 unsigned
✓	✓	✓				2930	Meter 8 Peak Demand	Int 32 unsigned
✓	✓					2932	Meter 9 Peak Demand TS	Int 32 unsigned
✓	✓					2934	Meter 9 Peak Demand	Int 32 unsigned
✓	✓					2936	Meter 10 Peak Demand TS	Int 32 unsigned
✓	✓					2938	Meter 10 Peak Demand	Int 32 unsigned
✓	✓					2940	Meter 11 Peak Demand TS	Int 32 unsigned
✓	✓					2942	Meter 11 Peak Demand	Int 32 unsigned
✓	✓					2944	Meter 12 Peak Demand TS	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓					2946	Meter 12 Peak Demand	Int 32 unsigned
✓						2948	Meter 13 Peak Demand TS	Int 32 unsigned
✓						2950	Meter 13 Peak Demand	Int 32 unsigned
✓						2952	Meter 14 Peak Demand TS	Int 32 unsigned
✓						2954	Meter 14 Peak Demand	Int 32 unsigned
✓						2956	Meter 15 Peak Demand TS	Int 32 unsigned
✓						2958	Meter 15 Peak Demand	Int 32 unsigned
✓						2960	Meter 16 Peak Demand TS	Int 32 unsigned
✓						2962	Meter 16 Peak Demand	Int 32 unsigned
✓						2964	Meter 17 Peak Demand TS	Int 32 unsigned
✓						2966	Meter 17 Peak Demand	Int 32 unsigned
✓						2968	Meter 18 Peak Demand TS	Int 32 unsigned
✓						2970	Meter 18 Peak Demand	Int 32 unsigned
✓						2972	Meter 19 Peak Demand TS	Int 32 unsigned
✓						2974	Meter 19 Peak Demand	Int 32 unsigned
✓						2976	Meter 20 Peak Demand TS	Int 32 unsigned
✓						2978	Meter 20 Peak Demand	Int 32 unsigned
✓						2980	Meter 21 Peak Demand TS	Int 32 unsigned
✓						2982	Meter 21 Peak Demand	Int 32 unsigned
✓						2984	Meter 22 Peak Demand TS	Int 32 unsigned
✓						2986	Meter 22 Peak Demand	Int 32 unsigned
✓						2988	Meter 23 Peak Demand TS	Int 32 unsigned
✓						2990	Meter 23 Peak Demand	Int 32 unsigned
✓						2992	Meter 24 Peak Demand TS	Int 32 unsigned
✓						2994	Meter 24 Peak Demand	Int 32 unsigned
✓	✓	✓	✓	✓	✓	3000	Meter 1 Present Demand	Int 32 unsigned

6x12 and 4x24 meter types			6x03 and 4x12 meter types			Address	Name	Type
1P/2P-24	1P/2P-24	3P-08	1P/2P-06	1P/2P-03	3P-02			
✓	✓	✓	✓	✓	✓	3002	Meter 2 Present Demand	Int 32 unsigned
✓	✓	✓	✓	✓		3004	Meter 3 Present Demand	Int 32 unsigned
✓	✓	✓	✓			3006	Meter 4 Present Demand	Int 32 unsigned
✓	✓	✓	✓			3008	Meter 5 Present Demand	Int 32 unsigned
✓	✓	✓	✓			3010	Meter 6 Present Demand	Int 32 unsigned
✓	✓	✓				3012	Meter 7 Present Demand	Int 32 unsigned
✓	✓	✓				3014	Meter 8 Present Demand	Int 32 unsigned
✓	✓					3016	Meter 9 Present Demand	Int 32 unsigned
✓	✓					3018	Meter 10 Present Demand	Int 32 unsigned
✓	✓					3020	Meter 11 Present Demand	Int 32 unsigned
✓	✓					3022	Meter 12 Present Demand	Int 32 unsigned
✓						3024	Meter 13 Present Demand	Int 32 unsigned
✓						3026	Meter 14 Present Demand	Int 32 unsigned
✓						3028	Meter 15 Present Demand	Int 32 unsigned
✓						3030	Meter 16 Present Demand	Int 32 unsigned
✓						3032	Meter 17 Present Demand	Int 32 unsigned
✓						3034	Meter 18 Present Demand	Int 32 unsigned
✓						3036	Meter 19 Present Demand	Int 32 unsigned
✓						3038	Meter 20 Present Demand	Int 32 unsigned
✓						3040	Meter 21 Present Demand	Int 32 unsigned
✓						3042	Meter 22 Present Demand	Int 32 unsigned
✓						3044	Meter 23 Present Demand	Int 32 unsigned
✓						3046	Meter 24 Present Demand	Int 32 unsigned





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930-130-01-A.10 06/2015

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