SPM-8 Multi-Function Power Meter

User guide

Content

Chapter 1 Introduction

1.1 Product Introduction

SPM-8 series power meter is designed for continuous monitoring of 3 phase system. All essential power parameters measure including current, voltage, power, active and reactive energy are integrated in a single meter. Its bi-directional energy measurement and harmonic analysis function makes SPM-8 suitable for modern industrial power management. The built-in RS485 and rich communication abilities enable SPM-8 to be easily connected with most modern third-party SCADA systems.

Features

	Standard Model	Advance Model
Power parameters measure		
Current：3 phase, neutral, accuracy 0.1%	●	●
Voltage：3 phase phase-phase, phase-neutral, accuracy 0.1%	●	●
Frequency：47-63 Hz	●	●
Total power：Active, reactive, apparent power, accuracy 0.5%	●	●
Power per phase：Active, reactive, apparent power, accuracy 0.5%	●	●
Power factor：Total, per phase	●	●
Auto wiring detection	●	●
Energy measure		
Energy：Active, reactive, apparent energy, accuracy 0.5%	●	●
Bi-directional energy：Deliver and receive kWh, kVARh, kVAh	●	●
Display and input/output		
Panel display：Mono 128 x 128 STN-LCD	●	●
Digital input：12 channel dry contact inputs	●	●
Digital output：2 channel relay for alarm and kWh pulse output	●	●
Analog input：4 channel 4-20mA input（**option**）	●	●
Analog output：4 channel 4~20 mA for V, I, kW, kVA, kVAR（**option**）	●	●
Voltage connection：10- 600 V RMS（ph-ph）	●	●
Current connection：5A RMS, minimum detetable current 2 mA	●	●
Power supply：86~242 Vac or100~300 VDC	●	●
Communication		
Primary port：RS485 Modbus	●	●
Secondary port：Ethernet : 10/100 Mbps, Modbus over TCP/IP protocol（**option**）		●
Demand measure		
Block/Rolling demand		●
Power Quality measure		
Harmonic：V, I THD and individual harmonics		●
Sag/Swell：Configurable setting points		●
Report and event logging		
Report：Daily report : this day, yesterday；Regular report : this period, last reset		●
Event logging：Sag, swell, alarm logging		●

1.2 Caution

1.2.1 Danger

The meter contains hazardous voltages. The meter should never be disassembled. Failure to observe this practice can result in serious injury or death. Any work on or near energized meters, meter sockets, or other metering equipment can present a danger of electrical shock. It is strongly recommended that all work should be performed only by qualified industrial electricians and metering specialist. Shihlin assumes no responsibility if your electrical installer does not follow the appropriate national and local electrical codes.

1.2.2 PRODUCT WARRANTY & CUSTOMER SUPPORT

Shihlin warrants all products free from defects in material and workmanship for a period of one year from the date of shipping. During the warranty period, we will, at our position, either repair any product that proves to be defective. To report any defect, please contact ：**+886-3-5981921** or **greta@seec.com.tw**

Please have the model, serial number and a detailed problem description available when you call. If the problem concerns a particular reading, please have all meter readings available. When returning any merchandise to Shihlin, a return materials calibration number is required.

1.2.3 LIMITATION OF WARRANTY

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

Chapter 2 General Features

＊：only in Advance model

2.1 Power parameters measure and accuracy

Current：3 phase, neutral, accuracy ＜ 0.1%
Voltage：3 phase phase-phase, phase-neutral, accuracy ＜ 0.1%
Frequency：47-63 Hz
Total power：Active, reactive, apparent power, accuracy ＜ 0.5%
Power per phase：Active, reactive, apparent power, accuracy ＜ 0.5%
Power factor：Total, per phase

2.2 Energy measure

Energy：Active, reactive, apparent energy, accuracy ＜ 0.5%
Bi-directional energy：Deliver and receive kWh, kVARh, kVAh

2.3 Demand measure*

Bi-directional Block/Rolling demand

2.4 Power Quality measure*

Harmonic：V, I THD and individual harmonics, up to 31 orders
Sag/Swell：Configurable setting points

2.5 Report and event logging*

Report：Daily report：this day, yesterday
Regular report：this period, last reset
Event logging：Sag, swell, alarm logging

2.6 Display and input/output

Panel display：Mono 128 x 128 STN-LCD
Digital input：12 channel dry contact inputs
Digital output：2 channel relay for alarm and kWh pulse output
Analog input：4 channel 4-20mA input（**option**）
Analog output：4 channel 4~20 mA for V, I, kW, kVA, kVAR（**option**）
Voltage connection：10-600Vrms
Current connection： 5Arms, minimun detetable current 2 mA
Power supply：86~242 Vac or 100~300Vdc
Power consumption：8W/15VA

2.7 Communication

Primary port：RS485 Modbus or DNP 3.0 protocol
Secondary port*：Ethernet：10/100 Mbps, Modbus over TCP/IP protocol,

2.8 Environmental & Physical

Operation temperature：-20℃to 60℃
Storage temperature：-25℃ to 80℃
Humidity：20-90%RH (non-condensing)
Dimensions：144mm(L) x 144mm(W) x 94mm(H)

2.9 Ordering Code

SPM-8 □ □ □ □

Model
0 : Standard
1 : Advanced

Secondary Port
0 : No secondary port
1 : Ethernet

AI function
0 : Without AI function
1 : With AI function

AO function
0 : Without AO function
1 : With AO function

Note : Standard Model offers no secondary port

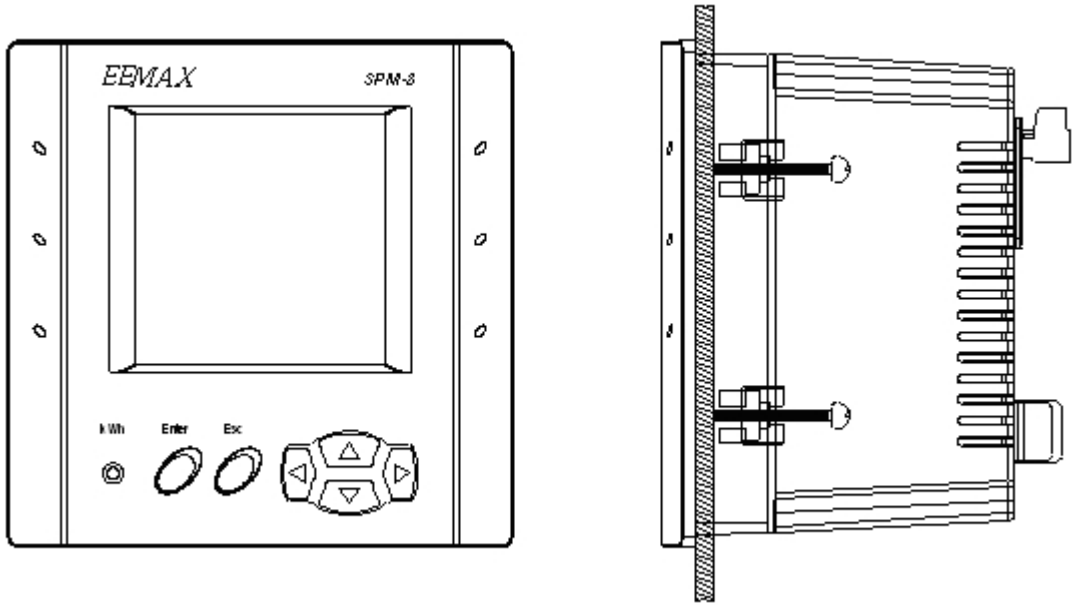
Chapter 3 Installation

3.1 Safety

On receipt of the instrument and prior to installation, makes sure it has not been damaged during shipment.
The instrument is no longer safe when,
a) shows clear signs of damage
b) does not work
c) long storage under extreme conditions
d) damage during shipment

3.2 Mounting

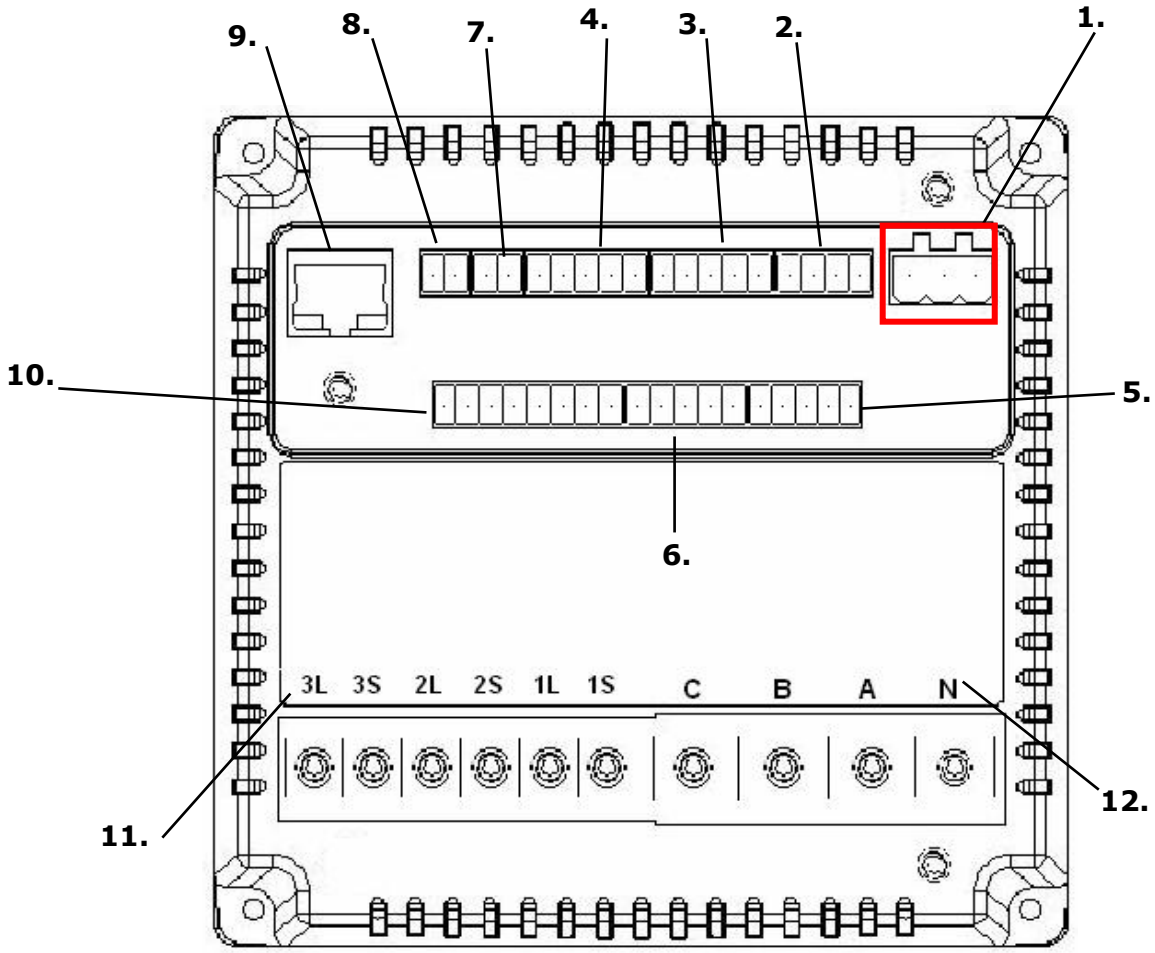
- This instrument should install on vibration free switchboard and with environment temperature between -20℃~60℃, humility between 20-90%RH（no condensing）
- For the instrument is already equipped with an internal protection fuse, a 1AmAT HBC fuse is recommended during installation
- Prior to maintain/repair this instrument, always disconnect this instrument from all power sources
- Only have qualified and authorited personnel to carry out installation, maintainance and repair
- Water profe for front panel IP54, case IP20



After mounting the instrument, place all four support latch in position.
Pannel cut-out area is 138x138mm(+or- 0.5mm)

Chapter 4 Connection

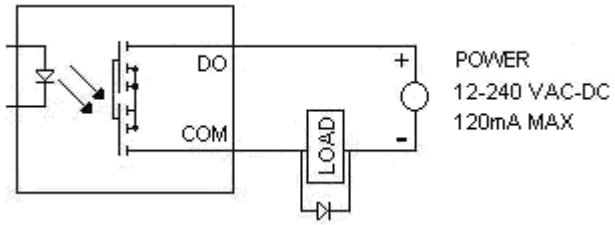
4.1 Back view of connect port



1.	AUX. power
2	Digital output (Com2 DO2 Com1 DO1)
3.	Analog output (Com1 AO4 AO3 AO2 AO1)
4.	Digital input (Com1 DI4 DI3 DI2 DI1)
5.	Digital input (DI5 DI6 DI7 DI8 Com2)
6.	Digital input (DI9 DI10 DI11 DI12 Com3)
7.	RS485 port (D- D+)
8.	RS485 port (D- D+)
9.	Ethernet port
10.	Analog input (AI1+ AI1- AI2+ AI2- AI3+ AI3- AI4+ AI4-)
11	Current terminal (3L 3S 2L 2S 1L 1S)
12	Voltage terminal (C.B.A.N)

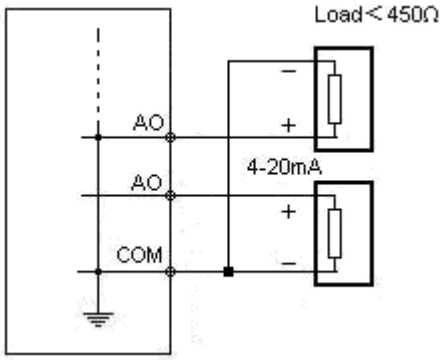
4.1.1 Digital Output

- 2 channel 4 pin digital output (Com2 DO2 Com1 DO1)
- 12-240VAC-DC/120mA max
- Com0 DO0 for digital output1, Com1 DO1 for digital output 2
- Port 1 assign selection : V/I Unbal Alarm, THD Alarm, Over V/I Alarm, Under V Alarm, V/I Loss Alarm
- Port 2 assign selection : Energy pulse (pulse/kWh)



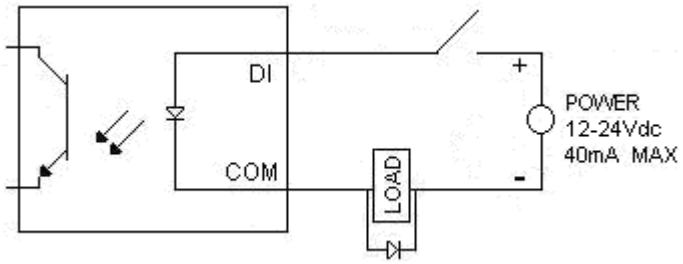
4.1.2 Analog Output

- 4 channel 5 pin current output (Com1 AO4 AO3 AO2 AO1)
- 4-20mA current output
- 4 analog output selection：phase, voltage, current, power…



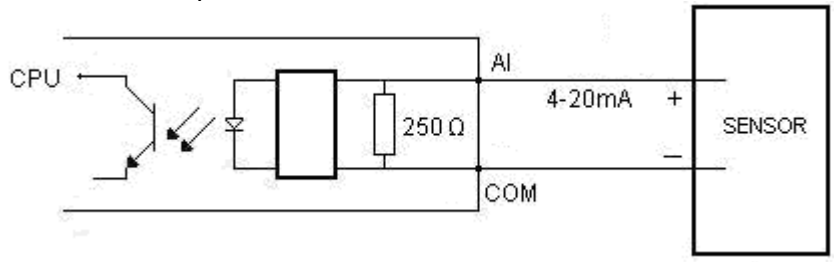
4.1.3 Digital Input

- 3 groups of 12 channel, 15 pin digital input (Com1 DI4 DI3 DI2 DI1)、(DI5 DI6 DI7 DI8 Com2)、(DI9 DI10 DI11 DI12 Com3)
- 5-24Vdc



4.1.4 Analog Input

- 4 channel 8 pin analog input(AI1+ AI1- AI2+ AI2- AI3+ AI3- AI4+ AI4-)
- 4-20mA input



4.1.5 Aux. Power Supply

- Before powering the instrument, verify the pin position at L and N, leave the middle pin blank.
- Power standard is 86-242Vac/100-300Vdc.
- An internal protection fuse 250V, 1A is equipped.
- The instrument power supply must not be earthed.

4.1.6 Current Terminal

- The current input are 3 channels/6 terminals(3L 3S 2L 2S 1L 1S)
- Input current range from 2mA to 5A (CT secondary)

Warning ！

The CT input current must not exceed 10A

Warning ！

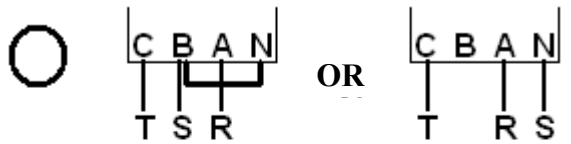
Be sure to short secondaries of each current transformer, before removing the CT connection inputs.

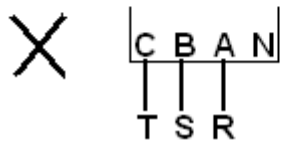
4.1.7 Voltage Terminal

- There are 4 voltage terminals(C.B.A.N) 。
- The instrument measure voltage from 10V-600V.（PT secondary）
- Voltage must not exceed 600V, in case of over 600V, voltage transformer need to be applied.

Note ！

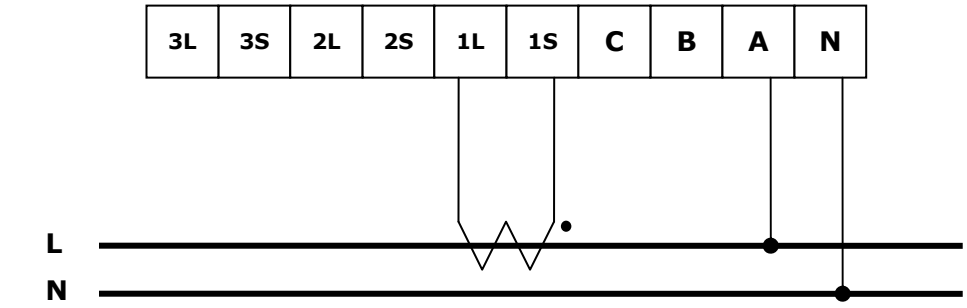
3P3W/2CT and 3P3W/3CT wiring, only connect "C A N", and leave "B" blank



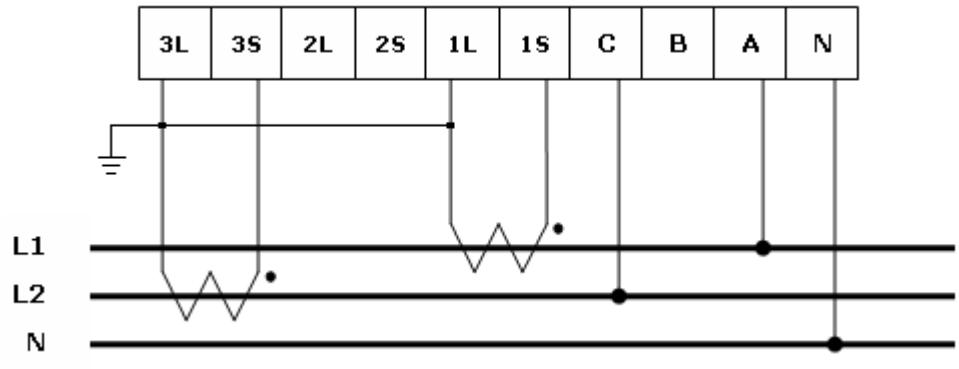


4.2 Wiring diagram

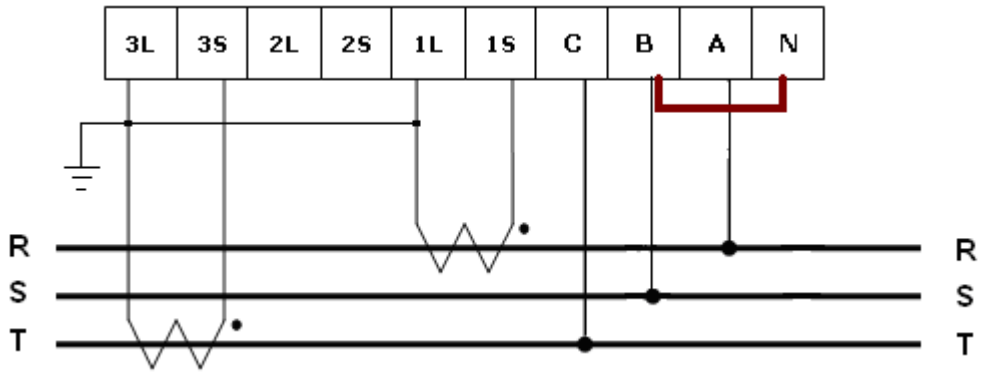
4.2.1 1P2W/1CT



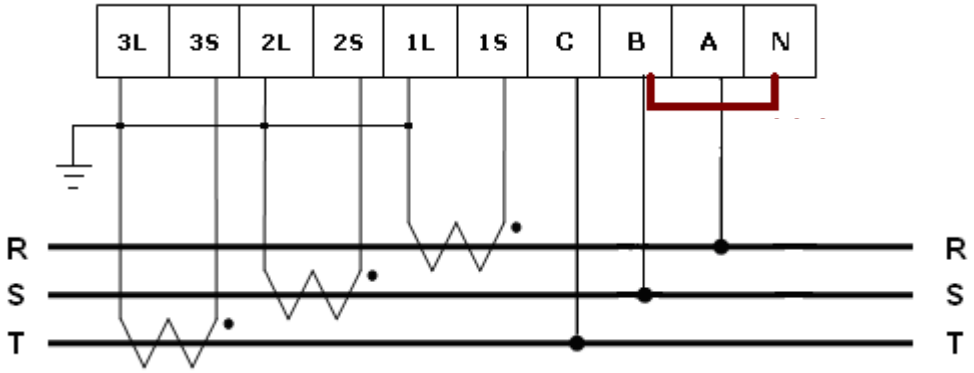
4.2.2 1P3W/2CT



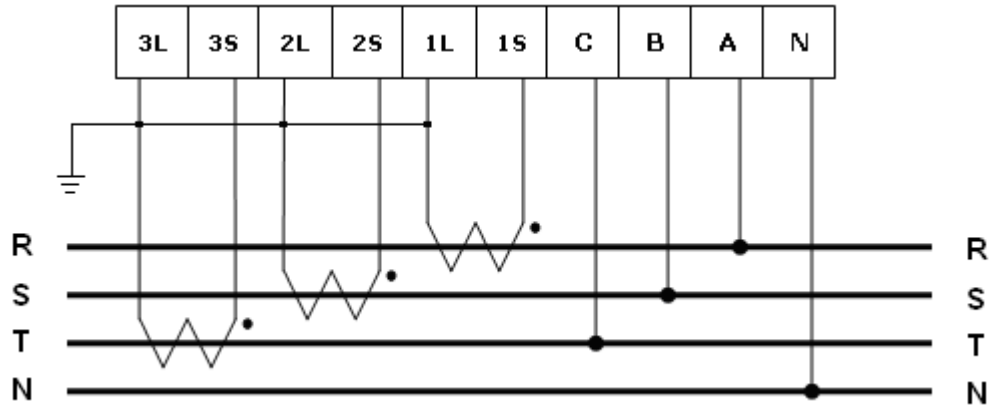
4.2.3 3P3W/2CT



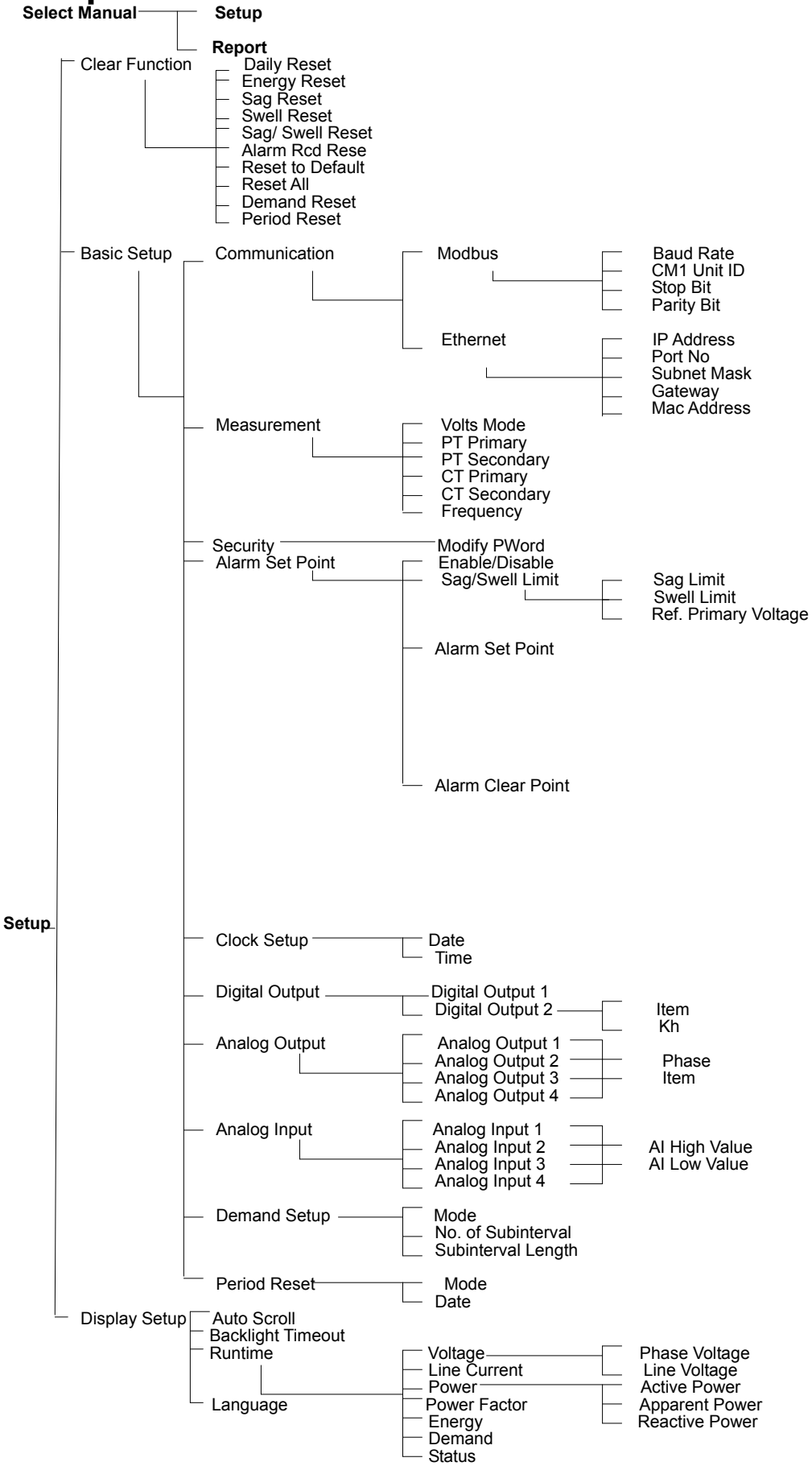
4.2.4 3P3W/3CT



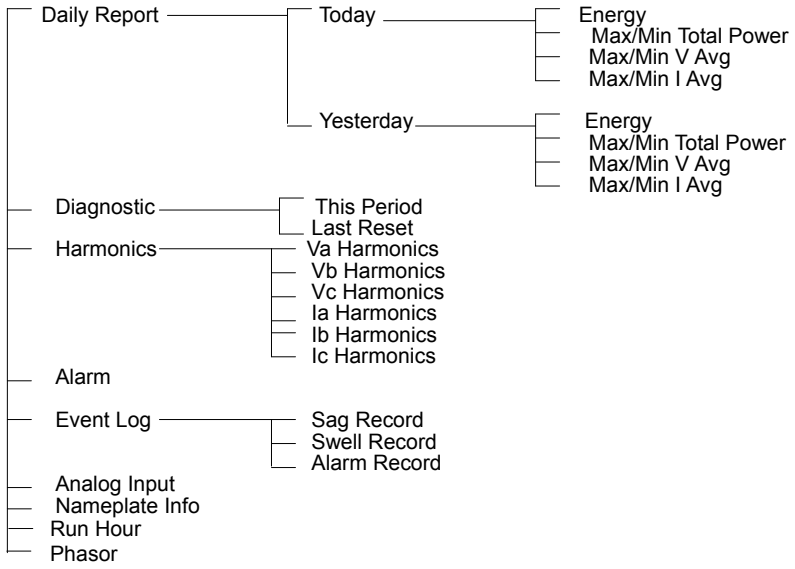
4.2.5 3P4W/3CT



Chapter 5 Function Tree



Report


Daily Report
Today
Energy
Max/Min Total Power
Max/Min V Avg
Max/Min I Avg
Yesterday
Energy
Max/Min Total Power
Max/Min V Avg
Max/Min I Avg
Diagnostic
This Period
Last Reset
Harmonics
Va Harmonics
Vb Harmonics
Vc Harmonics
Ia Harmonics
Ib Harmonics
Ic Harmonics
Alarm
Event Log
Sag Record
Swell Record
Alarm Record
Analog Input
Nameplate Info
Run Hour
Phasor

Chapter 6 Run Time

In runtime mode, the instrument is able to measure and store all real time electrical parameters. Following is the table that this instrument can display.

6.1 Display

Display	Items
Average / ΣResult	Vavg、Iavg、ΣW、ΣVAR
Phase Voltage	L12 、L23 、L31 V, kV, MV
Line Voltage	L1 、L2 、L3 V, kV, MV
Line Current	L1 、L2 、L3、N A, kA, MA
Active Power	L1、L2、L3、ΣL W, kW, MW
Apparent Power	L1、L2、L3、ΣL kVA, kVA, MVA
Reactive Power	L1、L2、L3、ΣL kVAr, kVAr, MVAr
Power Factor (Fundamental＊、True)	L1、L2、L3、ΣL
Total Energy	kWh del、rec、total
Total Energy	kVARh ＋(lagging)、－(leading)、total
Demand＊	Last kW、kW、Last kVA*、kVA*、Last kvar*、kvar*、Time
Frequency / Status	Freq: Hz Digital Output 1～2 ON/OFF Digital Input 1～4 ON/OFF
Frequency / Status	Digital Input 5～12 ON/OFF

＊only in advanced modal

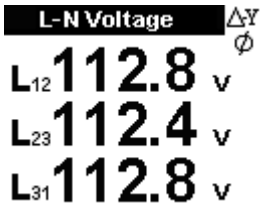
6.2 Run Time Auto scroll

Each screen except Average/Result can be disable/enable individually in the setup mode, and auto scroll time can be disabled or set from 1 to 6 second. The cruise keys are used to move from one page to another one manually.

- Use ▶to next page
- Use ◀to previous page

6.3 Worning for incorrection of wiring or phase

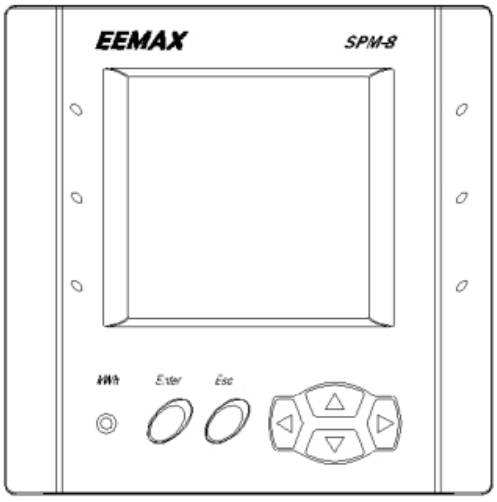
“Ø” “△-Y” symbols will be shown on the upper corner of



Chapter 7 Set up mode

7.1 Display and keyboard

LCD grapic, LED back-lighted, 128 ×128



- kWh light：Pulse output
- Back light：1-99 minute
- Enter key：Entering setup mode, or confirm the selection
- Esc key：Back to runtime mode or return to previous setup page
- Arrow Key：Scroll select item or change the input number or shift input position

7.2 Set up

Press Enter to setup mode, enter password-xxxxxxx-7 digits,(default as 0000000), user can modify password by：Setup→Basic Setup→Security→Modify pword

In Main Menu "Setup", we have：

- Clear Function
- Basic Setup
- Display Setup

7.2.1 Clear Function

Clear function was designed to allow user to easily move and/or reset different data stored in this instrument.

Nevertheless, energy data will not be reset due to its accumulation characteristics expect using the function of "energy reset".

In the standard model, to "energy reset" please press the ◄► button at the same time at least 5 seconds.

Item	Setup
Daily Reset	■ No ■ Yes
Energy Reset	
Sag Reset	
Swell Reset	
Sag/ Swell Reset	
Alarm Rcd Reset	
Reset to Default	
Reset All	
Demand Reset	
Period Reset	
Meter R-Hour Reset	
Load R-Hour Reset	

- Daily Reset：Clear this Day Max/Min & Yesterday Max/Min Record
- Energy Reset：Reset kWh_del、kWh_rec、kWh_tot、kWh_net、kVarh_lagging、kVarh_leading、kVArh_tot、 kVArh_net、kVAh
- Sag Reset：Reset Sag Record
- Swell Reset：Reset Swell Record
- Sag/Swell Reset：Reset Sag/Swell Record
- Alarm Rcd Reset：Reset Alarm Record

- Reset to Default：Reset all the parameters to default value
- Reset All：Clear This Day Max/Min、Yesterday Max/Min 、Energy、Sag、Swell、Alarm、Demand and move This Period Max/Min to Last Reset Max/Min, also recode reset time. Clear This Period Max/Min
- Demand Reset：Clear Demand data, restart Demand Interval
- Period Reset：Move This Period Max/Min data to Last Reset Max/Min, record reset time, and clear This Period Max/Min data
- Meter R-Hour Reset：Clear Meter R-Hour data
- Load R-Hour Reset：Clear Load R-Hour data

7.2.2 Basic Setup

7.2.2.1 Communication

- **Modbus**

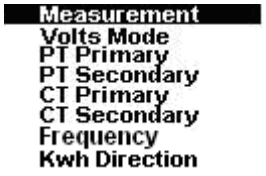
Please refer to the modbus format and parameters in the chapter 8

- Baud Rate：Default is 19200
- CM1 Unit ID (1~255)：RS485 Modbus ID address, default is 15
- Stop Bit：bit to signal the end of communication, depending on PC side. Default is 1
- Parity Bit：The total number of bit is always either odd or even, therefore it can be checked during the communication. Default is none

- **Ethernet**

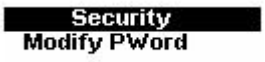
- IP Address：The IP address of SPM-8, "xxx.xxx.xxx.xxx" is required, here xxx is 0-255
- Port No.：Port no. has been defined as 502 or 503, please select 502 or 503
- Subnet Mask：If subnet was used, host and subnet IP address are required, please use "xxx.xxx.xxx.xxx" to set
- Gateway：Gateway is used to enter other internet, "xxx.xxx.xxx.xxx" is required
- Mac Address：It is a fixed number, can not be changed(xx-xx-xx-xx-xx-xx, 0-FF)

7.2.2.2 Measurement



- Volts Mode：If auto is selected, the wiring method will be detected automatically. Default is Auto
- PT Primary：60~600000(primary voltage)
- PT Secondary：1~600(secondary voltage)
- CT Primary：1~5000(primary max. current)
- CT Secondary：1~5(secondary max. current)
- Frequency：50 or 60 Hz. Default is 60Hz
- kWh Direction：Bi-Direction/Single Direction（default）

7.2.2.3 Security



If password can not be recalled, please contact your local dealer. You can press "Enter" and "▶ key" at the same time to reset every parameter to default values including password. The default value of password is "0000000", 7 digits.
Press ◀ ▶ keys to move the desired position, ▲▼ keys can change the numerical or alphabetic letters in the selected position

7.2.2.4 Alarm Set Point

- **Enable/Disable**

To enable or disable the alarm setting, if enable is selected, it will be recorded as an event when the alarm was triggered.

- **Sag/Swell Limit**

Sag Limit
Sag limit can be set between 80 to 100%, "%" is the unit used. When measured voltage is lower than the sag limit setting but no longer than 1 min. continuously, it will be treated as "Voltage Sag". If longer than 1 min., it will be recorded as "Low Voltage". Use ▲▼ keys to change the setting value.

Swell Limit
Swell limit will be set between 100~120%. When the measure voltage is high than the swell limit compared to primary voltage setting, for less than 1 min. it is treated as "voltage swell". If longer than 1 min., it will be recorded as "Over Voltage". Use ▲▼ keys to chang the setting value.
Sag and Swell will be stored in their record, and will not be shown as an alarm event.

Ref. Primary Voltage
Reference Voltage for sag and swell to compare with. (60~600000)

- **Alarm Set Point**

Alarm Set Point

V Unbal Alarm
I Unbal Alarm
V THD Alarm
Over I Phase Alarm
Over I Neutral Alarm
I Loss Alarm
V Loss Alarm
Over kW Dmd Alarm
I THD Alarm

Events due to alarm can be read through communication as defined in the following table :

Item	Description
0x10	Over Current Phase A Alarm
0x11	Over Current Phase B Alarm
0x12	Over Current Phase C Alarm
0x13	Over Current Neutral Alarm
0x14	Current Unbalance Alarm
0x15	Current Loss Alarm
0x20	Over Current Phase A Condition Clear
0x21	Over Current Phase B Condition Clear
0x22	Over Current Phase C Condition Clear
0x23	Over Current Neutral Condition Clear
0x24	Current Unbalance Condition Clear
0x25	Current Loss Condition Clear
0x30	Over Voltage Phase A Alarm
0x31	Over Voltage Phase B Alarm
0x32	Over Voltage Phase C Alarm
0x33	Under Voltage Phase A Alarm
0x34	Under Voltage Phase B Alarm
0x35	Under Voltage Phase C Alarm
0x36	Voltage Unbalance Alarm
0x37	Voltage Loss Alarm
0x40	Over Voltage Phase A Condition Clear
0x41	Over Voltage Phase B Condition Clear
0x42	Over Voltage Phase C Condition Clear
0x43	Under Voltage Phase A Condition Clear
0x44	Under Voltage Phase B Condition Clear
0x45	Under Voltage Phase C Condition Clear
0x46	Voltage Unbalance Condition Clear
0x47	Voltage Loss Condition Clear
0x50	THD Va Alarm
0x51	THD Vb Alarm
0x52	THD Vc Alarm
0x53	THD Ia Alarm
0x54	THD Ib Alarm
0x55	THD Ic Alarm
0x60	THD Va Alarm Condition Clear
0x61	THD Vb Alarm Condition Clear
0x62	THD Vc Alarm Condition Clear
0x63	THD Ia Alarm Condition Clear
0x64	THD Ib Alarm Condition Clear
0x65	THD Ic Alarm Condition Clear
0x70	Over kW Dmd Alarm
x80	Over kW Dmd Alarm Condition Clear

V Unbal Alarm
The range of V unbal Alarm alarm limit can be set between 0~10%. Comparing voltage of any phase with the average value of all three phase, if the ratio is greater than the set limit, the alarm will be triggered. As the ratio become lower than the set limit, alarm will be cleared.

I Unbal Alarm
The range of I unbal Alarm alarm limit can be set between 0~10%. Comparing current of any phase with the average value of all three phase, if the ratio is greater than the set limit, the alarm will be triggered. As the ratio become lower than the set limit, alarm will be cleared.

V/I THD Alarm
Toal harmonic distortion can be set between 0~50%.

Over I Phase Alarm
The overI phase limit can be set between 0~9999 of primary current. As the current of any phase is over the set limit, alarm triggered. When the over I phase is below the limit, alarm cleared.

Over I Neutral Alarm
The over I neutral alarm can be set between 0-9999 of primary current. As the I neutral is over the set limit, alarm triggered. When the I neutral is below the set limit, alarm cleared.

I Loss Alarm
I loss alarm value can be set between 0-5000 of primary current. As only one or two I phase is below the alarm setting value, alarm triggered. However, when all three I phase is either greater or lower than the limit, alarm cleared.

V Loss Alarm
V loss alarm value can be set between 0-6000 of primary voltage. As only one or two V phase is below the alarm setting value, alarm triggered. However, when all three V phase is either greater or lower than the limit, alarm cleared.

Over KW Alarm
The demand limit can be set between 0-65535, default value is 0.

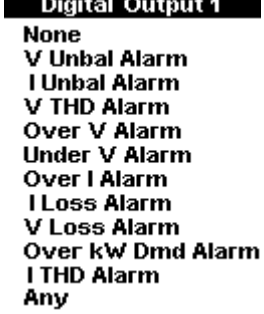
7.2.2.5 Clock Setup

Date and time will be setup here for use in daily report and regular report and event logging. They will be shown as yy/mm/dd and hh:mm:ss.

7.2.2.6 Digital Output

2 channels of digital output for alarm output and pulse output.

- **Digital Output 1**

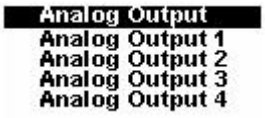


DO1 is desinated as the alarm output, and can be selected from the list

- **Digital Output 2**

The output item can be none, kWh, kVARh, kVAh.
Pulse output: default is 10(1~6000), equals 1kWh.

7.2.2.7 Analog Output

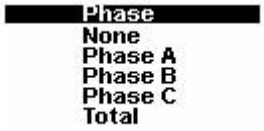


4 channels of 4-20mA setting, can be assigned to V, I, kW, kVA or kVAR
Data measured from secondary V, I, kW, kVA or kVAR；4-20mA are corresponding to the value each items are：

Each phase (A,B.C phase): V：0~600V	three phase (ΣL): V：0~600V
I：0~5A	I：0~5A
kW：0~3 kWatt	kW：0~9 kWatt (total)
kvar：0~3 kVAr	kvar：0~9 kVAr (total)
kVA：0~3 kVA	kVA：0~9 kVA (total)

For each analog output, users can choose item like V, I and phase like A, B, all.

Output（Phase）

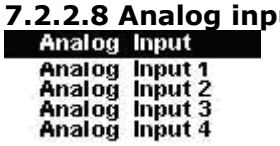


Once None is chosen, the channel can be used as outpit assigned by communication from upper control software.

Output（Item）

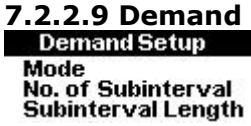
Selected output item。

7.2.2.8 Analog input



AI high value can be from 0-65535, and the corresponding external input is 20mA；low value can be from 0-65535, and the corresponding external value is 4mA.

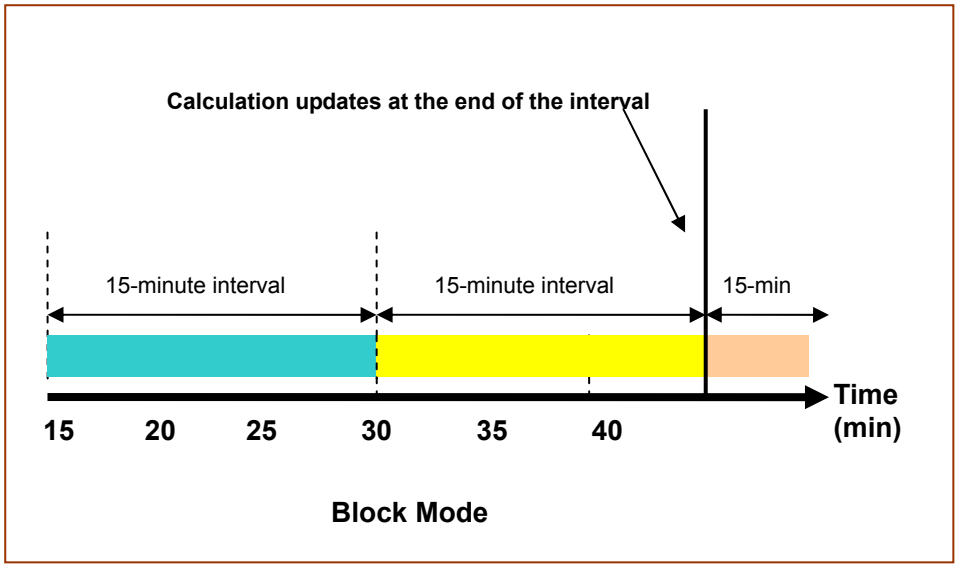
7.2.2.9 Demand Setup



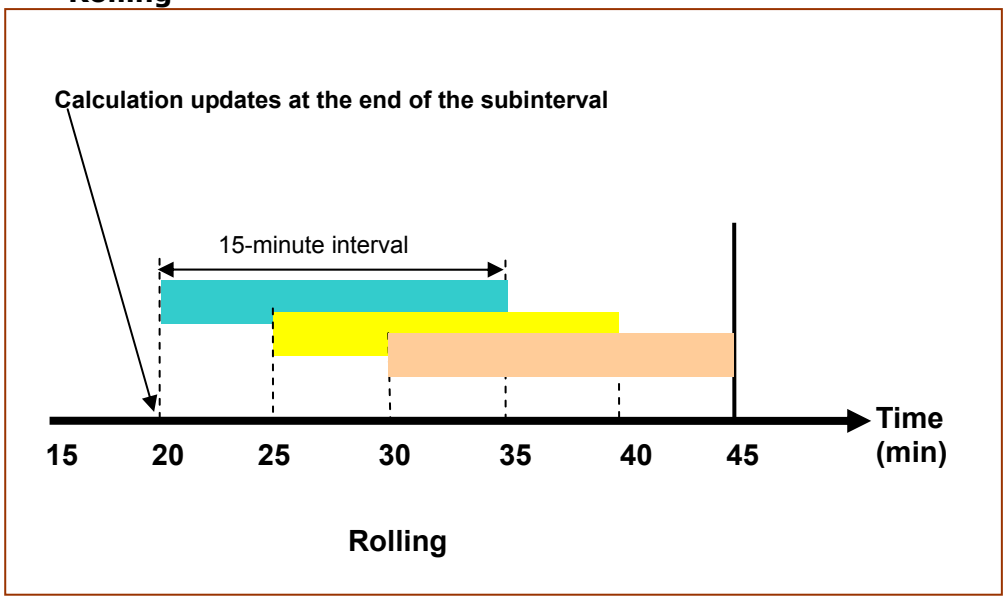
Mode

Mode
Block
Rolling

- **Block**



- **Rolling**



No. of Subinterval

No. of Subinterval

10

The No. of subinterval is only needed for Rolling mode, can be 1, 2, 3, 4, 5, 6,10,12,15

Subinterval Length

Subinterval Length

60

Function for both Block and Rolling mode. In block mode, it stands for the total interval time.（No. of subinterval is always 1）. In rolling mode, it stands for only lenght of the subinterval time, the total interval time will be No. of subinterval times the subinterval length.

7.2.2.10 Period Reset

The function of period reset is designed to move the max/min data happened in one current month to last period, and clearn all the max/min data in this month period for the new coming max/min data except the energy data. Energy data will be not reset, instead it will be accumulated.

- **Mode**

When manual is selected, the reset action will be triggered only the reset all or period reset in clear function has been applied.
If auto is selected, users will also be asked to enter the date. The system will perform the move and clear action at the date assigned every month.
If date is 2, then at date 2 and 00:00:00 period reset will be excuted.
If date is 1, then at date 1 and 00:00:00 period reset will be excuted.
If date is 31, then only the month with 31st period reset will be excuted at 31st 00:00:00. However, those months without 31st, period reset will excuted at 1st 00:00:00 next month.

7.2.3 Display Setup

- Auto Scroll：Can be set between 1-6 sec. or disable. Default is disable.
- Backlight Timeout：Can be set between 1~99 min.
- Runtime：This setting allows users to select what to display and not to display during the runtime mode. Run time mode display setting is as following：
- Language：English
- Contrast：Can be set between 0-20, default is 10.

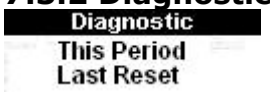
Item		**Setup**
Voltage	L-L Voltage	● Disable ● Enable
	L-N Voltage	
Line Current		
Power	Active Power	
	Apparent Power	
	Reactive Power	
Power Factor		
Energy		
Demand		
Status		

7.3 Report

7.3.1 Daily Report

Every day at 00:00:00, data in today will move to yesterday and clear today's record except energy data will be accumulated.

7.3.2 Diagnostic



In this section, only max/ min and when they happened in one month period has been stored. The reset will then move this period data to last reset data and clear this period data except energy data.

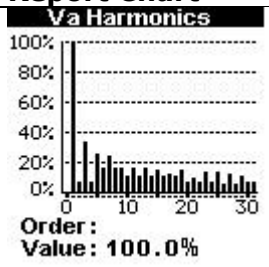
- **This Period**

Item	**Setup**
Current Time	Date: Time:
Max/Min Va	Max Date: Time: Min Date: Time:
Max/Min Vb	
Max/Min Vc	
Max/Min Ia	
Max/Min Ib	
Max/Min Ic	
Max/Min KWa	
Max/Min KWb	
Max/Min KWc	
Max/Min KVAa	
Max/Min KVAb	
Max/Min KVAc	
Min PFa	Min Date: Time:
Min PFb	
Min PFc	
Max VaTHD	Max Date: Time:
Max VbTHD	
Max VcTHD	
Max IaTHD	
Max IbTHD	
Max IcTHD	
Max Demand	

- **Last Reset**

Item	Setup
Current Time	Date: Time:
Max/Min Va	Max Date: Time: Min Date: Time:
Max/Min Vb	
Max/Min Vc	
Max/Min Ia	
Max/Min Ib	
Max/Min Ic	
Max/Min KWa	
Max/Min KWb	
Max/Min KWc	
Max/Min KVAa	
Max/Min KVAb	
Max/Min KVAc	
Min PFa	Min Date: Time:
Min PFb	
Min PFc	
Max VaTHD	Max Date: Time:
Max VbTHD	
Max VcTHD	
Max IaTHD	
Max IbTHD	
Max IcTHD	
Max Demand	
Energy	del: rec: tot:

7.3.3 Harmonics

Item	Report Chart
Va Harmonics	
Vb Harmonics	
Vc Harmonics	
Ia Harmonics	
Ib Harmonics	
Ic Harmonics	

7.3.4 Current on alarm

If no current alarm is on, none will be shown. In this instrument up to eight items will be set to alarm as following :

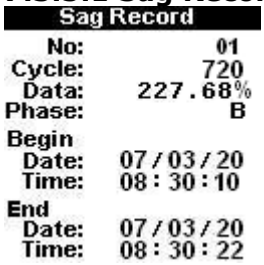
- V Unbal Alarm
- I Unbal Alarm
- THD Alarm
- I THD Alarm

- Over V Alarm
- Under V Alarm
- Over I Alarm
- I Loss Alarm
- V Loss Alarm
- Over KW Dmd Alarm

7.3.5 Event log

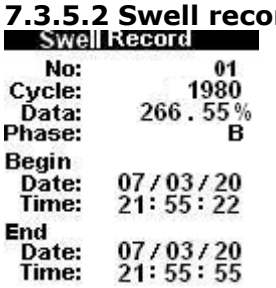
In this event log section, up to 20 lastest record has been recorded.

7.3.5.1 Sag Record



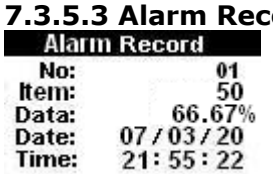
- No : to select the sag record from 1 to 20 using ◄►keys
- Cycle : sag cycles between 0-65535
- Data : sag percentage between -327.68%-327.67%
- Phase : A/B/C phase voltage
- Begin : begin date and time
- End : end date and time

7.3.5.2 Swell record



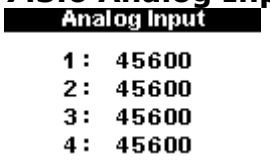
- No : to select the swell record from 1 to 20 using ◄►keys
- Cycle : swell cycles between 0-65535
- Data : swell percentage between -327.68%-327.67%
- Phase : A/B/C phase voltage
- Begin : begin date and time
- End : end date and time

7.3.5.3 Alarm Record



- No : to select the alarm record from 1 to 20 using ◄►keys
- Item : items can be current voltage…etc., as listed in the table of page 27
- Data : percentage between -327.68%-327.67%
- Date : date of accruing
- Time : time of accuring

7.3.6 Analog Input

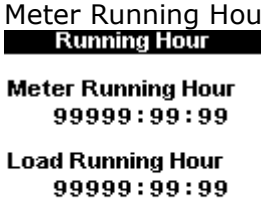


The AI option was originally setup by entering high value and low value to correspond 4-20mA input. In this report section, users can observe the input data for each channel.

7.3.7 Nameplate Info

7.3.8 Runing Hour

Meter Running Hour and Load Running Hour



Chapter 8 Communication format

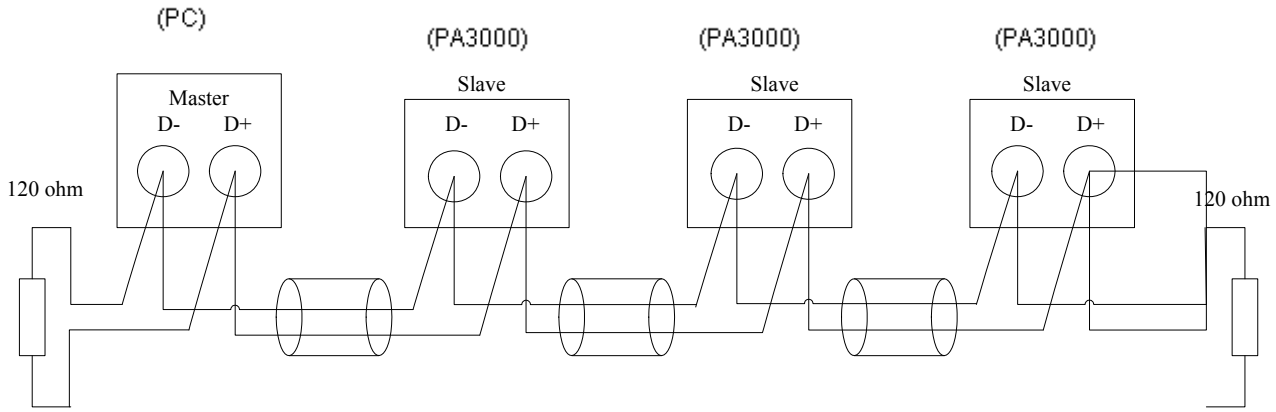
8.1 RS485

8.1.1 RS485 standard

PARAMETERS	
Mode of Operation	Differential
Number of Drivers and Receives	32 Drivers / 32 Receivers
Maximum cable length(meters)	1200
Maximum data rate (baud)	10M
Maximum common mode voltage (Volts)	12 to -7
Maximum Driver Output Levels (Loaded)	+/- 1.5
Maximum Driver Output Levels (Unloaded)	+/- 6
Drive Load (Ohms)	60(min)
Driver Output short circuit Resistance (kohms)	150 to Gnd, 250 to -7 or 12V
Minimum receiver input Resistance (kohms)	12
Receiver sensitivity	+/- 200mv

8.1.2 Wiring for instruments communication

RS485communication must used twisted paired wire, as show in the following program. "D+" connect to one wire and "D-" to the other one



Cautions :

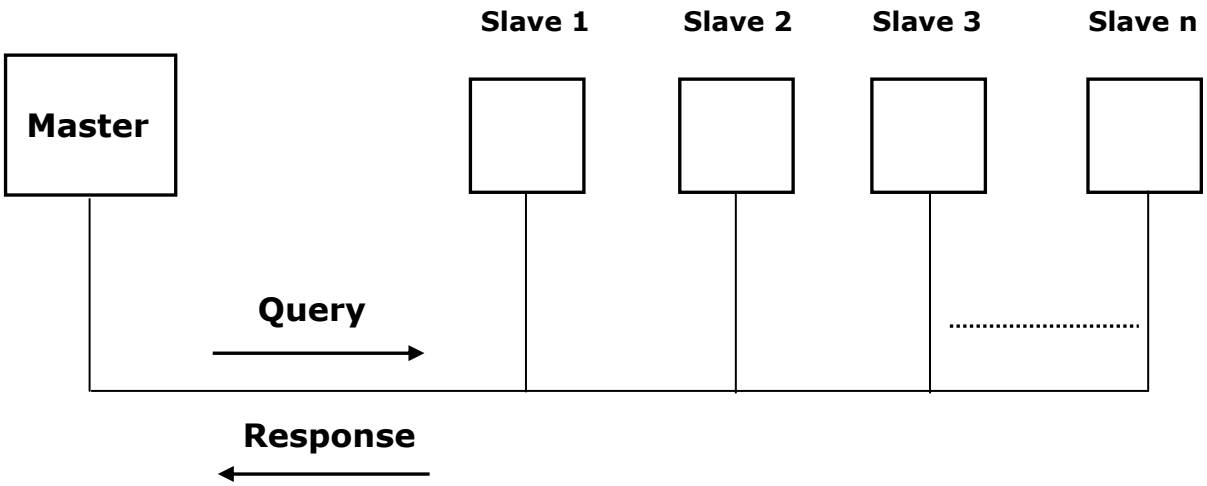
.There must be no more than two wires connected to each terminal, this ensures that a "Daisy Chain" or "Straight Line" configuration is used. A "star" or a network with "Stubs(Tees)" is not recommended as reflections within the cable may result in data corruption。

8.2 Modbus

In the start of modus communication, master will issu a "Query" to the slave. Every slaves will monitor the "Query" address, so as to "execute' or give "response" when the address is right

8.2.1 Modbus Format

The Query-Response Cycle



Query message from Master

Device Address
Function Code
8 bit Data Bytes
Error Check

Device Address
Function Code
8 bit Data Bytes
Error Check

Response messages from Slave

8.3 Communication protocol

SPM-8 use Modus RTU as the communication protocol. The following shows Query and Response format.

Query :

Slave Address	Function Code 0x03, 0x04	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)

Response :

Slave Address	Function Code 0x03, 0x04	Byte Count	Data (Hi)	Data (Lo)	Error Check (Lo)	Error Check (Hi)

Query :

Slave Address	Function Code 0x10	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Byte Count	Data (Hi)	Data (Lo)	Error Check (Lo)	Error Check (Hi)

Response :

Slave Address	Function Code 0x10	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)

8.4 IEEE 754 Format

The bits in an IEEE 754 format have the following significance:

Data Hi Word, Hi Byte	Data Hi Word, Lo Byte	Data Lo Word, Hi Byte	Data Lo Word, Lo Byte
SEEE EEEE	EMMM MMMM	MMMM MMMM	MMMM MMMM

Where:

S represents the sign bit where 1 is negative and 0 is positive

E is the two's complement exponent with an offset of 127 i.e. an exponent of zero is represented by 127, an exponent of 1 by 128 etc.

M is the 23-bit normal mantissa. The highest bit is always 1 and, therefore, is not stored.

For each floating point value requested two MODBUS_ registers or points (four bytes) must be requested. The received order and significance of these four bytes for the Integral products is shown below:

Data Lo Word, Hi Byte	Data Lo Word, Lo Byte	Data Hi Word, Hi Byte	Data Hi Word, Lo Byte

8.5 Modbus RTU Mode

Since Controllers can be setup to communicate on standard Modbus networks using either of two transmission modes：**ASCII** or **RTU**. SPM-8 uses RTU transmission mode only. Users select the RTU mode, along with the serial port communication parameters(baud rate, parity mode, etc), during configuration of each controller. The mode and serial parameters must be the same for all devices on a Modbus connection.

RTU Mode

Coding System	8-bit binary, hexadecimal 0-9, A-F Two hexadecimal character contained in each 8-bit field of the message
Bits per Byte	1 start bit 8 data bits, least significant bit sent first 1 bit for even/odd parity；no bit for no parity 1 stop bit if parity is used；2 bits if no parity
Error Check Field	Cyclical Redundancy Check(CRC)

8.6 Modbus Function Code

The function code of a Modbus message defines the action to be taken by the slave.

Function code use by SPM-8 is described below:

Code	Modbus name	Description
03	Read Holding Registers	Read the content of read/write location (4X reference)
04	Read Input Registers	Read the contents of read only location (3X reference)
16	Pre-set Multiple Registers	Set the contents of read/write location (4X reference)

Note: The maximum registers of Function 03 &Function 04 is 125

8.7 Detail parameter

Modbus Module #0 Coil Status : Digital Output

Parameter name	Modbus Register	Comment
Digital Output 1	00000	for function code 01: Read Coil Status & 05 : Force Single Coil
Digital Output 2	00001	for function code 01: Read Coil Status & 05 : Force Single Coil

Modbus Module #1 Holding Register : Digital Output

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Digital Output	44097	0x1000	Word	UInt	bit 0 : Digital Output 1 bit 1 : Digital Output 2	0		
Digital_Output_Reserved	44098	0x1001	Word	UInt				

Modbus Module #2 Holding Register : Setup Parameter

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Comm_485_BaudRate	44099	0x1002	Word	UInt	0: 1200 , 1: 2400 , 2: 4800 , 3: 9600 , 4: 19200, 5:38400 6: 57600	4	bps	
Comm_485_Address	44100	0x1003	Word	UInt	1-255	15		
Comm_485_StopBit	44101	0x1004	Word	UInt	0:1 Stop bit, 1:2 Stop bit	0		
Comm_485_Parity	44102	0x1005	Word	UInt	0:No, 1:Even, 2:Odd	0		
Reserved	44103	0x1006	Word	UInt				
Ethernet_IP_0*	44104	0x1007	Hi B	Byte	0-255	192		optional
Ethernet_IP_1*			Lo B	Byte	0-255	168		optional
Ethernet_IP_2*	44105	0x1008	Hi B	Byte	0-255	1		optional
Ethernet_IP_3*			Lo B	Byte	0-255	210		optional
Ethernet_PortNo*	44106	0x1009	Word	UInt	0:502, 1:503	0		optional
Subnet_Mask_0*	44107	0x100A	Hi B	Byte	0-255	255		optional
Subnet_Mask _1*			Lo B	Byte	0-255	255		optional
Subnet_Mask _2*	44108	0x100B	Hi B	Byte	0-255	255		optional
Subnet_Mask _3*			Lo B	Byte	0-255	0		optional
Gateway_0*	44109	0x100C	Hi B	Byte	0-255	0		optional
Gateway_1*			Lo B	Byte	0-255	0		optional
Gateway_2*	44110	0x100D	Hi B	Byte	0-255	0		optional
Gateway_3*			Lo B	Byte	0-255	0		optional
Mac_Address_1*	44111	0x100E	Hi B	Byte	0-ffh	00		optional
Mac_Address_2*			Lo B	Byte	0-ffh	18		optional
Mac_Address_3*	44112	0x100F	Hi B	Byte	0-ffh	D8		optional
Mac_Address_4*			Lo B	Byte	0-ffh	0		optional
Mac_Address_5*	44113	0x1010	Hi B	Byte	0-ffh	0		optional
Mac_Address_6*			Lo B	Byte	0-ffh	0		optional
Volts_Mode	44114	0x1011	Hi B	Byte	Volts Mode at present			
			Lo B	Byte	0 : 1P2W , 1 : 1P3W , 2 : 3P3W_Delta 2CT, 3 : 3P3W_Delta 3CT, 4 : 3P4W_Wye , 5 : Auto	5		
PT_Primary	44115-44116	0x1012-0x1013	DWord	Float	60-600000	110	Volts	
PT_Secondary	44117	0x1014	Word	UInt	1-600	110	Volts	
CT_Primary	44118	0x1015	Word	UInt	1-5000	1	Amp.	
CT_Secondary	44119	0x1016	Word	UInt	1-5	1	Amp.	
Frequency	44120	0x1017	Word	UInt	0:50Hz, 1:60Hz	1		
Demand_Mode*	44121	0x1018	Word	UInt	0:Block, 1:Rolling	0		

Number_of_Subinterval*	44122	0x1019	Word	UInt	1,2,3,4,5,6,10,12,15	1		
Demand_Subinterval_ Length*	44123	0x101A	Word	UInt	1,2,3,4,5,6,10,12,15,20,30,60	15	Min	
Password	44124-44125	0x101B-0x101C	DWord	Uint32	0xxxxxxxh	0000000		
Over_kW_Dmd_Limit*	44126	0x101D	Word	UInt	0-65535	65535	kW.	For Over kW Dmd alarm
Over_kW_Dmd_Clear*	44127	0x101E	Word	UInt	0-65535	0	kW.	For Over kW Dmd alarm clear
Alarm_Enable	44128	0x101F	Word	UInt	0 : disable , 1 : enable	0		
SAG_Limit	44129	0x1020	Word	UInt	Range : 80% - 100%	100	%	For Sag & UnderVoltage alarm
SWELL_Limit	44130	0x1021	Word	UInt	Range : 100% - 120%	100	%	For Swell & OverVoltage alarm
Reference_Primary_Voltage	44131-44132	0x1022-0x1023	DWord	Float	60-600000	110	Volts	For Sag/Swell & Under/Over Voltage
Voltage_Unbal_Limit	44133	0x1024	Word	UInt	Range : 0% - 10%	10	%	For Voltage unbalance alarm
Current_Unbal_Limit	44134	0x1025	Word	UInt	Range : 0% - 10%	10	%	For Current unbalance alarm
I_THD_Limit*	44135	0x1026	Hi B	Byte	Range : 0% - 50%	50	%	For I THD alarm
V_THD_Limit*			Lo B	Byte	Range : 0% - 50%	50	%	For V THD alarm
Over_Current_Phase_Limit	44136	0x1027	Word	UInt	0-9999	9999	Amp.	For Over Current Phase alarm
Over_Current_Neutral _Limit	44137	0x1028	Word	UInt	0-9999	9999	Amp.	For Over Current Neutral alarm
Current_Loss_Limit	44138	0x1029	Word	UInt	0-5000	0	Amp.	For Phase Loss-Current alarm
Voltage_Loss_Limit	44139-44140	0x102A	DWord	Float	0-600000	0	Volts	For Phase Loss-Voltage alarm
Voltage_Unbal_Clear	44141	0x102B	Word	UInt	Range : 0% - 10%	1	%	For Voltage unbalance alarm clear
Current_Unbal_ Clear	44142	0x102C	Word	UInt	Range : 0% - 10%	1	%	For Current unbalance alarm clear
I_THD_ Clear*	44143	0x102D	Hi B	Byte	Range : 0% - 50%	1	%	For I THD alarm
V_THD_ Clear*			Lo B	Byte	Range : 0% - 50%	1	%	For V THD alarm clear
Over_Current_Phase_ Clear	44144	0x102E	Word	UInt	0-9999	0	Amp.	For Over Current Phase alarm clear
Over_Current_Neutral _ Clear	44145	0x102F	Word	UInt	0-9999	0	Amp.	For Over Current Neutral alarm clear
Current_Loss_ Clear	44146	0x1030	Word	UInt	0-5000	0	Amp.	For Phase Loss-Current alarm clear
Voltage_Loss_ Clear	44147-44148	0x1031-0x1032	DWord	Float	0-600000	0	Volts	For Phase Loss-Voltage alarm clear

DO1_Select_Item	44149	0x1033	Word	Uint	0 : None 1 : Voltage unbalance alarm 2 : Current unbalance alarm 3 : Over Voltage alarm 4 : Under Voltage alarm 5 : Over Current alarm 6 : Current Loss alarm 7 : Voltage Loss alarm 8 : Any	0		for standard
DO1_Select_Item*	44149	0x1034	Word	Uint	0 : None 1 : Voltage unbalance alarm 2 : Current unbalance alarm 3 : V THD alarm* 4 : Over Voltage alarm 5 : Under Voltage alarm 6 : Over Current alarm 7 : Current Loss alarm 8 : Voltage Loss alarm 9 : Over kW Dmd alarm* 10: I THD alarm* 11: Any	0		for advance
DO2_Select_Item	44150	0x1035	Hi B	Byte	0 : None , 1 : kWh 2 : kvarh , 3 : kVAh	0		
Reserved			Lo B	Byte		0		
AO1_Select_Phase	44151	0x1036	Hi B	Byte	0:None, 1:A phase, 2:B phase, 3:C phase, 4:Total	0		optional
AO1_Select_ Item			Lo B	Byte	0:V, 1:I , 2:kW , 3:kvar, 4:kVA	0		optional
AO2_Select_Phase	44152	0x1037	Hi B	Byte	0:None, 1:A phase, 2:B phase, 3:C phase, 4:Total	0		optional
AO2_Select_ Item			Lo B	Byte	0:V, 1:I , 2:kW , 3:kvar, 4:kVA	0		optional
AO3_Select_Phase	44153	0x1038	Hi B	Byte	0:None, 1:A phase, 2:B phase, 3:C phase, 4:Total	0		optional
AO3_Select_ Item			Lo B	Byte	0:V, 1:I , 2:kW , 3:kvar, 4:kVA	0		optional
AO4_Select_Phase	44154	0x1039	Hi B	Byte	0:None, 1:A phase, 2:B phase, 3:C phase, 4:Total	0		optional
AO4_Select_ Item			Lo B	Byte	0:V, 1:I , 2:kW , 3:kvar, 4:kVA	0		optional
Reserved	44155	0x103A	Word	UInt				
Display_Auto_Scroll	44156	0x103B	Hi B	Byte	0 - 6 sec	0		
Display_BK_Timeout			Lo B	Byte	1 - 99 min	1		

Runtime_Screen_Set	44157	0x103C	Word	UInt	Bit=0 : Disable Bit=1 : Enable bit 0 : Phase Voltage bit 1 : Line Voltage bit 2 : Line Current bit 3 : Active Power bit 4 : Apparent Power bit 5 : Reactive Power bit 6 : Power Factor bit 7 : Energy bit 8 : Demand* bit 9 : Status	2ff/3ff		
Reset_Mode*	44158	0x103D	Hi B	Byte	0 : Manual, 1 : Auto	0		
Reset_Date*			Lo B	Byte	1~31	1		
Reserved	44159	0x103E	Word	UInt				
AI1_Eng_High	44160	0x103F	Word	UInt	0~65535	65535		optional
AI1_Eng_Low	44161	0x1040	Word	UInt	0~65535	0		optional
AI2_Eng_High	44162	0x1041	Word	UInt	0~65535	65535		optional
AI2_Eng_Low	44163	0x1042	Word	UInt	0~65535	0		optional
AI3_Eng_High	44164	0x1043	Word	UInt	0~65535	65535		optional
AI3_Eng_Low	44165	0x1044	Word	UInt	0~65535	0		optional
AI4_Eng_High	44166	0x1045	Word	UInt	0~65535	65535		optional
AI4_Eng_Low	44167	0x1046	Word	UInt	0~65535	0		optional
Reserved	44168	0x1047	Word	UInt				
Reserved	44169	0x1048	Word	UInt				
AO1_Set_Value	44170	0x1049	Word	UInt	0~65535	0		optional
AO2_Set_Value	44171	0x104A	Word	UInt	0~65535	0		optional
AO3_Set_Value	44172	0x104B	Word	UInt	0~65535	0		optional
AO4_Set_Value	44173	0x104C	Word	UInt	0~65535	0		optional
Language	44174	0x104D	Word	UInt	0 : English 1 : Secondary Language	1		
kWh_Direction	44175	0x104E	Word	UInt	0 : Single direction 1 : Bi-direction	0: SPM-8-0 1: SPM-8-1		
Contrast	44176	0x104F	Word	UInt	0 ~20	10		

Modbus Module #2-1 Holding Register : Setup Parameter

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
AO_Wtot_High_Limit	44300	0x10CB	Word	UInt	0~9000	9000	W	secondary

Modbus Module #2-2 Holding Register : Setup Parameter

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Snd_485_BaudRate*	44353	0x1100	Word	UInt	0: 1200 , 1: 2400 , 2: 4800 , 3: 9600 , 4: 19200, 5:38400 6: 57600	4	bps	
Snd_485_Address*	44354	0x1101	Word	UInt	1-255	16		
Snd_485_StopBit*	44355	0x1102	Word	UInt	0:1 Stop bit, 1:2 Stop bit	0		
Snd_485_Parity*	44356	0x1103	Word	UInt	0:No, 1:Even, 2:Odd	0		
DO2_Select_Kh	44357	0x1104	Word	UInt	1-6000	10		

Modbus Module #3 Holding Register : Realtime Clock

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment

	Modicom Format	Hex						
Year	44177	0x1050	Word	BCD				
Month	44178	0x1051	Word	BCD				
Date	44179	0x1052	Word	BCD				
Hour	44180	0x1053	Word	BCD				
Min	44181	0x1054	Word	BCD				
Second	44182	0x1055	Word	BCD				

Modbus Module #4 Holding Register : Clear Function

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reset_ Daily*	44193	0x1060	Word	UInt	0x5aa5	0		0x5aa5: clear
Reset_ Energy	44194	0x1061	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset _Sag _Record*	44195	0x1062	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Swell_Record*	44196	0x1063	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Sag_Swell_Record *	44197	0x1064	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Alarm_Record*	44198	0x1065	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_to_Default	44199	0x1066	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_All*	44200	0x1067	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Demand*	44201	0x1068	Word	Uint	0x5aa5	0		0x5aa5: clear
Period_Reset*	44202	0x1069	Word	Uint	0x5aa5	0		0x5aa5: clear

Modbus Module #5 Holding Register : Alarm Counter*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Alarm_New_Counter	44209	0x1070	Word	Uint	0-20			
Sag_New_Counter	44210	0x1071	Word	Uint	0-20			
Swell_New_Counter	44211	0x1072	Word	Uint	0-20			
Alarm_Total_Counter	44212	0x1073	Word	Uint	0-20			Current total accumulates(up to 20 data)
Sag_Total_Counter	44213	0x1074	Word	Uint	0-20			Current total accumulates(up to 20 data)
Swell_Total_Counter	44214	0x1075	Word	Uint	0-20			Current total accumulates(up to 20 data)

Modbus Module #6 Input Register : Digital Output

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Digital Output	34097	0x1000	Word	UInt	bit 0 : Digital Output 1 bit 1 : Digital Output 2	0		
Digital_Output_Reserved	34098	0x1001	Word	UInt				

Modbus Module #7 Input Register : Digital Intput

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Digital Input	34099	0x1002	Word	UInt	bit 0 : Digital Input 1 bit 1 : Digital Input 2 bit 2 : Digital Input 3 bit 3 : Digital Input 4 bit 4 : Digital Input 5 bit 5 : Digital Input 6 bit 6 : Digital Input 7 bit 7 : Digital Input 8 bit 8 : Digital Input 9 bit 9 : Digital Input 10			

					bit 10 : Digital Input 11 bit 11 : Digital Input 12			
Digital_Input_Reserved	34100	0x1003	Word	UInt				

Modbus Module #8 Input Register : Alarm Counter*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Alarm_New_Counter	34101	0x1004	Word	UInt	0-20			
Sag_New_Counter	34102	0x1005	Word	UInt	0-20			
Swell_New_Counter	34103	0x1006	Word	UInt	0-20			
Alarm_Total_Counter	34104	0x1007	Word	UInt	0-20			Current total accumulates(up to 20 data)
Sag_Total_Counter	34105	0x1008	Word	UInt	0-20			Current total accumulates(up to 20 data)
Swell_Total_Counter	34106	0x1009	Word	UInt	0-20			Current total accumulates(up to 20 data)

Modbus Module #9 Input Register : Realtime Data Voltage, Current, Frequency (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Vln_a	34107-34108	0x100A-0x100B	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_b	34109-34110	0x100C-0x100D	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_c	34111-34112	0x100E-0x1000F	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_avg	34113-34114	0x1010-0x1011	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ab	34115-34116	0x1012-0x1013	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_bc	34117-34118	0x1014-0x1015	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ca	34119-34120	0x1016-0x1017	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_avg	34121-34122	0x1018-0x1019	DWord	Float	Primary Voltage		Volts	with Runtime display
I_a	34123-34124	0x101A-0x101B	DWord	Float	Primary Current		Amp.	with Runtime display
I_b	34125-34126	0x101C-0x101D	DWord	Float	Primary Current		Amp.	with Runtime display
I_c	34127-34128	0x101E-0x101F	DWord	Float	Primary Current		Amp.	with Runtime display
I_avg	34129-34130	0x1020-0x1021	DWord	Float	Primary Current		Amp.	with Runtime display
I_n	34131-34132	0x1022-0x1023	DWord	Float	Primary Current		Amp.	with Runtime display
Freq	34133-34134	0x1024-0x1025	DWord	Float			Hz	with Runtime display

Modbus Module #10 Input Register : Realtime Data Power Result (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KW_a	34135-34136	0x1026-0x1027	DWord	Float				with Runtime display
KW_b	34137-34138	0x1028-0x1029	DWord	Float				with Runtime display
KW_c	34139-34140	0x102A-0x102B	DWord	Float				with Runtime display
KW_tot	34141-34142	0x102C-0x102D	DWord	Float				with Runtime display
KVAR_a	34143-	0x102E-	DWord	Float				with Runtime

	34144	0x102F						display
KVAR_b	34145-34146	0x1030-0x1031	DWord	Float				with Runtime display
KVAR_c	34147-34148	0x1032-0x1033	DWord	Float				with Runtime display
KVAR_tot	34149-34150	0x1034-0x1035	DWord	Float				with Runtime display
KVA_a	34151-34152	0x1036-0x1037	DWord	Float				with Runtime display
KVA_b	34153-34154	0x1038-0x1039	DWord	Float				with Runtime display
KVA_c	34155-34156	0x103A-0x103B	DWord	Float				with Runtime display
KVA_tot	34157-34158	0x103C-0x103D	DWord	Float				with Runtime display

Modbus Module #11 Input Register : Realtime Data Power Factor(True) & Phase Angle (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
PF_true_a	34159-34160	0x103E-0x103F	DWord	Float				with Runtime display
PF_true_b	34161-34162	0x1040-0x1041	DWord	Float				with Runtime display
PF_true_c	34163-34164	0x1042-0x1043	DWord	Float				with Runtime display
PF_true_avg	34165-34166	0x1044-0x1045	DWord	Float				with Runtime display
PhaseAngle_V_a	34167-34168	0x1046-0x1047	DWord	Float				
PhaseAngle_V_b	34169-34170	0x1048-0x1049	DWord	Float				
PhaseAngle_V_c	34171-34172	0x104A-0x104B	DWord	Float				
PhaseAngle_I_a	34173-34174	0x104C-0x104D	DWord	Float				
PhaseAngle_I_b	34175-34176	0x104E-0x104F	DWord	Float				
PhaseAngle_I_c	34177-34178	0x1050-0x1051	DWord	Float				
Pre_Demand_KW*	34179-34180	0x1052-0x1053	DWord	Float				with Runtime display
Reserved	34181-34182	0x1054-0x1055	DWord	Float				
Reserved	34183-34184	0x1056-0x1057	DWord	Float				

Modbus Module #12 Input Register : Realtime Data Energy (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KWH_del	34185-34186	0x1058-0x1059	DWord	Float				with Runtime display
KWH_rec	34187-34188	0x105A-0x105B	DWord	Float				with Runtime display
KWH_tot	34189-34190	0x105C-0x105D	DWord	Float				with Runtime display
KWH_net	34191-34192	0x105E-0x105F	DWord	Float				with Runtime display
KVARH_ lagging	34193-34194	0x1060-0x1061	DWord	Float				with Runtime display
KVARH_ leading	34195-34196	0x1062-0x1063	DWord	Float				with Runtime display
KVARH_tot	34197-34198	0x1064-0x1065	DWord	Float				with Runtime display

KVARH_net	34199-34200	0x1066-0x1067	DWord	Float				with Runtime display
KVAH	34201-34202	0x1068-0x1069	DWord	Float				

Modbus Module #13 Input Register : Realtime data Demand-1*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Demand_KW*	34203-34204	0x106A-0x106B	DWord	Float				
Demand_Remain_Time*	34205	0x106C	Word	UInt			sec	

Modbus Module #14 Input Register : AI Result(optional)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
AI1 Value	34206	0x106D	Word	UInt	0~65535			
AI2 Value	34207	0x106E	Word	UInt	0~65535			
AI3 Value	34208	0x106F	Word	UInt	0~65535			
AI4 Value	34209	0x1070	Word	UInt	0~65535			

Modbus Module #15 Input Register : Fundamental PF*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
PF_Fundamental_a	34210-34211	0x1071-0x1072	DWord	Float				with Runtime display
PF_Fundamental_b	34212-34213	0x1073-0x1074	DWord	Float				with Runtime display
PF_Fundamental_c	34214-34215	0x1075-0x1076	DWord	Float				with Runtime display
PF_Fundamental_d	34216-34217	0x1077-0x1078	DWord	Float				with Runtime display

Modbus Module #13-1 Input Register : Realtime data Demand-2*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Pre_Demand_kW	34222-34223	0x107D-0x107E	DWord	Float				
Demand_kW	34224-34225	0x107F-0x1080	DWord	Float				
Pre_Demand_kvar	34226-34227	0x1081-0x1082	DWord	Float				
Demand_kvar	34228-34229	0x1083-0x1084	DWord	Float				
Pre_Demand_kVA	34230-34231	0x1085-0x1086	DWord	Float				
Demand_kVA	34232-34233	0x1087-0x1088	DWord	Float				
Demand_Remain_Time	34234	0x1089	Word	UInt			sec	

Modbus Module #16-1 Input Register : kWh used Report *

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment

	Modicom Format	Hex						
KWH_used_Yesterday	34605-34606	0x11FC-0x11FD	DWord	Float				
KWH_used_LastReset	34607-34608	0x11FE-0x11FF	DWord	Float				

Modbus Module #16 Input Register : Daily Report This Day Max/Min*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KWH_del_DT	34609-34610	0x1200-0x1201	DWord	Float				
KWH_rec_DT	34611-34612	0x1202-0x1203	DWord	Float				
KWH_tot_DT	34613-34614	0x1204-0x1205	DWord	Float				
KW_tot_max_DT	34615-34616	0x1206-0x1207	DWord	Float				
KW_tot_max_DT_Year	34617	0x1208	Word	BCD	00-99			
KW_tot_max_DT_Month	34618	0x1209	Word	BCD	1-12			
KW_tot_max_DT_Date	34619	0x120A	Word	BCD	1-31			
KW_tot_max_DT_Hour	34620	0x120B	Word	BCD	0-23			
KW_tot_max_DT_Min	34621	0x120C	Word	BCD	0-59			
KW_tot_max_DT_Second	34622	0x120D	Word	BCD	0-59			
KW_tot_min_DT	34623-34624	0x120E-0x120F	DWord	Float				
KW_tot_min_DT_Year	34625	0x1210	Word	BCD	00-99			
KW_tot_min_DT_Month	34626	0x1211	Word	BCD	1-12			
KW_tot_min_DT_Date	34627	0x1212	Word	BCD	1-31			
KW_tot_min_DT_Hour	34628	0x1213	Word	BCD	0-23			
KW_tot_min_DT_Min	34629	0x1214	Word	BCD	0-59			
KW_tot_min_DT_Second	34630	0x1215	Word	BCD	0-59			
Vavg_max_DT	34631-34632	0x1216-0x1217	DWord	Float				
Vavg_max_DT_Year	34633	0x1218	Word	BCD	00-99			
Vavg_max_DT_Month	34634	0x1219	Word	BCD	1-12			
Vavg_max_DT_Date	34635	0x121A	Word	BCD	1-31			
Vavg_max_DT_Hour	34636	0x121B	Word	BCD	0-23			
Vavg_max_DT_Min	34637	0x121C	Word	BCD	0-59			
Vavg_max_DT_Second	34638	0x121D	Word	BCD	0-59			
Vavg_min_DT	34639-34640	0x121E-0x121F	DWord	Float				
Vavg_min_DT_Year	34641	0x1220	Word	BCD	00-99			
Vavg_min_DT_Month	34642	0x1221	Word	BCD	1-12			
Vavg_min_DT_Date	34643	0x1222	Word	BCD	1-31			
Vavg_min_DT_Hour	34644	0x1223	Word	BCD	0-23			
Vavg_min_DT_Min	34645	0x1224	Word	BCD	0-59			
Vavg_min_DT_Second	34646	0x1225	Word	BCD	0-59			
Iavg_max_DT	34647-34648	0x1226-0x1227	DWord	Float				
Iavg_max_DT_Year	34649	0x1228	Word	BCD	00-99			
Iavg_max_DT_Month	34650	0x1229	Word	BCD	1-12			
Iavg_max_DT_Date	34651	0x122A	Word	BCD	1-31			
Iavg_max_DT_Hour	34652	0x122B	Word	BCD	0-23			
Iavg_max_DT_Min	34653	0x122C	Word	BCD	0-59			
Iavg_max_DT_Second	34654	0x122D	Word	BCD	0-59			
Iavg_min_DT	34655-34656	0x122E-0x122F	DWord	Float				
Iavg_min_DT_Year	34657	0x1230	Word	BCD	00-99			
Iavg_min_DT_Month	34658	0x1231	Word	BCD	1-12			
Iavg_min_DT_Date	34659	0x1232	Word	BCD	1-31			
Iavg_min_DT_Hour	34660	0x1233	Word	BCD	0-23			
Iavg_min_DT_Min	34661	0x1234	Word	BCD	0-59			
Iavg_min_DT_Second	34662	0x1235	Word	BCD	0-59			
Demand_max_DT	34663-34664	0x1236-0x1237	DWord	Float				
Demand_max_DT_Year	34665	0x1238	Word	BCD	00-99			

Demand_max_DT_Month	34666	0x1239	Word	BCD	1-12			
Demand_max_DT_Date	34667	0x123A	Word	BCD	1-31			
Demand_max_DT_Hour	34668	0x123B	Word	BCD	0-23			
Demand_max_DT_Min	34669	0x123C	Word	BCD	0-59			
Demand_max_DT_Second	34670	0x123D	Word	BCD	0-59			

Modbus Module #17 Input Register : Daily Report Yesterday Max/Min*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KWH_del_DY	34671-34672	0x123E-0x123F	DWord	Float				
KWH_rec_DY	34673-34674	0x1240-0x1241	DWord	Float				
KWH_tot_DY	34675-34676	0x1242-0x1243	DWord	Float				
KW_tot_max_DY	34677-34678	0x1244-0x1245	DWord	Float				
KW_tot_max_DY_Year	34679	0x1246	Word	BCD	00-99			
KW_tot_max_DY_Month	34680	0x1247	Word	BCD	1-12			
KW_tot_max_DY_Date	34681	0x1248	Word	BCD	1-31			
KW_tot_max_DY_Hour	34682	0x1249	Word	BCD	0-23			
KW_tot_max_DY_Min	34683	0x124A	Word	BCD	0-59			
KW_tot_max_DY_Second	34684	0x124B	Word	BCD	0-59			
KW_tot_min_DY	34685-34686	0x124C-0x124D	DWord	Float				
KW_tot_min_DY_Year	34687	0x124E	Word	BCD	00-99			
KW_tot_min_DY_Month	34688	0x124F	Word	BCD	1-12			
KW_tot_min_DY_Date	34689	0x1250	Word	BCD	1-31			
KW_tot_min_DY_Hour	34690	0x1251	Word	BCD	0-23			
KW_tot_min_DY_Min	34691	0x1252	Word	BCD	0-59			
KW_tot_min_DY_Second	34692	0x1253	Word	BCD	0-59			
Vavg_max_DY	34693-34694	0x1254-0x1255	DWord	Float				
Vavg_max_DY_Year	34695	0x1256	Word	BCD	00-99			
Vavg_max_DY_Month	34696	0x1257	Word	BCD	1-12			
Vavg_max_DY_Date	34697	0x1258	Word	BCD	1-31			
Vavg_max_DY_Hour	34698	0x1259	Word	BCD	0-23			
Vavg_max_DY_Min	34699	0x125A	Word	BCD	0-59			
Vavg_max_DY_Second	34700	0x125B	Word	BCD	0-59			
Vavg_min_DY	34701-34702	0x125C-0x125D	DWord	Float				
Vavg_min_DY_Year	34703	0x125E	Word	BCD	00-99			
Vavg_min_DY_Month	34704	0x125F	Word	BCD	1-12			
Vavg_min_DY_Date	34705	0x1260	Word	BCD	1-31			
Vavg_min_DY_Hour	34706	0x1261	Word	BCD	0-23			
Vavg_min_DY_Min	34707	0x1262	Word	BCD	0-59			
Vavg_min_DY_Second	34708	0x1263	Word	BCD	0-59			
Iavg_max_DY	34709-34710	0x1264-0x1265	DWord	Float				
Iavg_max_DY_Year	34711	0x1266	Word	BCD	00-99			
Iavg_max_DY_Month	34712	0x1267	Word	BCD	1-12			
Iavg_max_DY_Date	34713	0x1268	Word	BCD	1-31			
Iavg_max_DY_Hour	34714	0x1269	Word	BCD	0-23			
Iavg_max_DY_Min	34715	0x126A	Word	BCD	0-59			
Iavg_max_DY_Second	34716	0x126B	Word	BCD	0-59			
Iavg_min_DY	34717-34718	0x126C-0x126D	DWord	Float				
Iavg_min_DY_Year	34719	0x126E	Word	BCD	00-99			
Iavg_min_DY_Month	34720	0x126F	Word	BCD	1-12			
Iavg_min_DY_Date	34721	0x1270	Word	BCD	1-31			
Iavg_min_DY_Hour	34722	0x1271	Word	BCD	0-23			
Iavg_min_DY_Min	34723	0x1272	Word	BCD	0-59			
Iavg_min_DY_Second	34724	0x1273	Word	BCD	0-59			
Demand_max_DY	34725-34726	0x1274-0x1275	DWord	Float				

Demand_max_DY_Year	34727	0x1276	Word	BCD	00-99			
Demand_max_DY_Month	34728	0x1277	Word	BCD	1-12			
Demand_max_DY_Date	34729	0x1278	Word	BCD	1-31			
Demand_max_DY_Hour	34730	0x1279	Word	BCD	0-23			
Demand_max_DY_Min	34731	0x127A	Word	BCD	0-59			
Demand_max_DY_Second	34732	0x127B	Word	BCD	0-59			

Modbus Module #18 Input Register : Diagnostic This Period Max/Min*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Va_max_TP	34733-34734	0x127C-0x127D	DWord	Float				
Va_max_TP_Year	34735	0x127E	Word	BCD	00-99			
Va_max_TP_Month	34736	0x127F	Word	BCD	1-12			
Va_max_TP_Date	34737	0x1280	Word	BCD	1-31			
Va_max_TP_Hour	34738	0x1281	Word	BCD	0-23			
Va_max_TP_Min	34739	0x1282	Word	BCD	0-59			
Va_max_TP_Second	34740	0x1283	Word	BCD	0-59			
Va_min_TP	34741-34742	0x1284-0x1285	DWord	Float				
Va_min_TP_Year	34743	0x1286	Word	BCD	00-99			
Va_min_TP_Month	34744	0x1287	Word	BCD	1-12			
Va_min_TP_Date	34745	0x1288	Word	BCD	1-31			
Va_min_TP_Hour	34746	0x1289	Word	BCD	0-23			
Va_min_TP_Min	34747	0x128A	Word	BCD	0-59			
Va_min_TP_Second	34748	0x128B	Word	BCD	0-59			
Vb_max_TP	34749-34750	0x128C-0x128D	DWord	Float				
Vb_max_TP_Year	34751	0x128E	Word	BCD	00-99			
Vb_max_TP_Month	34752	0x128F	Word	BCD	1-12			
Vb_max_TP_Date	34753	0x1290	Word	BCD	1-31			
Vb_max_TP_Hour	34754	0x1291	Word	BCD	0-23			
Vb_max_TP_Min	34755	0x1292	Word	BCD	0-59			
Vb_max_TP_Second	34756	0x1293	Word	BCD	0-59			
Vb_min_TP	34757-34758	0x1294-0x1295	DWord	Float				
Vb_min_TP_Year	34759	0x1296	Word	BCD	00-99			
Vb_min_TP_Month	34760	0x1297	Word	BCD	1-12			
Vb_min_TP_Date	34761	0x1298	Word	BCD	1-31			
Vb_min_TP_Hour	34762	0x1299	Word	BCD	0-23			
Vb_min_TP_Min	34763	0x129A	Word	BCD	0-59			
Vb_min_TP_Second	34764	0x129B	Word	BCD	0-59			
Vc_max_TP	34765-34766	0x129C-0x129D	DWord	Float				
Vc_max_TP_Year	34767	0x129E	Word	BCD	00-99			
Vc_max_TP_Month	34768	0x129F	Word	BCD	1-12			
Vc_max_TP_Date	34769	0x12A0	Word	BCD	1-31			
Vc_max_TP_Hour	34770	0x12A1	Word	BCD	0-23			
Vc_max_TP_Min	34771	0x12A2	Word	BCD	0-59			
Vc_max_TP_Second	34772	0x12A3	Word	BCD	0-59			
Vc_min_TP	34773-34774	0x12A4-0x12A5	DWord	Float				
Vc_min_TP_Year	34775	0x12A6	Word	BCD	00-99			
Vc_min_TP_Month	34776	0x12A7	Word	BCD	1-12			
Vc_min_TP_Date	34777	0x12A8	Word	BCD	1-31			
Vc_min_TP_Hour	34778	0x12A9	Word	BCD	0-23			
Vc_min_TP_Min	34779	0x12AA	Word	BCD	0-59			
Vc_min_TP_Second	34780	0x12AB	Word	BCD	0-59			
Ia_max_TP	34781-34782	0x12AC-0x12AD	DWord	Float				
Ia_max_TP_Year	34783	0x12AE	Word	BCD	00-99			
Ia_max_TP_Month	34784	0x12AF	Word	BCD	1-12			
Ia_max_TP_Date	34785	0x12B0	Word	BCD	1-31			
Ia_max_TP_Hour	34786	0x12B1	Word	BCD	0-23			
Ia_max_TP_Min	34787	0x12B2	Word	BCD	0-59			

Ia_max_TP_Second	34788	0x12B3	Word	BCD	0-59			
Ia_min_TP	34789-34790	0x12B4-0x12B5	DWord	Float				
Ia_min_TP_Year	34791	0x12B6	Word	BCD	00-99			
Ia_min_TP_Month	34792	0x12B7	Word	BCD	1-12			
Ia_min_TP_Date	34793	0x12B8	Word	BCD	1-31			
Ia_min_TP_Hour	34794	0x12B9	Word	BCD	0-23			
Ia_min_TP_Min	34795	0x12BA	Word	BCD	0-59			
Ia_min_TP_Second	34796	0x12BB	Word	BCD	0-59			
Ib_max_TP	34797-34798	0x12BC-0x12BD	DWord	Float				
Ib_max_TP_Year	34799	0x12BE	Word	BCD	00-99			
Ib_max_TP_Month	34800	0x12BF	Word	BCD	1-12			
Ib_max_TP_Date	34801	0x12C0	Word	BCD	1-31			
Ib_max_TP_Hour	34802	0x12C1	Word	BCD	0-23			
Ib_max_TP_Min	34803	0x12C2	Word	BCD	0-59			
Ib_max_TP_Second	34804	0x12C3	Word	BCD	0-59			
Ib_min_TP	34805-34806	0x12C4-0x12C5	DWord	Float				
Ib_min_TP_Year	34807	0x12C6	Word	BCD	00-99			
Ib_min_TP_Month	34808	0x12C7	Word	BCD	1-12			
Ib_min_TP_Date	34809	0x12C8	Word	BCD	1-31			
Ib_min_TP_Hour	34810	0x12C9	Word	BCD	0-23			
Ib_min_TP_Min	34811	0x12CA	Word	BCD	0-59			
Ib_min_TP_Second	34812	0x12CB	Word	BCD	0-59			
Ic_max_TP	34813-34814	0x12CC-0x12CD	DWord	Float				
Ic_max_TP_Year	34815	0x12CE	Word	BCD	00-99			
Ic_max_TP_Month	34816	0x12CF	Word	BCD	1-12			
Ic_max_TP_Date	34817	0x12D0	Word	BCD	1-31			
Ic_max_TP_Hour	34818	0x12D1	Word	BCD	0-23			
Ic_max_TP_Min	34819	0x12D2	Word	BCD	0-59			
Ic_max_TP_Second	34820	0x12D3	Word	BCD	0-59			
Ic_min_TP	34821-34822	0x12D4-0x12D5	DWord	Float				
Ic_min_TP_Year	34823	0x12D6	Word	BCD	00-99			
Ic_min_TP_Month	34824	0x12D7	Word	BCD	1-12			
Ic_min_TP_Date	34825	0x12D8	Word	BCD	1-31			
Ic_min_TP_Hour	34826	0x12D9	Word	BCD	0-23			
Ic_min_TP_Min	34827	0x12DA	Word	BCD	0-59			
Ic_min_TP_Second	34828	0x12DB	Word	BCD	0-59			
KWa_max_TP	34829-34830	0x12DC-0x12DD	DWord	Float				
KWa_max_TP_Year	34831	0x12DE	Word	BCD	00-99			
KWa_max_TP_Month	34832	0x12DF	Word	BCD	1-12			
KWa_max_TP_Date	34833	0x12E0	Word	BCD	1-31			
KWa_max_TP_Hour	34834	0x12E1	Word	BCD	0-23			
KWa_max_TP_Min	34835	0x12E2	Word	BCD	0-59			
KWa_max_TP_Second	34836	0x12E3	Word	BCD	0-59			
KWa_min_TP	34837-34838	0x12E4-0x12E5	DWord	Float				
KWa_min_TP_Date	34839	0x12E6	Word	BCD	00-99			
KWa_min_TP_Month	34840	0x12E7	Word	BCD	1-12			
KWa_min_TP_Date	34841	0x12E8	Word	BCD	1-31			
KWa_min_TP_Hour	34842	0x12E9	Word	BCD	0-23			
KWa_min_TP_Min	34843	0x12EA	Word	BCD	0-59			
KWa_min_TP_Second	34844	0x12EB	Word	BCD	0-59			
KWb_max_TP	34845-34846	0x12EC-0x12ED	DWord	Float				
KWb_max_TP_Year	34847	0x12EE	Word	BCD	00-99			
KWb_max_TP_Month	34848	0x12EF	Word	BCD	1-12			
KWb_max_TP_Date	34849	0x12F0	Word	BCD	1-31			
KWb_max_TP_Hour	34850	0x12F1	Word	BCD	0-23			
KWb_max_TP_Min	34851	0x12F2	Word	BCD	0-59			
KWb_max_TP_Second	34852	0x12F3	Word	BCD	0-59			
KWb_min_TP	34853-34854	0x12F4-0x12F5	DWord	Float				
KWb_min_TP_Year	34855	0x12F6	Word	BCD	00-99			
KWb_min_TP_Month	34856	0x12F7	Word	BCD	1-12			
KWb_min_TP_Date	34857	0x12F8	Word	BCD	1-31			

KWb_min_TP_Hour	34858	0x12F9	Word	BCD	0-23			
KWb_min_TP_Min	34859	0x12FA	Word	BCD	0-59			
KWb_min_TP_Second	34860	0x12FB	Word	BCD	0-59			
KWc_max_TP	34861-34862	0x12FC-0x12FD	DWord	Float				
KWc_max_TP_Year	34863	0x12FE	Word	BCD	00-99			
KWc_max_TP_Month	34864	0x12FF	Word	BCD	1-12			
KWc_max_TP_Date	34865	0x1300	Word	BCD	1-31			
KWc_max_TP_Hour	34866	0x1301	Word	BCD	0-23			
KWc_max_TP_Min	34867	0x1302	Word	BCD	0-59			
KWc_max_TP_Second	34868	0x1303	Word	BCD	0-59			
KWc_min_TP	34869-34870	0x1304-0x1305	DWord	Float				
KWc_min_TP_Year	34871	0x1306	Word	BCD	00-99			
KWc_min_TP_Month	34872	0x1307	Word	BCD	1-12			
KWc_min_TP_Date	34873	0x1308	Word	BCD	1-31			
KWc_min_TP_Hour	34874	0x1309	Word	BCD	0-23			
KWc_min_TP_Min	34875	0x130A	Word	BCD	0-59			
KWc_min_TP_Second	34876	0x130B	Word	BCD	0-59			
KVAa_max_TP	34877-34878	0x130C-0x130D	DWord	Float				
KVAa_max_TP_Year	34879	0x130E	Word	BCD	00-99			
KVAa_max_TP_Month	34880	0x130F	Word	BCD	1-12			
KVAa_max_TP_Date	34881	0x1310	Word	BCD	1-31			
KVAa_max_TP_Hour	34882	0x1311	Word	BCD	0-23			
KVAa_max_TP_Min	34883	0x1312	Word	BCD	0-59			
KVAa_max_TP_Second	34884	0x1313	Word	BCD	0-59			
KVAa_min_TP	34885-34886	0x1314-0x1315	DWord	Float				
KVAa_min_TP_Year	34887	0x1316	Word	BCD	00-99			
KVAa_min_TP_Month	34888	0x1317	Word	BCD	1-12			
KVAa_min_TP_Date	34889	0x1318	Word	BCD	1-31			
KVAa_min_TP_Hour	34890	0x1319	Word	BCD	0-23			
KVAa_min_TP_Min	34891	0x131A	Word	BCD	0-59			
KVAa_min_TP_Second	34892	0x131B	Word	BCD	0-59			
KVAb_max_TP	34893-34894	0x131C-0x131D	DWord	Float				
KVAb_max_TP_Year	34895	0x131E	Word	BCD	00-99			
KVAb_max_TP_Month	34896	0x131F	Word	BCD	1-12			
KVAb_max_TP_Date	34897	0x1320	Word	BCD	1-31			
KVAb_max_TP_Hour	34898	0x1321	Word	BCD	0-23			
KVAb_max_TP_Min	34899	0x1322	Word	BCD	0-59			
KVAb_max_TP_Second	34900	0x1323	Word	BCD	0-59			
KVAb_min_TP	34901-34902	0x1324-0x1325	DWord	Float				
KVAb_min_TP_Year	34903	0x1326	Word	BCD	00-99			
KVAb_min_TP_Month	34904	0x1327	Word	BCD	1-12			
KVAb_min_TP_Date	34905	0x1328	Word	BCD	1-31			
KVAb_min_TP_Hour	34906	0x1329	Word	BCD	0-23			
KVAb_min_TP_Min	34907	0x132A	Word	BCD	0-59			
KVAb_min_TP_Second	34908	0x132B	Word	BCD	0-59			
KVAc_max_TP	34909-34910	0x132C-0x132D	DWord	Float				
KVAc_max_TP_Year	34911	0x132E	Word	BCD	00-99			
KVAc_max_TP_Month	34912	0x132F	Word	BCD	1-12			
KVAc_max_TP_Date	34913	0x1330	Word	BCD	1-31			
KVAc_max_TP_Hour	34914	0x1331	Word	BCD	0-23			
KVAc_max_TP_Min	34915	0x1332	Word	BCD	0-59			
KVAc_max_TP_Second	34916	0x1333	Word	BCD	0-59			
KVAc_min_TP	34917-34918	0x1334-0x1335	DWord	Float				
KVAc_min_TP_Year	34919	0x1336	Word	BCD	00-99			
KVAc_min_TP_Month	34920	0x1337	Word	BCD	1-12			
KVAc_min_TP_Date	34921	0x1338	Word	BCD	1-31			
KVAc_min_TP_Hour	34922	0x1339	Word	BCD	0-23			
KVAc_min_TP_Min	34923	0x133A	Word	BCD	0-59			
KVAc_min_TP_Second	34924	0x133B	Word	BCD	0-59			
PFa_min_TP	34925-34926	0x133C-0x133D	DWord	Float				
PFa_min_TP_Year	34927	0x133E	Word	BCD	00-99			

PFa_min_TP_Month	34928	0x133F	Word	BCD	1-12			
PFa_min_TP_Date	34928	0x1340	Word	BCD	1-31			
PFa_min_TP_Hour	34930	0x1341	Word	BCD	0-23			
PFa_min_TP_Min	34931	0x1342	Word	BCD	0-59			
PFa_min_TP_Second	34932	0x1343	Word	BCD	0-59			
PFb_min_TP	34933-34934	0x1344-0x1345	DWord	Float				
PFb_min_TP_Year	34935	0x1346	Word	BCD	00-99			
PFb_min_TP_Month	34935	0x1347	Word	BCD	1-12			
PFb_min_TP_Date	34937	0x1348	Word	BCD	1-31			
PFb_min_TP_Hour	34938	0x1349	Word	BCD	0-23			
PFb_min_TP_Min	34939	0x134A	Word	BCD	0-59			
PFb_min_TP_Second	34940	0x134B	Word	BCD	0-59			
PFc_min_TP	34941-34942	0x134C-0x134D	DWord	Float				
PFc_min_TP_Year	34943	0x134E	Word	BCD	00-99			
PFc_min_TP_Month	34944	0x134F	Word	BCD	1-12			
PFc_min_TP_Date	34945	0x1350	Word	BCD	1-31			
PFc_min_TP_Hour	34946	0x1351	Word	BCD	0-23			
PFc_min_TP_Min	34947	0x1352	Word	BCD	0-59			
PFc_min_TP_Second	34948	0x1353	Word	BCD	0-59			
VaTHD_max_TP	34949-34950	0x1354-0x1355	DWord	Float				
VaTHD_max_TP_Year	34951	0x1356	Word	BCD	00-99			
VaTHD_max_TP_Month	34952	0x1357	Word	BCD	1-12			
VaTHD_max_TP_Date	34953	0x1358	Word	BCD	1-31			
VaTHD_max_TP_Hour	34954	0x1359	Word	BCD	0-23			
VaTHD_max_TP_Min	34955	0x135A	Word	BCD	0-59			
VaTHD_max_TP_Second	34956	0x135B	Word	BCD	0-59			
VbTHD_max_TP	34957-34958	0x135C-0x135D	DWord	Float				
VbTHD_max_TP_Year	34959	0x135E	Word	BCD	00-99			
VbTHD_max_TP_Month	34960	0x135F	Word	BCD	1-12			
VbTHD_max_TP_Date	34961	0x1360	Word	BCD	1-31			
VbTHD_max_TP_Hour	34962	0x1361	Word	BCD	0-23			
VbTHD_max_TP_Min	34963	0x1362	Word	BCD	0-59			
VbTHD_max_TP_Second	34964	0x1363	Word	BCD	0-59			
VcTHD_max_TP	34965-34966	0x1364-0x1365	DWord	Float				
VcTHD_max_TP_Year	34967	0x1366	Word	BCD	00-99			
VcTHD_max_TP_Month	34968	0x1367	Word	BCD	1-12			
VcTHD_max_TP_Date	34969	0x1368	Word	BCD	1-31			
VcTHD_max_TP_Hour	34970	0x1369	Word	BCD	0-23			
VcTHD_max_TP_Min	34971	0x136A	Word	BCD	0-59			
VcTHD_max_TP_Second	34972	0x136B	Word	BCD	0-59			
IaTHD_max_TP	34973-34974	0x136C-0x136D	DWord	Float				
IaTHD_max_TP_Year	34975	0x136E	Word	BCD	00-99			
IaTHD_max_TP_Month	34976	0x136F	Word	BCD	1-12			
IaTHD_max_TP_Date	34977	0x1370	Word	BCD	1-31			
IaTHD_max_TP_Hour	34978	0x1371	Word	BCD	0-23			
IaTHD_max_TP_Min	34979	0x1372	Word	BCD	0-59			
IaTHD_max_TP_Second	34980	0x1373	Word	BCD	0-59			
IbTHD_max_TP	34981-34982	0x1374-0x1375	DWord	Float				
IbTHD_max_TP_Year	34983	0x1376	Word	BCD	00-99			
IbTHD_max_TP_Month	34984	0x1377	Word	BCD	1-12			
IbTHD_max_TP_Date	34985	0x1378	Word	BCD	1-31			
IbTHD_max_TP_Hour	34986	0x1379	Word	BCD	0-23			
IbTHD_max_TP_Min	34987	0x137A	Word	BCD	0-59			
IbTHD_max_TP_Second	34988	0x137B	Word	BCD	0-59			
IcTHD_max_TP	34989-34990	0x137C-0x137D	DWord	Float				
IcTHD_max_TP_Year	34991	0x137E	Word	BCD	00-99			
IcTHD_max_TP_Month	34992	0x137F	Word	BCD	1-12			
IcTHD_max_TP_Date	34993	0x1380	Word	BCD	1-31			
IcTHD_max_TP_Hour	34994	0x1381	Word	BCD	0-23			
IcTHD_max_TP_Min	34995	0x1382	Word	BCD	0-59			
IcTHD_max_TP_Second	34996	0x1383	Word	BCD	0-59			
Demand_max_TP	34997-	0x1384-	DWord	Float				

	34998	0x1385						
Demand_max_TP_Year	34999	0x1386	Word	BCD	2000-2099			
Demand_max_TP_Month	35000	0x1387	Word	BCD	1-12			
Demand_max_TP_Date	35001	0x1388	Word	BCD	1-31			
Demand_max_TP_Hour	35002	0x1389	Word	BCD	0-23			
Demand_max_TP_Min	35003	0x138A	Word	BCD	0-59			
Demand_max_TP_Second	35004	0x138B	Word	BCD	0-59			

Modbus Module #19 Input Register : Diagnostic Last Reset Max/Min*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
LR_Year	35005	0x138C	Word	BCD	00-99			
LR_Month	35006	0x138D	Word	BCD	1-12			
LR_Date	35007	0x138E	Word	BCD	1-31			
LR_Hour	35008	0x138F	Word	BCD	0-23			
LR_Min	3509	0x1390	Word	BCD	0-59			
LR_Second	35010	0x1391	Word	BCD	0-59			
Va_max_LR	35011-35012	0x1392-0x1393	DWord	Float				
Va_max_LR_Year	35013	0x1394	Word	BCD	00-99			
Va_max_LR_Month	35014	0x1395	Word	BCD	1-12			
Va_max_LR_Date	35015	0x1396	Word	BCD	1-31			
Va_max_LR_Hour	35016	0x1397	Word	BCD	0-23			
Va_max_LR_Min	35017	0x1398	Word	BCD	0-59			
Va_max_LR_Second	35018	0x1399	Word	BCD	0-59			
Va_min_LR	35019-35020	0x139A-0x139B	DWord	Float				
Va_min_LR_Year	35021	0x139C	Word	BCD	00-99			
Va_min_LR_Month	35022	0x139D	Word	BCD	1-12			
Va_min_LR_Date	35023	0x139E	Word	BCD	1-31			
Va_min_LR_Hour	35024	0x139F	Word	BCD	0-23			
Va_min_LR_Min	35025	0x13A0	Word	BCD	0-59			
Va_min_LR_Second	35026	0x13A1	Word	BCD	0-59			
Vb_max_LR	35027-35028	0x13A2-0x13A3	DWord	Float				
Vb_max_LR_Year	35029	0x13A4	Word	BCD	00-99			
Vb_max_LR_Month	35030	0x13A5	Word	BCD	1-12			
Vb_max_LR_Date	35031	0x13A6	Word	BCD	1-31			
Vb_max_LR_Hour	35032	0x13A7	Word	BCD	0-23			
Vb_max_LR_Min	35033	0x13A8	Word	BCD	0-59			
Vb_max_LR_Second	35034	0x13A9	Word	BCD	0-59			
Vb_min_LR	35035-35036	0x13AA-0x13AB	DWord	Float				
Vb_min_LR_Year	35037	0x13AC	Word	BCD	00-99			
Vb_min_LR_Month	35038	0x13AD	Word	BCD	1-12			
Vb_min_LR_Date	35039	0x13AE	Word	BCD	1-31			
Vb_min_LR_Hour	35040	0x13AF	Word	BCD	0-23			
Vb_min_LR_Min	35041	0x13B0	Word	BCD	0-59			
Vb_min_LR_Second	35042	0x13B1	Word	BCD	0-59			
Vc_max_LR	35043-35044	0x13B2-0x13B3	DWord	Float				
Vc_max_LR_Year	35045	0x13B4	Word	BCD	00-99			
Vc_max_LR_Month	35046	0x13B5	Word	BCD	1-12			
Vc_max_LR_Date	35047	0x13B6	Word	BCD	1-31			
Vc_max_LR_Hour	35048	0x13B7	Word	BCD	0-23			
Vc_max_LR_Min	35049	0x13B8	Word	BCD	0-59			
Vc_max_LR_Second	35050	0x13B9	Word	BCD	0-59			
Vc_min_LR	35051-35052	0x13BA-0x13BB	DWord	Float				
Vc_min_LR_Year	35053	0x13BC	Word	BCD	00-99			
Vc_min_LR_Month	35054	0x13BD	Word	BCD	1-12			
Vc_min_LR_Date	35055	0x13BE	Word	BCD	1-31			
Vc_min_LR_Hour	35056	0x13BF	Word	BCD	0-23			
Vc_min_LR_Min	35057	0x13C0	Word	BCD	0-59			
Vc_min_LR_Second	35058	0x13C1	Word	BCD	0-59			

Ia_max_LR	35059-35060	0x13C2-0x13C3	DWord	Float				
Ia_max_LR_Year	35061	0x13C4	Word	BCD	00-99			
Ia_max_LR_Month	35062	0x13C5	Word	BCD	1-12			
Ia_max_LR_Date	35063	0x13C6	Word	BCD	1-31			
Ia_max_LR_Hour	35064	0x13C7	Word	BCD	0-23			
Ia_max_LR_Min	35065	0x13C8	Word	BCD	0-59			
Ia_max_LR_Second	35066	0x13C9	Word	BCD	0-59			
Ia_min_LR	35067-35068	0x13CA-0x13CB	DWord	Float				
Ia_min_LR_Year	35069	0x13CC	Word	BCD	00-99			
Ia_min_LR_Month	35070	0x13CD	Word	BCD	1-12			
Ia_min_LR_Date	35071	0x13CE	Word	BCD	1-31			
Ia_min_LR_Hour	35072	0x13CF	Word	BCD	0-23			
Ia_min_LR_Min	35073	0x13D0	Word	BCD	0-59			
Ia_min_LR_Second	35074	0x13D1	Word	BCD	0-59			
Ib_max_LR	35075-35076	0x13D2-0x13D3	DWord	Float				
Ib_max_LR_Year	35077	0x13D4	Word	BCD	00-99			
Ib_max_LR_Month	35078	0x13D5	Word	BCD	1-12			
Ib_max_LR_Date	35079	0x13D6	Word	BCD	1-31			
Ib_max_LR_Hour	35080	0x13D7	Word	BCD	0-23			
Ib_max_LR_Min	35081	0x13D8	Word	BCD	0-59			
Ib_max_LR_Second	35082	0x13D9	Word	BCD	0-59			
Ib_min_LR	35083-35084	0x13DA-0x13DB	DWord	Float				
Ib_min_LR_Year	35085	0x13DC	Word	BCD	00-99			
Ib_min_LR_Month	35086	0x13DD	Word	BCD	1-12			
Ib_min_LR_Date	35087	0x13DE	Word	BCD	1-31			
Ib_min_LR_Hour	35088	0x13DF	Word	BCD	0-23			
Ib_min_LR_Min	35089	0x13E0	Word	BCD	0-59			
Ib_min_LR_Second	35090	0x13E1	Word	BCD	0-59			
Ic_max_LR	35091-35092	0x13E2-0x13E3	DWord	Float				
Ic_max_LR_Year	35093	0x13E4	Word	BCD	00-99			
Ic_max_LR_Month	35094	0x13E5	Word	BCD	1-12			
Ic_max_LR_Date	35095	0x13E6	Word	BCD	1-31			
Ic_max_LR_Hour	35096	0x13E7	Word	BCD	0-23			
Ic_max_LR_Min	35097	0x13E8	Word	BCD	0-59			
Ic_max_LR_Second	35098	0x13E9	Word	BCD	0-59			
Ic_min_LR	35099-35100	0x13EA-0x13EB	DWord	Float				
Ic_min_LR_Year	35101	0x13EC	Word	BCD	00-99			
Ic_min_LR_Month	35102	0x13ED	Word	BCD	1-12			
Ic_min_LR_Date	35103	0x13EE	Word	BCD	1-31			
Ic_min_LR_Hour	35104	0x13EF	Word	BCD	0-23			
Ic_min_LR_Min	35105	0x13F0	Word	BCD	0-59			
Ic_min_LR_Second	35106	0x13F1	Word	BCD	0-59			
KWa_max_LR	35107-35108	0x13F2-0x13F3	DWord	Float				
KWa_max_LR_Year	35109	0x13F4	Word	BCD	00-99			
KWa_max_LR_Month	35110	0x13F5	Word	BCD	1-12			
KWa_max_LR_Date	35111	0x13F6	Word	BCD	1-31			
KWa_max_LR_Hour	35112	0x13F7	Word	BCD	0-23			
KWa_max_LR_Min	35113	0x13F8	Word	BCD	0-59			
KWa_max_LR_Second	35114	0x13F9	Word	BCD	0-59			
KWa_min_LR	35115-35116	0x13FA-0x13FB	DWord	Float				
KWa_min_LR_Date	35117	0x13FC	Word	BCD	00-99			
KWa_min_LR_Month	35118	0x13FD	Word	BCD	1-12			
KWa_min_LR_Date	35119	0x13FE	Word	BCD	1-31			
KWa_min_LR_Hour	35120	0x13FF	Word	BCD	0-23			
KWa_min_LR_Min	35121	0x1400	Word	BCD	0-59			
KWa_min_LR_Second	35122	0x1401	Word	BCD	0-59			
KWb_max_LR	35123-35124	0x1402-0x1403	DWord	Float				
KWb_max_LR_Year	35125	0x1404	Word	BCD	00-99			
KWb_max_LR_Month	35126	0x1405	Word	BCD	1-12			
KWb_max_LR_Date	35127	0x1406	Word	BCD	1-31			
KWb_max_LR_Hour	35128	0x1407	Word	BCD	0-23			

KWb_max_LR_Min	35129	0x1408	Word	BCD	0-59			
KWb_max_LR_Second	35130	0x1409	Word	BCD	0-59			
KWb_min_LR	35131-35132	0x140A-0x140B	DWord	Float				
KWb_min_LR_Year	35133	0x140C	Word	BCD	00-99			
KWb_min_LR_Month	35134	0x140D	Word	BCD	1-12			
KWb_min_LR_Date	35135	0x140E	Word	BCD	1-31			
KWb_min_LR_Hour	35136	0x140F	Word	BCD	0-23			
KWb_min_LR_Min	35137	0x1410	Word	BCD	0-59			
KWb_min_LR_Second	35138	0x1411	Word	BCD	0-59			
KWc_max_LR	35139-35140	0x1412-0x1413	DWord	Float				
KWc_max_LR_Year	35141	0x1414	Word	BCD	00-99			
KWc_max_LR_Month	35142	0x1415	Word	BCD	1-12			
KWc_max_LR_Date	35143	0x1416	Word	BCD	1-31			
KWc_max_LR_Hour	35144	0x1417	Word	BCD	0-23			
KWc_max_LR_Min	35145	0x1418	Word	BCD	0-59			
KWc_max_LR_Second	35146	0x1419	Word	BCD	0-59			
KWc_min_LR	35147-35148	0x141A-0x141B	DWord	Float				
KWc_min_LR_Year	35149	0x141C	Word	BCD	00-99			
KWc_min_LR_Month	35150	0x141D	Word	BCD	1-12			
KWc_min_LR_Date	35151	0x141E	Word	BCD	1-31			
KWc_min_LR_Hour	35152	0x141F	Word	BCD	0-23			
KWc_min_LR_Min	35153	0x1420	Word	BCD	0-59			
KWc_min_LR_Second	35154	0x1421	Word	BCD	0-59			
KVAa_max_LR	35155-35156	0x1422-0x1423	DWord	Float				
KVAa_max_LR_Year	35157	0x1424	Word	BCD	00-99			
KVAa_max_LR_Month	35158	0x1425	Word	BCD	1-12			
KVAa_max_LR_Date	35159	0x1426	Word	BCD	1-31			
KVAa_max_LR_Hour	35160	0x1427	Word	BCD	0-23			
KVAa_max_LR_Min	35161	0x1428	Word	BCD	0-59			
KVAa_max_LR_Second	35162	0x1429	Word	BCD	0-59			
KVAa_min_LR	35163-35164	0x142A-0x142B	DWord	Float				
KVAa_min_LR_Year	35165	0x142C	Word	BCD	00-99			
KVAa_min_LR_Month	35166	0x142D	Word	BCD	1-12			
KVAa_min_LR_Date	35167	0x142E	Word	BCD	1-31			
KVAa_min_LR_Hour	35168	0x142F	Word	BCD	0-23			
KVAa_min_LR_Min	35169	0x1430	Word	BCD	0-59			
KVAa_min_LR_Second	35170	0x1431	Word	BCD	0-59			
KVAb_max_LR	35171-35172	0x1432-0x1433	DWord	Float				
KVAb_max_LR_Year	35173	0x1434	Word	BCD	00-99			
KVAb_max_LR_Month	35174	0x1435	Word	BCD	1-12			
KVAb_max_LR_Date	35175	0x1436	Word	BCD	1-31			
KVAb_max_LR_Hour	35176	0x1437	Word	BCD	0-23			
KVAb_max_LR_Min	35177	0x1438	Word	BCD	0-59			
KVAb_max_LR_Second	35178	0x1439	Word	BCD	0-59			
KVAb_min_LR	35179-35180	0x143A-0x143B	DWord	Float				
KVAb_min_LR_Year	35181	0x143C	Word	BCD	00-99			
KVAb_min_LR_Month	35182	0x143D	Word	BCD	1-12			
KVAb_min_LR_Date	35183	0x143E	Word	BCD	1-31			
KVAb_min_LR_Hour	35184	0x143F	Word	BCD	0-23			
KVAb_min_LR_Min	35185	0x1440	Word	BCD	0-59			
KVAb_min_LR_Second	35186	0x1441	Word	BCD	0-59			
KVAc_max_LR	35187-35188	0x1442-0x1443	DWord	Float				
KVAc_max_LR_Year	35189	0x1444	Word	BCD	00-99			
KVAc_max_LR_Month	35190	0x1445	Word	BCD	1-12			
KVAc_max_LR_Date	35191	0x1446	Word	BCD	1-31			
KVAc_max_LR_Hour	35192	0x1447	Word	BCD	0-23			
KVAc_max_LR_Min	35193	0x1448	Word	BCD	0-59			
KVAc_max_LR_Second	35194	0x1449	Word	BCD	0-59			
KVAc_min_LR	35195-35196	0x144A-0x144B	DWord	Float				
KVAc_min_LR_Year	35197	0x144C	Word	BCD	00-99			
KVAc_min_LR_Month	35198	0x144D	Word	BCD	1-12			

KVAc_min_LR_Date	35199	0x144E	Word	BCD	1-31			
KVAc_min_LR_Hour	35200	0x144F	Word	BCD	0-23			
KVAc_min_LR_Min	35201	0x1450	Word	BCD	0-59			
KVAc_min_LR_Second	35202	0x1451	Word	BCD	0-59			
PFa_min_LR	35203-35204	0x1452-0x1453	DWord	Float				
PFa_min_LR_Year	35205	0x1454	Word	BCD	00-99			
PFa_min_LR_Month	35206	0x1455	Word	BCD	1-12			
PFa_min_LR_Date	35207	0x1456	Word	BCD	1-31			
PFa_min_LR_Hour	35208	0x1457	Word	BCD	0-23			
PFa_min_LR_Min	35209	0x1458	Word	BCD	0-59			
PFa_min_LR_Second	35210	0x1459	Word	BCD	0-59			
PFb_min_LR	35211-35212	0x145A-0x145B	DWord	Float				
PFb_min_LR_Year	35213	0x145C	Word	BCD	00-99			
PFb_min_LR_Month	35214	0x145D	Word	BCD	1-12			
PFb_min_LR_Date	35215	0x145E	Word	BCD	1-31			
PFb_min_LR_Hour	35216	0x145F	Word	BCD	0-23			
PFb_min_LR_Min	35217	0x1460	Word	BCD	0-59			
PFb_min_LR_Second	35218	0x1461	Word	BCD	0-59			
PFc_min_LR	35219-35220	0x1462-0x1463	DWord	Float				
PFc_min_LR_Year	35221	0x1464	Word	BCD	00-99			
PFc_min_LR_Month	35222	0x1465	Word	BCD	1-12			
PFc_min_LR_Date	35223	0x1466	Word	BCD	1-31			
PFc_min_LR_Hour	35224	0x1467	Word	BCD	0-23			
PFc_min_LR_Min	35225	0x1468	Word	BCD	0-59			
PFc_min_LR_Second	35226	0x1469	Word	BCD	0-59			
VaTHD_max_LR	35227-35228	0x146A-0x146B	DWord	Float				
VaTHD_max_LR_Year	35229	0x146C	Word	BCD	00-99			
VaTHD_max_LR_Month	35230	0x146D	Word	BCD	1-12			
VaTHD_max_LR_Date	35231	0x146E	Word	BCD	1-31			
VaTHD_max_LR_Hour	35232	0x146F	Word	BCD	0-23			
VaTHD_max_LR_Min	35233	0x1470	Word	BCD	0-59			
VaTHD_max_LR_Second	35234	0x1471	Word	BCD	0-59			
VbTHD_max_LR	35235-35236	0x1472-0x1473	DWord	Float				
VbTHD_max_LR_Year	35237	0x1474	Word	BCD	00-99			
VbTHD_max_LR_Month	35238	0x1475	Word	BCD	1-12			
VbTHD_max_LR_Date	35239	0x1476	Word	BCD	1-31			
VbTHD_max_LR_Hour	35240	0x1477	Word	BCD	0-23			
VbTHD_max_LR_Min	35241	0x1478	Word	BCD	0-59			
VbTHD_max_LR_Second	35242	0x1479	Word	BCD	0-59			
VcTHD_max_LR	35243-35244	0x147A-0x147B	DWord	Float				
VcTHD_max_LR_Year	35245	0x147C	Word	BCD	00-99			
VcTHD_max_LR_Month	35246	0x147D	Word	BCD	1-12			
VcTHD_max_LR_Date	35247	0x147E	Word	BCD	1-31			
VcTHD_max_LR_Hour	35248	0x147F	Word	BCD	0-23			
VcTHD_max_LR_Min	35249	0x1480	Word	BCD	0-59			
VcTHD_max_LR_Second	35250	0x1481	Word	BCD	0-59			
IaTHD_max_LR	35251-35252	0x1482-0x1483	DWord	Float				
IaTHD_max_LR_Year	35253	0x1484	Word	BCD	00-99			
IaTHD_max_LR_Month	35254	0x1485	Word	BCD	1-12			
IaTHD_max_LR_Date	35255	0x1486	Word	BCD	1-31			
IaTHD_max_LR_Hour	35256	0x1487	Word	BCD	0-23			
IaTHD_max_LR_Min	35257	0x1488	Word	BCD	0-59			
IaTHD_max_LR_Second	35258	0x1489	Word	BCD	0-59			
IbTHD_max_LR	35259-35260	0x148A-0x148B	DWord	Float				
IbTHD_max_LR_Year	35261	0x148C	Word	BCD	00-99			
IbTHD_max_LR_Month	35262	0x148D	Word	BCD	1-12			
IbTHD_max_LR_Date	35263	0x148E	Word	BCD	1-31			
IbTHD_max_LR_Hour	35264	0x148F	Word	BCD	0-23			
IbTHD_max_LR_Min	35265	0x1490	Word	BCD	0-59			
IbTHD_max_LR_Second	35266	0x1491	Word	BCD	0-59			
IcTHD_max_LR	35267-35268	0x1492-0x1493	DWord	Float				

IcTHD_max_LR_Year	35269	0x1494	Word	BCD	00-99			
IcTHD_max_LR_Month	35270	0x1495	Word	BCD	1-12			
IcTHD_max_LR_Date	35271	0x1496	Word	BCD	1-31			
IcTHD_max_LR_Hour	35272	0x1497	Word	BCD	0-23			
IcTHD_max_LR_Min	35273	0x1498	Word	BCD	0-59			
IcTHD_max_LR_Second	35274	0x1499	Word	BCD	0-59			
Demand_max_LR	35275-35276	0x149A-0x149B	DWord	Float				
Demand_max_LR_Year	35277	0x149C	Word	BCD	2000-2099			
Demand_max_LR_Month	35278	0x149D	Word	BCD	1-12			
Demand_max_LR_Date	35279	0x149E	Word	BCD	1-31			
Demand_max_LR_Hour	35280	0x149F	Word	BCD	0-23			
Demand_max_LR_Min	35281	0x14A0	Word	BCD	0-59			
Demand_max_LR_Second	35282	0x14A1	Word	BCD	0-59			
KWH_del_LR	35283-35284	0x14A2-0x14A3	DWord	Float				
KWH_rec_LR	35285-35286	0x14A4-0x14A5	DWord	Float				
KWH_tot_LR	35287-35288	0x14A6-0x14A7	DWord	Float				

Modbus Module #20 Input Register : Event Log Sag Record*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Sag01_Duration_Cycles	35289	0x14A8	Word	UINT				
Sag01_Data	35290	0x14A9	Word	INT	Range : -327.68% ~ 327.67%			
Sag01_Phase	35291	0x14AA	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag01_Start_Time	35292-35297	0x14AB-0x14B0	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag01_End_Time	35298-35303	0x14B1-0x14B6	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag02_Duration_Cycles	35304	0x14B7	Word	UINT				
Sag02_Data	35305	0x14B8	Word	INT	Range : -327.68% ~ 327.67%			
Sag02_Phase	35306	0x14B9	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag02_Start_time	35307-35312	0x14BA-0x14BF	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag02_End_time	35313-35318	0x14C0-0x14C5	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag03_Duration_Cycles	35319	0x14C6	Word	UINT				
Sag03_Data	35320	0x14C7	Word	INT	Range : -327.68% ~ 327.67%			
Sag03_Phase	35321	0x14C8	Word	UINT	0: A phase 1: B phase 2: C phase			

Sag03_Start_time	35322-35327	0x14C9-0x14CE	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag03_End_time	35328-35333	0x14CF-0x14D4	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag04_Duration_Cycles	35334	0x14D5	Word	UINT				
Sag04_Data	35335	0x14D6	Word	INT	Range : -327.68% ~ 327.67%			
Sag04_Phase	35336	0x14D7	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag04_Start_time	35337-35342	0x14D8-0x14DD	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag04_End_time	35343-35348	0x14DE-0x14E3	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag05_Duration_Cycles	35349	0x14E4	Word	UINT				
Sag05_Data	35350	0x14E5	Word	INT	Range : -327.68% ~ 327.67%			
Sag05_Phase	35351	0x14E6	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag05_Start_time	35352-35357	0x14E7-0x14EC	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag05_End_time	35358-35363	0x14ED-0x14F2	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag06_Duration_Cycles	35364	0x14F3	Word	UINT				
Sag06_Data	35365	0x14F4	Word	INT	Range : -327.68% ~ 327.67%			
Sag06_Phase	35366	0x14F5	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag06_Start_time	35367-35372	0x14F6-0x14FB	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag06_End_time	35373-35378	0x14FC-0x1501	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag07_Duration_Cycles	35379	0x1502	Word	UINT				
Sag07_Data	35380	0x1503	Word	INT	Range : -327.68% ~ 327.67%			
Sag07_Phase	35381	0x1504	Word	UINT	0: A phase 1: B phase 2: C phase			

Sag07_Start_time	35382-35387	0x1505-0x150A	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag07_End_time	35388-35393	0x150B-0x1510	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag08_Duration_Cycles	35394	0x1511	Word	UINT				
Sag08_Data	35385	0x1512	Word	INT	Range : -327.68% ~ 327.67%			
Sag08_Phase	35396	0x1513	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag08_Start_time	35397-35402	0x1514-0x1519	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag08_End_time	35403-35408	0x151A-0x151F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag09_Duration_Cycles	35409	0x1520	Word	UINT				
Sag09_Data	35410	0x1521	Word	INT	Range : -327.68% ~ 327.67%			
Sag09_Phase	35411	0x1522	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag09_Start_time	35412-35417	0x1523-0x1528	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag09_End_time	35418-35423	0x1529-0x152E	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag10_Duration_Cycles	35424	0x152F	Word	UINT				
Sag10_Data	35425	0x1530	Word	INT	Range : -327.68% ~ 327.67%			
Sag10_Phase	35426	0x1531	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag10_Start_time	35427-35432	0x1532-0x1537	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag10_End_time	35433-35438	0x1538-0x153D	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag11_Duration_Cycles	35439	0x153E	Word	UINT				
Sag11_Data	35440	0x153F	Word	INT	Range : -327.68% ~ 327.67%			
Sag11_Phase	35441	0x1540	Word	UINT	0: A phase 1: B phase			

					2: C phase			
Sag11_Start_time	35442-35447	0x1541-0x1546	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag11_End_time	35448-35453	0x1547-0x154C	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag12_Duration_Cycles	35454	0x154D	Word	UINT				
Sag12_Data	35455	0x154E	Word	INT	Range : -327.68% ~ 327.67%			
Sag12_Phase	35456	0x154F	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag12_Start_time	35457-35462	0x1550-0x1555	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag12_End_time	35463-35468	0x1556-0x155B	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag13_Duration_Cycles	35469	0x155C	Word	UINT				
Sag13_Data	35470	0x155D	Word	INT	Range : -327.68% ~ 327.67%			
Sag13_Phase	35471	0x155E	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag13_Start_time	35472-35477	0x155F-0x1564	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag13_End_time	35478-35483	0x1565-0x156A	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag14_Duration_Cycles	35484	0x156B	Word	UINT				
Sag14_Data	35485	0x156C	Word	INT	Range : -327.68% ~ 327.67%			
Sag14_Phase	35486	0x156D	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag14_Start_time	35487-35492	0x156E-0x1573	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag14_End_time	35493-35498	0x1574-0x1579	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag15_Duration_Cycles	35499	0x157A	Word	UINT				

Sag15_Data	35500	0x157B	Word	INT	Range : -327.68% ~ 327.67%			
Sag15_Phase	35501	0x157C	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag15_Start_time	35502-35507	0x157D-0x1582	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag15_End_time	35508-35513	0x1583-0x1588	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag16_Duration_Cycles	35514	0x1589	Word	UINT				
Sag16_Data	35515	0x158A	Word	INT	Range : -327.68% ~ 327.67%			
Sag16_Phase	35516	0x158B	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag16_Start_time	35517-35522	0x158C-0x1591	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag16_End_time	35523-35528	0x1592-0x1597	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag17_Duration_Cycles	35529	0x1598	Word	UINT				
Sag17_Data	35530	0x1599	Word	INT	Range : -327.68% ~ 327.67%			
Sag17_Phase	35531	0x159A	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag17_Start_time	35532-35537	0x159B-0x15A0	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag17_End_time	35538-35543	0x15A1-0x15A6	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag18_Duration_Cycles	35544	0x15A7	Word	UINT				
Sag18_Data	35545	0x15A8	Word	INT	Range : -327.68% ~ 327.67%			
Sag18_Phase	35546	0x15A9	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag18_Start_time	35547-35552	0x15AA-0x15AF	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Sag18_End_time	35553-35558	0x15B0-0x15B5	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag19_Duration_Cycles	35559	0x15B6	Word	UINT				
Sag19_Data	35560	0x15B7	Word	INT	Range : -327.68% ~ 327.67%			
Sag19_Phase	35561	0x15B8	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag19_Start_time	35562-35567	0x15B9-0x15BE	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag19_End_time	35568-35573	0x15BF-0x15C4	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag20_Duration_Cycles	35574	0x15C5	Word	UINT				
Sag20_Data	35575	0x15C6	Word	INT	Range : -327.68% ~ 327.67%			
Sag20_Phase	35576	0x15C7	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag20_Start_time	35577-35582	0x15C8-0x15CD	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag20_End_time	35583-35588	0x15CE-0x15D3	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #21 Input Register : Event Log Swell Record*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Swell01_Duration_Cycles	35589	0x15D4	Word	UINT				
Swell01_Data	35590	0x15D5	Word	INT	Range : -327.68% ~ 327.67%			
Swell01_Phase	35591	0x15D6	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell01_Start_Time	35592-35597	0x15D7-0x15DC	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell01_End_Time	35598-35603	0x15DD-0x15E2	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell02_Duration_Cycles	35604	0x15E3	Word	UINT				
Swell02_Data	35605	0x15E4	Word	INT	Range : -327.68% ~ 327.67%			
Swell02_Phase	35606	0x15E5	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell02_Start_time	35607-35612	0x15E6-0x15EB	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell02_End_time	35613-35618	0x15EC-0x15F1	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell03_Duration_Cycles	35619	0x15F2	Word	UINT				
Swell03_Data	35620	0x15F3	Word	INT	Range : -327.68% ~ 327.67%			
Swell03_Phase	35621	0x15F4	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell03_Start_time	35622-35627	0x15F5-0x15FA	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell03_End_time	35628-35633	0x15FB-0x1600	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell04_Duration_Cycles	35634	0x1601	Word	UINT				
Swell04_Data	35635	0x1602	Word	INT	Range : -327.68% ~ 327.67%			
Swell04_Phase	35636	0x1603	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell04_Start_time	35637-35642	0x1604-0x1609	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell04_End_time	35643-35648	0x160A-0x160F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell05_Duration_Cycles	35649	0x1610	Word	UINT				
Swell05_Data	35650	0x1611	Word	INT	Range : -327.68% ~ 327.67%			
Swell05_Phase	35651	0x1612	Word	UINT	0: A phase 1: B phase 2: C phase			

Swell05_Start_time	35652-35657	0x1613-0x1618	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell05_End_time	35658-35663	0x1619-0x161E	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell06_Duration_Cycles	35664	0x161F	Word	UINT				
Swell06_Data	35665	0x1620	Word	INT	Range : -327.68% ~ 327.67%			
Swell06_Phase	35666	0x1621	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell06_Start_time	35667-35672	0x1622-0x1627	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell06_End_time	35673-35678	0x1628-0x162D	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell07_Duration_Cycles	35679	0x162E	Word	UINT				
Swell07_Data	35680	0x162F	Word	INT	Range : -327.68% ~ 327.67%			
Swell07_Phase	35681	0x1630	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell07_Start_time	35682-35687	0x1631-0x1636	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell07_End_time	35688-35693	0x1637-0x163C	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell08_Duration_Cycles	35694	0x163D	Word	UINT				
Swell08_Data	35695	0x163E	Word	INT	Range : -327.68% ~ 327.67%			
Swell08_Phase	35696	0x163F	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell08_Start_time	35697-35702	0x1640-0x1645	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell08_End_time	35703-35708	0x1646-0x164B	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell09_Duration_Cycles	35709	0x164C	Word	UINT				

Swell09_Data	35710	0x164D	Word	INT	Range : -327.68% ~ 327.67%			
Swell09_Phase	35711	0x164E	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell09_Start_time	35712-35717	0x164F-0x1654	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell09_End_time	35718-35723	0x1655-0x165A	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell10_Duration_Cycles	35724	0x165B	Word	UINT				
Swell10_Data	35725	0x165C	Word	INT	Range : -327.68% ~ 327.67%			
Swell10_Phase	35726	0x165D	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell10_Start_time	35727-35732	0x165E-0x1663	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell10_End_time	35733-35738	0x1664-0x1669	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell11_Duration_Cycles	35739	0x166A	Word	UINT				
Swell11_Data	35740	0x166B	Word	INT	Range : -327.68% ~ 327.67%			
Swell11_Phase	35741	0x166C	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell11_Start_time	35742-35747	0x166D-0x1672	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell11_End_time	35748-35753	0x1673-0x1678	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell12_Duration_Cycles	35754	0x1679	Word	UINT				
Swell12_Data	35755	0x167A	Word	INT	Range : -327.68% ~ 327.67%			
Swell12_Phase	35756	0x167B	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell12_Start_time	35757-35762	0x167C-0x1681	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell12_End_time	35763-35768	0x1682-0x1687	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell13_Duration_Cycles	35769	0x1688	Word	UINT				
Swell13_Data	35770	0x1689	Word	INT	Range : -327.68% ~ 327.67%			
Swell13_Phase	35771	0x168A	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell13_Start_time	35772-35777	0x168B-0x1690	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell13_End_time	35778-35783	0x1691-0x1696	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell14_Duration_Cycles	35784	0x1697	Word	UINT				
Swell14_Data	35785	0x1698	Word	INT	Range : -327.68% ~ 327.67%			
Swell14_Phase	35786	0x1699	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell14_Start_time	35787-35792	0x169A-0x169F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell14_End_time	35793-35798	0x16A0-0x16A5	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell15_Duration_Cycles	35799	0x16A6	Word	UINT				
Swell15_Data	35800	0x16A7	Word	INT	Range : -327.68% ~ 327.67%			
Swell15_Phase	35801	0x16A8	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell15_Start_time	35802-35807	0x16A9-0x16AE	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell15_End_time	35808-35813	0x16AF-0x16B4	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell16_Duration_Cycles	35814	0x16B5	Word	UINT				
Swell16_Data	35815	0x16B6	Word	INT	Range : -327.68% ~ 327.67%			
Swell16_Phase	35816	0x16B7	Word	UINT	0: A phase 1: B phase 2: C phase			

Swell16_Start_time	35817-35822	0x16B8-0x16BD	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell16_End_time	35823-35828	0x16BE-0x16C3	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell17_Duration_Cycles	35829	0x16C4	Word	UINT				
Swell17_Data	35830	0x16C5	Word	INT	Range : -327.68% ~ 327.67%			
Swell17_Phase	35831	0x16C6	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell17_Start_time	35832-35837	0x16C7-0x16CC	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell17_End_time	35838-35843	0x16CD-0x16D2	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell18_Duration_Cycles	35844	0x16D3	Word	UINT				
Swell18_Data	35845	0x16D4	Word	INT	Range : -327.68% ~ 327.67%			
Swell18_Phase	35846	0x16D5	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell18_Start_time	35847-35852	0x16D6-0x16DB	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell18_End_time	35853-35858	0x16DC-0x16E1	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell19_Duration_Cycles	35859	0x16E2	Word	UINT				
Swell19_Data	35860	0x16E3	Word	INT	Range : -327.68% ~ 327.67%			
Swell19_Phase	35861	0x16E4	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell19_Start_time	35862-35867	0x16E5-0x16EA	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell19_End_time	35868-35873	0x16EB-0x16F0	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell20_Duration_Cycles	35874	0x16F1	Word	UINT				
Swell20_Data	35875	0x16F2	Word	INT	Range : -327.68% ~ 327.67%			
Swell20_Phase	35876	0x16F3	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell20_Start_time	35877-35882	0x16F4-0x16F9	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell20_End_time	35883-35888	0x16FA-0x16FF	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #22 Input Register : Event Log Alarm Record*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Alarm01_Item	35889	0x1700	Word	UINT				
Alarm01_Data	35890	0x1701	Word	INT	Range : -327.68% ~ 327.67%			
Alarm01_Time	35891-35896	0x1702-0x1707	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm02_Item	35897	0x1708	Word	UINT				
Alarm02_Data	35898	0x1709	Word	INT	Range : -327.68% ~ 327.67%			
Alarm02_Time	35899-35904	0x170A-0x170F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm03_Item	35905	0x1710	Word	UINT				
Alarm03_Data	35906	0x1711	Word	INT	Range : -327.68% ~ 327.67%			
Alarm03_Time	35907-35912	0x1712-0x1717	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm04_Item	35913	0x1718	Word	UINT				
Alarm04_Data	35914	0x1719	Word	INT	Range : -327.68% ~ 327.67%			

Alarm04_Time	35915-35920	0x171A-0x171F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm05_Item	35921	0x1720	Word	UINT				
Alarm05_Data	35922	0x1721	Word	INT	Range : -327.68% ~ 327.67%			
Alarm05_Time	35923-35928	0x1722-0x1727	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm06_Item	35929	0x1728	Word	UINT				
Alarm06_Data	35930	0x1729	Word	INT	Range : -327.68% ~ 327.67%			
Alarm06_Time	35931-35936	0x172A-0x172F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm07_Item	35937	0x1730	Word	UINT				
Alarm07_Data	35938	0x1731	Word	INT	Range : -327.68% ~ 327.67%			
Alarm07_Time	35939-35944	0x1732-0x1737	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm08_Item	35945	0x1738	Word	UINT				
Alarm08_Data	35946	0x1739	Word	INT	Range : -327.68% ~ 327.67%			
Alarm08_Time	35947-35952	0x173A-0x173F	Word x 6	Date & Time (BCD)	Year : 2000-2099 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm09_Item	35953	0x1740	Word	UINT				
Alarm09_Data	35954	0x1741	Word	INT	Range : -327.68% ~ 327.67%			
Alarm09_Time	35955-35960	0x1742-0x1747	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm10_Item	35961	0x1748	Word	UINT				
Alarm10_Data	35962	0x1749	Word	INT	Range : -327.68% ~ 327.67%			
Alarm10_Time	35963-35968	0x174A-0x174F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm11_Item	35969	0x1750	Word	UINT				
Alarm11_Data	35970	0x1751	Word	INT	Range : -327.68% ~ 327.67%			

Alarm11_Time	35971-35976	0x1752-0x1757	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm12_Item	35977	0x1758	Word	UINT				
Alarm12_Data	35978	0x1759	Word	INT	Range : -327.68% ~ 327.67%			
Alarm12_Time	35979-35984	0x175A-0x175F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm13_Item	35985	0x1760	Word	UINT				
Alarm13_Data	35986	0x1761	Word	INT	Range : -327.68% ~ 327.67%			
Alarm13_Time	35987-35992	0x1762-0x1767	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm14_Item	35993	0x1768	Word	UINT				
Alarm14_Data	35994	0x1769	Word	INT	Range : -327.68% ~ 327.67%			
Alarm14_Time	35995-36000	0x176A-0x176F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm15_Item	36001	0x1770	Word	UINT				
Alarm15_Data	36002	0x1771	Word	INT	Range : -327.68% ~ 327.67%			
Alarm15_Time	36003-36008	0x1772-0x1777	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm16_Item	36009	0x1778	Word	UINT				
Alarm16_Data	36010	0x1779	Word	INT	Range : -327.68% ~ 327.67%			
Alarm16_Time	36011-36016	0x177A-0x177F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm17_Item	36017	0x1780	Word	UINT				
Alarm17_Data	36018	0x1781	Word	INT	Range : -327.68% ~ 327.67%			
Alarm17_Time	36019-36024	0x1782-0x1787	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm18_Item	36025	0x1788	Word	UINT				
Alarm18_Data	36026	0x1789	Word	INT	Range : -327.68% ~ 327.67%			
Alarm18_Time	36027-36032	0x178A-0x178F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23			

					Minute : 0-59 Second : 0-59			
Alarm19_Item	36033	0x1790	Word	UINT				
Alarm19_Data	36034	0x1791	Word	INT	Range : -327.68% ~ 327.67%			
Alarm19_Time	36035-36040	0x1792-0x1797	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm20_Item	36041	0x1798	Word	UINT				
Alarm20_Data	36042	0x1799	Word	INT	Range : -327.68% ~ 327.67%			
Alarm20_Time	36043-36048	0x179A-0x179F	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #23 Input Register : Total Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
TOT_HD_V_a	36657-36658	0x1A00-0x1A01	DWord	Float				
TOT_HD_V_b	36659-36660	0x1A02-0x1A03	DWord	Float				
TOT_HD_V_c	36661-36662	0x1A04-0x1A05	DWord	Float				
TOT_HD_I_a	36663-36664	0x1A06-0x1A07	DWord	Float				
TOT_HD_I_b	36665-36666	0x1A08-0x1A09	DWord	Float				
TOT_HD_I_c	36667-36668	0x1A0A-0x1A0B	DWord	Float				
TOT_HD_I_n	36669-36670	0x1A0C-0x1A0D	DWord	Float				

Modbus Module #24 Input Register : Total Odd & Even Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
TOT_EVEN_HD_V_a	36671-36672	0x1A0E-0x1A0F	DWord	Float				
TOT_EVEN_HD_V_b	36673-36674	0x1A10-0x1A11	DWord	Float				
TOT_EVEN_HD_V_c	36675-36676	0x1A12-0x1A13	DWord	Float				
TOT_EVEN_HD_I_a	36677-36678	0x1A14-0x1A15	DWord	Float				
TOT_EVEN_HD_I_b	36679-36680	0x1A16-0x1A17	DWord	Float				
TOT_EVEN_HD_I_c	36681-36682	0x1A18-0x1A19	DWord	Float				
TOT_EVEN_HD_I_n	36683-36684	0x1A1A-0x1A1B	DWord	Float				
TOT_ODD_HD_V_a	36685-36686	0x1A1C-0x1A1D	DWord	Float				
TOT_ODD_HD_V_b	36687-36688	0x1A1E-0x1A1F	DWord	Float				
TOT_ODD_HD_V_c	36689-36690	0x1A20-0x1A21	DWord	Float				
TOT_ODD_HD_I_a	36691-36692	0x1A22-0x1A23	DWord	Float				

TOT_ODD_HD_I_b	36693-36694	0x1A24-0x1A25	DWord	Float				
TOT_ODD_HD_I_c	36695-36696	0x1A26-0x1A27	DWord	Float				
TOT_ODD_HD_I_n	36697-36698	0x1A28-0x1A29	DWord	Float				

Modbus Module #25 Input Register : Phase A Voltage Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	36699-36700	0x1A2A-0x1A2B	DWord	Float				
HD1_V_a	36701-36702	0x1A2C-0x1A2D	DWord	Float				
HD2_V_a	36703-36704	0x1A2E-0x1A2F	DWord	Float				
HD3_V_a	36705-36706	0x1A30-0x1A31	DWord	Float				
HD4_V_a	36707-36708	0x1A32-0x1A33	DWord	Float				
HD5_V_a	36709-36710	0x1A34-0x1A35	DWord	Float				
HD6_V_a	36711-36712	0x1A36-0x1A37	DWord	Float				
HD7_V_a	36713-36714	0x1A38-0x1A39	DWord	Float				
HD8_V_a	36715-36716	0x1A3A-0x1A3B	DWord	Float				
HD9_V_a	36717-36718	0x1A3C-0x1A3D	DWord	Float				
HD10_V_a	36719-36720	0x1A3E-0x1A3F	DWord	Float				
HD11_V_a	36721-36722	0x1A40-0x1A41	DWord	Float				
HD12_V_a	36723-36724	0x1A42-0x1A43	DWord	Float				
HD13_V_a	36725-36726	0x1A44-0x1A45	DWord	Float				
HD14_V_a	36727-36728	0x1A46-0x1A47	DWord	Float				
HD15_V_a	36729-36730	0x1A48-0x1A49	DWord	Float				
HD16_V_a	36731-36732	0x1A4A-0x1A4B	DWord	Float				
HD17_V_a	36733-36734	0x1A4C-0x1A4D	DWord	Float				
HD18_V_a	36735-36736	0x1A4E-0x1A4F	DWord	Float				
HD19_V_a	36737-36738	0x1A50-0x1A51	DWord	Float				
HD20_V_a	36739-36740	0x1A52-0x1A53	DWord	Float				
HD21_V_a	36741-36742	0x1A54-0x1A55	DWord	Float				
HD22_V_a	36743-36744	0x1A56-0x1A57	DWord	Float				
HD23_V_a	36745-36746	0x1A58-0x1A59	DWord	Float				
HD24_V_a	36747-36748	0x1A5A-0x1A5B	DWord	Float				
HD25_V_a	36749-36750	0x1A5C-0x1A5D	DWord	Float				
HD26_V_a	36751-36752	0x1A5E-0x1A5F	DWord	Float				
HD27_V_a	36753-36754	0x1A60-0x1A61	DWord	Float				
HD28_V_a	36755-36756	0x1A62-0x1A63	DWord	Float				

HD29_V_a	36757-36758	0x1A64-0x1A65	DWord	Float				
HD30_V_a	36759-36760	0x1A66-0x1A67	DWord	Float				
HD31_V_a	36761-36762	0x1A68-0x1A69	DWord	Float				

Modbus Module #26 Input Register : Phase B Voltage Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	36763-36764	0x1A6A-0x1A6B	DWord	Float				
HD1_V_b	36765-36766	0x1A6C-0x1A6D	DWord	Float				
HD2_V_b	36767-36768	0x1A6E-0x1A6F	DWord	Float				
HD3_V_b	36769-36770	0x1A70-0x1A71	DWord	Float				
HD4_V_b	36771-36772	0x1A72-0x1A73	DWord	Float				
HD5_V_b	36773-36774	0x1A74-0x1A75	DWord	Float				
HD6_V_b	36775-36776	0x1A76-0x1A77	DWord	Float				
HD7_V_b	36777-36778	0x1A78-0x1A79	DWord	Float				
HD8_V_b	36779-36780	0x1A7A-0x1A7B	DWord	Float				
HD9_V_b	36781-36782	0x1A7C-0x1A7D	DWord	Float				
HD10_V_b	36783-36784	0x1A7E-0x1A7F	DWord	Float				
HD11_V_b	36785-36786	0x1A80-0x1A81	DWord	Float				
HD12_V_b	36787-36788	0x1A82-0x1A83	DWord	Float				
HD13_V_b	36789-36790	0x1A84-0x1A85	DWord	Float				
HD14_V_b	36791-36792	0x1A86-0x1A87	DWord	Float				
HD15_V_b	36793-36794	0x1A88-0x1A89	DWord	Float				
HD16_V_b	36795-36796	0x1A8A-0x1A8B	DWord	Float				
HD17_V_b	36797-36798	0x1A8C-0x1A8D	DWord	Float				
HD18_V_b	36799-36800	0x1A8E-0x1A8F	DWord	Float				
HD19_V_b	36801-36802	0x1A90-0x1A91	DWord	Float				
HD20_V_b	36803-36804	0x1A92-0x1A93	DWord	Float				
HD21_V_b	36805-36806	0x1A94-0x1A95	DWord	Float				
HD22_V_b	36807-36808	0x1A96-0x1A97	DWord	Float				
HD23_V_b	36809-36810	0x1A98-0x1A99	DWord	Float				
HD24_V_b	36811-36812	0x1A9A-0x1A9B	DWord	Float				
HD25_V_b	36813-36814	0x1A9C-0x1A9D	DWord	Float				
HD26_V_b	36815-36816	0x1A9E-0x1A9F	DWord	Float				
HD27_V_b	36817-36818	0x1AA0-0x1AA1	DWord	Float				
HD28_V_b	36819-36820	0x1AA2-0x1AA3	DWord	Float				

HD29_V_b	36821-36822	0x1AA4-0x1AA5	DWord	Float				
HD30_V_b	36823-36824	0x1AA6-0x1AA7	DWord	Float				
HD31_V_b	36825-36826	0x1AA8-0x1AA9	DWord	Float				

Modbus Module #27 Input Register : Phase C Voltage Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	36827-36828	0x1AAA-0x1AAB	DWord	Float				
HD1_V_c	36829-36830	0x1AAC-0x1AAD	DWord	Float				
HD2_V_c	36831-36832	0x1AAE-0x1AAF	DWord	Float				
HD3_V_c	36833-36834	0x1AB0-0x1AB1	DWord	Float				
HD4_V_c	36835-36836	0x1AB2-0x1AB3	DWord	Float				
HD5_V_c	36837-36838	0x1AB4-0x1AB5	DWord	Float				
HD6_V_c	36839-36840	0x1AB6-0x1AB7	DWord	Float				
HD7_V_c	36841-36842	0x1AB8-0x1AB9	DWord	Float				
HD8_V_c	36843-36844	0x1ABA-0x1ABB	DWord	Float				
HD9_V_c	36845-36846	0x1ABC-0x1ABD	DWord	Float				
HD10_V_c	36847-36848	0x1ABE-0x1ABF	DWord	Float				
HD11_V_c	36849-36850	0x1AC0-0x1AC1	DWord	Float				
HD12_V_c	36851-36852	0x1AC2-0x1AC3	DWord	Float				
HD13_V_c	36853-6854	0x1AC4-0x1AC5	DWord	Float				
HD14_V_c	36855-36856	0x1AC6-0x1AC7	DWord	Float				
HD15_V_c	36857-36858	0x1AC8-0x1AC9	DWord	Float				
HD16_V_c	36859-36860	0x1ACA-0x1ACB	DWord	Float				
HD17_V_c	36861-36862	0x1ACC-0x1ACD	DWord	Float				
HD18_V_c	36863-36864	0x1ACE-0x1ACF	DWord	Float				
HD19_V_c	36865-36866	0x1AD0-0x1AD1	DWord	Float				
HD20_V_c	36867-36868	0x1AD2-0x1AD3	DWord	Float				
HD21_V_c	36869-36870	0x1AD4-0x1AD5	DWord	Float				
HD22_V_c	36871-36872	0x1AD6-0x1AD7	DWord	Float				
HD23_V_c	36873-36874	0x1AD8-0x1AD9	DWord	Float				
HD24_V_c	36875-36876	0x1ADA-0x1ADB	DWord	Float				
HD25_V_c	36877-36878	0x1ADC-0x1ADD	DWord	Float				
HD26_V_c	36879-36880	0x1ADE-0x1ADF	DWord	Float				
HD27_V_c	36881-36882	0x1AE0-0x1AE1	DWord	Float				
HD28_V_c	36883-36884	0x1AE2-0x1AE3	DWord	Float				

HD29_V_c	36885-36886	0x1AE4-0x1AE5	DWord	Float				
HD30_V_c	36887-36888	0x1AE6-0x1AE7	DWord	Float				
HD31_V_c	36889-36890	0x1AE8-0x1AE9	DWord	Float				

Modbus Module #28 Input Register : Phase A Current Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	36891-36892	0x1AEA-0x1AEB	DWord	Float				
HD1_I_a	36893-36894	0x1AEC-0x1AED	DWord	Float				
HD2_I_a	36895-36896	0x1AEE-0x1AEF	DWord	Float				
HD3_I_a	36897-36898	0x1AF0-0x1AF1	DWord	Float				
HD4_I_a	36899-36900	0x1AF2-0x1AF3	DWord	Float				
HD5_I_a	36901-36902	0x1AF4-0x1AF5	DWord	Float				
HD6_I_a	36903-36904	0x1AF6-0x1AF7	DWord	Float				
HD7_I_a	36905-36906	0x1AF8-0x1AF9	DWord	Float				
HD8_I_a	36907-36908	0x1AFA-0x1AFB	DWord	Float				
HD9_I_a	36909-36910	0x1AFC-0x1AFD	DWord	Float				
HD10_I_a	36911-36912	0x1AFE-0x1AFF	DWord	Float				
HD11_I_a	36913-36914	0x1B00-0x1B01	DWord	Float				
HD12_I_a	36915-36916	0x1B02-0x1B03	DWord	Float				
HD13_I_a	36917-36918	0x1B04-0x1B05	DWord	Float				
HD14_I_a	36919-36920	0x1B06-0x1B07	DWord	Float				
HD15_I_a	36921-36922	0x1B08-0x1B09	DWord	Float				
HD16_I_a	36923-36924	0x1B0A-0x1B0B	DWord	Float				
HD17_I_a	36925-36926	0x1B0C-0x1B0D	DWord	Float				
HD18_I_a	36927-36928	0x1B0E-0x1B0F	DWord	Float				
HD19_I_a	36929-36930	0x1B10-0x1B11	DWord	Float				
HD20_I_a	36931-36932	0x1B12-0x1B13	DWord	Float				
HD21_I_a	36933-36934	0x1B14-0x1B15	DWord	Float				
HD22_I_a	36935-36936	0x1B16-0x1B17	DWord	Float				
HD23_I_a	36937-36938	0x1B18-0x1B19	DWord	Float				
HD24_I_a	36939-36940	0x1B1A-0x1B1B	DWord	Float				
HD25_I_a	36941-36942	0x1B1C-0x1B1D	DWord	Float				
HD26_I_a	36943-36944	0x1B1E-0x1B1F	DWord	Float				
HD27_I_a	36945-36946	0x1B20-0x1B21	DWord	Float				
HD28_I_a	36947-36948	0x1B22-0x1B23	DWord	Float				

HD29_I_a	36949-36950	0x1B24-0x1B25	DWord	Float				
HD30_I_a	36951-36952	0x1B26-0x1B27	DWord	Float				
HD31_I_a	36953-36954	0x1B28-0x1B29	DWord	Float				

Modbus Module #29 Input Register : Phase B Current Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	36955-36956	0x1B2A-0x1B2B	DWord	Float				
HD1_I_b	36957-36958	0x1B2C-0x1B2D	DWord	Float				
HD2_I_b	36959-36960	0x1B2E-0x1B2F	DWord	Float				
HD3_I_b	36961-36962	0x1B30-0x1B31	DWord	Float				
HD4_I_b	36963-36964	0x1B32-0x1B33	DWord	Float				
HD5_I_b	36965-36966	0x1B34-0x1B35	DWord	Float				
HD6_I_b	36967-36968	0x1B36-0x1B37	DWord	Float				
HD7_I_b	36969-36970	0x1B38-0x1B39	DWord	Float				
HD8_I_b	36971-36972	0x1B3A-0x1B3B	DWord	Float				
HD9_I_b	36973-36974	0x1B3C-0x1B3D	DWord	Float				
HD10_I_b	36975-36976	0x1B3E-0x1B3F	DWord	Float				
HD11_I_b	36977-36978	0x1B40-0x1B41	DWord	Float				
HD12_I_b	36979-36980	0x1B42-0x1B43	DWord	Float				
HD13_I_b	36981-36982	0x1B44-0x1B45	DWord	Float				
HD14_I_b	36983-36984	0x1B46-0x1B47	DWord	Float				
HD15_I_b	36985-36986	0x1B48-0x1B49	DWord	Float				
HD16_I_b	36987-36988	0x1B4A-0x1B4B	DWord	Float				
HD17_I_b	36989-36990	0x1B4C-0x1B4D	DWord	Float				
HD18_I_b	36991-36992	0x1B4E-0x1B4F	DWord	Float				
HD19_I_b	36993-36994	0x1B50-0x1B51	DWord	Float				
HD20_I_b	36995-36996	0x1B52-0x1B53	DWord	Float				
HD21_I_b	36997-36998	0x1B54-0x1B55	DWord	Float				
HD22_I_b	36999-37000	0x1B56-0x1B57	DWord	Float				
HD23_I_b	37001-37002	0x1B58-0x1B59	DWord	Float				
HD24_I_b	37003-37004	0x1B5A-0x1B5B	DWord	Float				
HD25_I_b	37005-37006	0x1B5C-0x1B5D	DWord	Float				
HD26_I_b	37007-37008	0x1B5E-0x1B5F	DWord	Float				
HD27_I_b	37009-37010	0x1B60-0x1B61	DWord	Float				
HD28_I_b	37011-37012	0x1B62-0x1B63	DWord	Float				

HD29_I_b	37013-37014	0x1B64-0x1B65	DWord	Float				
HD30_I_b	37015-37016	0x1B66-0x1B67	DWord	Float				
HD31_I_b	37017-37018	0x1B68-0x1B69	DWord	Float				

Modbus Module #30 Input Register : Phase C Current Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	37019-37020	0x1B6A-0x1B6B	DWord	Float				
HD1_I_c	37021-37022	0x1B6C-0x1B6D	DWord	Float				
HD2_I_c	37023-37024	0x1B6E-0x1B6F	DWord	Float				
HD3_I_c	37025-37026	0x1B70-0x1B71	DWord	Float				
HD4_I_c	37027-37028	0x1B72-0x1B73	DWord	Float				
HD5_I_c	37029-37030	0x1B74-0x1B75	DWord	Float				
HD6_I_c	37031-37032	0x1B76-0x1B77	DWord	Float				
HD7_I_c	37033-37034	0x1B78-0x1B79	DWord	Float				
HD8_I_c	37035-37036	0x1B7A-0x1B7B	DWord	Float				
HD9_I_c	37037-37038	0x1B7C-0x1B7D	DWord	Float				
HD10_I_c	37039-37040	0x1B7E-0x1B7F	DWord	Float				
HD11_I_c	37041-37042	0x1B80-0x1B81	DWord	Float				
HD12_I_c	37043-37044	0x1B82-0x1B83	DWord	Float				
HD13_I_c	37045-37046	0x1B84-0x1B85	DWord	Float				
HD14_I_c	37047-37048	0x1B86-0x1B87	DWord	Float				
HD15_I_c	37049-37050	0x1B88-0x1B89	DWord	Float				
HD16_I_c	37051-37052	0x1B8A-0x1B8B	DWord	Float				
HD17_I_c	37053-37054	0x1B8C-0x1B8D	DWord	Float				
HD18_I_c	37055-37056	0x1B8E-0x1B8F	DWord	Float				
HD19_I_c	37057-37058	0x1B90-0x1B91	DWord	Float				
HD20_I_c	37059-37060	0x1B92-0x1B93	DWord	Float				
HD21_I_c	37061-37062	0x1B94-0x1B95	DWord	Float				
HD22_I_c	37063-37064	0x1B96-0x1B97	DWord	Float				
HD23_I_c	37065-37066	0x1B98-0x1B99	DWord	Float				
HD24_I_c	37067-37068	0x1B9A-0x1B9B	DWord	Float				
HD25_I_c	37079-37070	0x1B9C-0x1B9D	DWord	Float				
HD26_I_c	37071-37072	0x1B9E-0x1B9F	DWord	Float				
HD27_I_c	37073-37074	0x1BA0-0x1BA1	DWord	Float				
HD28_I_c	37075-37076	0x1BA2-0x1BA3	DWord	Float				

HD29_I_c	37077-37078	0x1BA4-0x1BA5	DWord	Float				
HD30_I_c	37079-37080	0x1BA6-0x1BA7	DWord	Float				
HD31_I_c	37081-37082	0x1BA8-0x1BA9	DWord	Float				

Modbus Module #31 Input Register : Neutral Current Harmonics*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Reserved	37083-37084	0x1BAA-0x1BAB	DWord	Float				
HD1_I_n	37085-37086	0x1BAC-0x1BAD	DWord	Float				
HD2_I_n	37087-37088	0x1BAE-0x1BAF	DWord	Float				
HD3_I_n	37089-37090	0x1BB0-0x1BB1	DWord	Float				
HD4_I_n	37091-37092	0x1BB2-0x1BB3	DWord	Float				
HD5_I_n	37093-37094	0x1BB4-0x1BB5	DWord	Float				
HD6_I_n	37095-37096	0x1BB6-0x1BB7	DWord	Float				
HD7_I_n	37097-37098	0x1BB8-0x1BB9	DWord	Float				
HD8_I_n	37099-37100	0x1BBA-0x1BBB	DWord	Float				
HD9_I_n	37101-37102	0x1BBC-0x1BBD	DWord	Float				
HD10_I_n	37103 37104	0x1BBE-0x1BBF	DWord	Float				
HD11_I_n	37105-37106	0x1BC0-0x1BC1	DWord	Float				
HD12_I_n	37107-37108	0x1BC2-0x1BC3	DWord	Float				
HD13_I_n	37109-37110	0x1BC4-0x1BC5	DWord	Float				
HD14_I_n	37111-37112	0x1BC6-0x1BC7	DWord	Float				
HD15_I_n	37113-37114	0x1BC8-0x1BC9	DWord	Float				
HD16_I_n	37115-37116	0x1BCA-0x1BCB	DWord	Float				
HD17_I_n	37117-37118	0x1BCC-0x1BCD	DWord	Float				
HD18_I_n	37119-37120	0x1BCE-0x1BCF	DWord	Float				
HD19_I_n	37121-37122	0x1BD0-0x1BD1	DWord	Float				
HD20_I_n	37123-37124	0x1BD2-0x1BD3	DWord	Float				
HD21_I_n	37125-37126	0x1B4-0x1BD5	DWord	Float				
HD22_I_n	37127-37128	0x1BD6-0x1BD7	DWord	Float				
HD23_I_n	37129-37130	0x1BD8-0x1BD9	DWord	Float				
HD24_I_n	37131-37132	0x1BDA-0x1BDB	DWord	Float				
HD25_I_n	37133-37134	0x1BDC-0x1BDD	DWord	Float				
HD26_I_n	37135-37136	0x1BDE-0x1BDF	DWord	Float				
HD27_I_n	37137-37138	0x1BE0-0x1BE1	DWord	Float				
HD28_I_n	37139-37140	0x1BE2-0x1BE3	DWord	Float				

HD29_I_n	37141-37142	0x1BE4-0x1BE5	DWord	Float				
HD30_I_n	37143-37144	0x1BE6-0x1BE7	DWord	Float				
HD31_I_n	37145-37146	0x1BE8-0x1BE9	DWord	Float				

Modbus Module #32 Input Register : Realtime Data Voltage, Current, Frequency (Unsigned Int)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Vln_a	38449	0x2100	Word	UINT	0-65535		0.1V	Secondary
Vln_b	38450	0x2101	Word	UINT	0-65535		0.1V	Secondary
Vln_c	38451	0x2102	Word	UINT	0-65535		0.1V	Secondary
Vln_avg	38452	0x2103	Word	UINT	0-65535		0.1V	Secondary
Vll_ab	38453	0x2104	Word	UINT	0-65535		0.1V	Secondary
Vll_bc	38454	0x2105	Word	UINT	0-65535		0.1V	Secondary
Vll_ca	38455	0x2106	Word	UINT	0-65535		0.1V	Secondary
Vll_avg	38456	0x2107	Word	UINT	0-65535		0.1V	Secondary
I_a	38457	0x2108	Word	UINT	0-65535		mA.	Secondary
I_b	38458	0x2109	Word	UINT	0-65535		mA.	Secondary
I_c	38459	0x210A	Word	UINT	0-65535		mA.	Secondary
I_avg	38460	0x210B	Word	UINT	0-65535		mA.	Secondary
I_n	38461	0x210C	Word	UINT	0-65535		mA.	Secondary
Freq	38462	0x210D	Word	UINT	0-9999		0.01Hz	

Modbus Module #33 Input Register : Realtime Data Power Result (Int)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KW_a	38463	0x210E	Word	INT	-32768-32767		W	Secondary
KW_b	38464	0x210F	Word	INT	-32768-32767		W	Secondary
KW_c	38465	0x2110	Word	INT	-32768-32767		W	Secondary
KW_tot	38466	0x2111	Word	INT	-32768-32767		W	Secondary
KVAR_a	38467	0x2112	Word	INT	-32768-32767		var	Secondary
KVAR_b	38468	0x2113	Word	INT	-32768-32767		var	Secondary
KVAR_c	38469	0x2114	Word	INT	-32768-32767		var	Secondary
KVAR_tot	38470	0x2115	Word	INT	-32768-32767		var	Secondary
KVA_a	38471	0x2116	Word	INT	0-32767		VA	Secondary
KVA_b	38472	0x2117	Word	INT	0-32767		VA	Secondary
KVA_c	38473	0x2118	Word	INT	0-32767		VA	Secondary
KVA_tot	38474	0x2119	Word	INT	0-32767		VA	Secondary

Modbus Module #34 Input Register : Realtime Data Power Factor & Phase Angle (Int)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
PF_signed_a	38475	0x211A	Word	INT	-1000~+1000		0.001	
PF_signed_b	38476	0x211B	Word	INT	-1000~+1000		0.001	
PF_signed_c	38477	0x211C	Word	INT	-1000~+1000		0.001	
PF_signed_avg	38478	0x211D	Word	INT	-1000~+1000		0.001	
PhaseAngle_V_a	38479	0x211E	Word	INT	-1800~+1800		0.1	
PhaseAngle_V_b	38480	0x211F	Word	INT	-1800~+1800		0.1	
PhaseAngle_V_c	38481	0x2120	Word	INT	-1800~+1800		0.1	
PhaseAngle_I_a	38482	0x2121	Word	INT	-1800~+1800		0.1	
PhaseAngle_I_b	38483	0x2122	Word	INT	-1800~+1800		0.1	
PhaseAngle_I_c	38484	0x2123	Word	INT	-1800~+1800		0.1	
Reserved	38485	0x2124	Word	INT				
Reserved	38486	0x2125	Word	INT				
Reserved	38487	0x2126	Word	INT				

Modbus Module #35 Input Register : Realtime Data Energy & Demand(Unsigned Int)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KWH_del	38488	0x2127	Word	UINT	0-999		1000000	
	38489	0x2128	Word	UINT	0-999		1000	
	38490	0x2129	Word	UINT	0-999		0.1	
KWH_rec	38491	0x212A	Word	UINT	0-999		1000000	
	38492	0x212B	Word	UINT	0-999		1000	
	38493	0x212C	Word	UINT	0-999		0.1	
KWH_tot	38494	0x212D	Word	UINT	0-999		1000000	
	38495	0x212E	Word	UINT	0-999		1000	
	38496	0x212F	Word	UINT	0-999		0.1	
KWH_net	38497	0x2130	Word	UINT	0-999		1000000	
	38498	0x2131	Word	UINT	0-999		1000	
	38499	0x2132	Word	UINT	0-999		0.1	
KVARH_del (+ lagging)	38500	0x2133	Word	UINT	0-999		1000000	
	38501	0x2134	Word	UINT	0-999		1000	
	38502	0x2135	Word	UINT	0-999		0.1	
KVARH_rec (- leading)	38503	0x2136	Word	UINT	0-999		1000000	
	38504	0x2137	Word	UINT	0-999		1000	
	38505	0x2138	Word	UINT	0-999		0.1	
KVARH_tot	38506	0x2139	Word	UINT	0-999		1000000	
	38507	0x213A	Word	UINT	0-999		1000	
	38508	0x213B	Word	UINT	0-999		0.1	
KVARH_net	38509	0x213C	Word	UINT	0-999		1000000	
	38510	0x213D	Word	UINT	0-999		1000	
	38511	0x213E	Word	UINT	0-999		0.1	
KVAH	38512	0x213F	Word	UINT	0-999		1000000	
	38513	0x2140	Word	UINT	0-999		1000	
	38514	0x2141	Word	UINT	0-999		0.1	
Demand_kW*	38515	0x2142	Word	INT	-32768-32767		W	Secondary
Demand_Remain_Time*	38516	0x2143	Word	UINT	0-65535		sec	
Pre_Demand_kW*	38517	0x2144	Word	INT	-32768-32767		W	Secondary
Pre_Demand_kvar*	38518	0x2145	Word	INT	-32768-32767		W	Secondary
Demand_kvar*	38519	0x2146	Word	INT	-32768-32767		W	Secondary
Pre_Demand_kVA*	38520	0x2147	Word	INT	-32768-32767		W	Secondary
Demand_kVA*	38521	0x2148	Word	INT	-32768-32767		W	Secondary

Modbus Module #36 Holding Register : Realtime Data Voltage, Current, Frequency (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Vln_a	46001-46002	0x1770-0x1771	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_b	46003-46004	0x1772-0x1773	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_c	46005-46006	0x1774-0x1775	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_avg	46007-46008	0x1776-0x1777	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ab	46009-46010	0x1778-0x1779	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_bc	46011-46012	0x177A-0x177B	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ca	46013-46014	0x177C-0x177D	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_avg	46015-46016	0x177E-0x177F	DWord	Float	Primary Voltage		Volts	with Runtime display
I_a	46017-46018	0x1780-0x1781	DWord	Float	Primary Current		Amp.	with Runtime display
I_b	46019-46020	0x1782-0x1783	DWord	Float	Primary Current		Amp.	with Runtime display
I_c	46021-46022	0x1784-0x1785	DWord	Float	Primary Current		Amp.	with Runtime display
I_avg	46023-	0x1786-	DWord	Float	Primary Current		Amp.	with Runtime

	46024	0x1787						display
I_n	46025-46026	0x1788-0x1789	DWord	Float	Primary Current		Amp.	with Runtime display
Freq	46027-46028	0x178A-0x178B	DWord	Float			Hz	with Runtime display

Modbus Module #37 Holding Register : Realtime Data Power Result (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KW_a	46029-46030	0x178C-0x178D	DWord	Float				with Runtime display
KW_b	46031-46032	0x178E-0x178F	DWord	Float				with Runtime display
KW_c	46033-46034	0x1790-0x1791	DWord	Float				with Runtime display
KW_tot	46035-46036	0x1792-0x1793	DWord	Float				with Runtime display
KVAR_a	46037-46038	0x1794-0x1795	DWord	Float				with Runtime display
KVAR_b	46039-46040	0x1796-0x1797	DWord	Float				with Runtime display
KVAR_c	46041-46042	0x1798-0x1799	DWord	Float				with Runtime display
KVAR_tot	46043-46044	0x179A-0x179B	DWord	Float				with Runtime display
KVA_a	46045-46046	0x179C-0x179D	DWord	Float				with Runtime display
KVA_b	46047-46048	0x179E-0x179F	DWord	Float				with Runtime display
KVA_c	46049-46050	0x17A0-0x17A1	DWord	Float				with Runtime display
KVA_tot	46051-46052	0x17A2-0x17A3	DWord	Float				with Runtime display

Modbus Module #38 Holding Register : Realtime Data Power Factor & Phase Angle (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
PF_true_a	46053-46054	0x17A4-0x17A5	DWord	Float				with Runtime display
PF_ true_b	46055-46056	0x17A6-0x17A7	DWord	Float				with Runtime display
PF_ true_c	46057-46058	0x17A8-0x17A9	DWord	Float				with Runtime display
PF_ true_avg	46059-46060	0x17AA-0x17AB	DWord	Float				with Runtime display
PhaseAngle_V_a	46061-46062	0x17AC-0x17AD	DWord	Float				
PhaseAngle_V_b	46063-46064	0x17AE-0x17AF	DWord	Float				
PhaseAngle_V_c	46065-46066	0x17B0-0x17B1	DWord	Float				
PhaseAngle_I_a	46067-46068	0x17B2-0x17B3	DWord	Float				
PhaseAngle_I_b	46069-46070	0x17B4-0x17B5	DWord	Float				
PhaseAngle_I_c	46071-46072	0x17B6-0x17B7	DWord	Float				
Pre_Demand_KW*	46073-46074	0x17B8-0x17B9	DWord	Float				with Runtime display
Reserved	46075-46076	0x17BA-0x17BB	DWord	Float				
Reserved	46077-46078	0x17BC-0x17BD	DWord	Float				

Modbus Module #39 Holding Register : Realtime Data Energy (Float)

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
KWH_del	46079-46080	0x17BE-0x17BF	DWord	Float				with Runtime display
KWH_rec	46081-46082	0x17C0-0x17C1	DWord	Float				with Runtime display
KWH_tot	46083-46084	0x17C2-0x17C3	DWord	Float				with Runtime display
KWH_net	46085-46086	0x17C4-0x17C5	DWord	Float				with Runtime display
KVARH_ lagging	46087-46088	0x17C6-0x17C7	DWord	Float				with Runtime display
KVARH_ leading	46089-46090	0x17C8-0x17C9	DWord	Float				with Runtime display
KVARH_tot	46091-46092	0x17CA-0x17CB	DWord	Float				with Runtime display
KVARH_net	46093-46094	0x17CC-0x17CD	DWord	Float				with Runtime display
KVAH	46095-46096	0x17CE-0x17CF	DWord	Float				

Modbus Module #40 Holding Register : Realtime data Demand*

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
Demand_KW	46097-46098	0x17D0-0x17D1	DWord	Float				
Demand_Remain_Time	46099	0x17D2	Word	UInt			sec	

Modbus Module #41 Holding Register : AI Result

Parameter name	Modbus Register		Len	Data Type	Range	Default value	Units	Comment
	Modicom Format	Hex						
AI1 Value	46100	0x17D3	Word	UInt	0~65535			optional
AI2 Value	46101	0x17D4	Word	UInt	0~65535			optional
AI3 Value	46102	0x17D5	Word	UInt	0~65535			optional
AI4 Value	46103	0x17D6	Word	UInt	0~65535			optional