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Multi-functional Power Meter DPM-C530 Series Operation Manual



Multi-functional Power Meter DPM-C530 Series Operation Manual

www.deltaww.com

DPM-C530 Series Operation Manual

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1 st	The first version was published.	2018/08/24
2 nd	Error correction	2018/09/26
3 RD	Add new content concerning DPM-C530E	2020/11/12

DPM-C530 Series Operation Manual

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Chapter 1 Product Introduction

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1.1 Preface

Thank you for choosing this product. This manual provides installation instructions for the DPM-C530 series power meter. The multifunction power meter DPM-C530 series are an obvious choice for any application in terms of power monitoring and control. It also can be used for measurement category CAT III.

Before using the meter, read this manual carefully to ensure proper use of this meter. Please observe and follow the notes below prior to finish reading this manual.

- The installation environment must be free of water vapor, corrosive and flammable gas.
- Follow the instructions on the diagram in this manual for wiring the device.
- Grounding must be performed correctly and properly according to provisions for related electric work regulations currently effective in the country.
- Do not disassemble the meter or alter its wiring when the power is on.
- When the power is on, do not touch the terminal area to avoid electric shock.

If you still experience issues when using the device, please contact your distributor or our customer service center. As the product is updated and improved, changes to the specifications will be included in the newest version of the manual which you can get by contacting your distributor or downloading it from the Delta Electronics website (<http://www.delta.com.tw/ia/>).

1.2 Overview

The DPM-C530 is equipped with a large, back-lit LCD display that displays up to four lines of information.



The DPM-C530E is equipped with a large, back-lit LCD display that displays up to four lines of information.



1.3 Safety Precautions

● Installation Notes



- Install the power meter according to instructions on the manual. Use appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading the entire set of installation instructions.
- Operate the power meter according to instructions on the manual. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- This equipment should be installed in a suitable insulated and fireproof enclosure.

● Operation Notes



- DO NOT work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all electric power sources.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace all devices, doors and covers before turning on power to this equipment.
- Carefully inspect the work area for tools and objects that may have been left inside the equipment.

● Operation Notes



- Never short the secondary of a Power Transformer (PT).
- Never open circuit a Current Transformer (CT)
- Ensure that the CT secondary winding is fixed securely on the equipment. It may damage the equipment if the secondary winding becomes loose during operation.

- When used with CTs, make sure the CTs are UL2808 listed in America and Canada as well as meeting the accuracy specifications for IEC61869-2 class or accepted by authority having jurisdiction (AHJ) in other areas.

- **Wiring Notes**



- When the measured current is higher than the rated specification for the device, consider using an external current transformer (CT).
- When the measured voltage is higher than the rated specification for the device, consider using an external potential transformer (PT) (line voltage: 35 to 690V AC L-L or phase voltage: 20 to 400V AC L-N).
- Connect only one cord to one plug on the quick connector.
- For the device is accidentally unplugged, check the connecting cord and restart.

- **Maintenance and Inspection Notes**



- While cleaning the equipment, be sure to unplug all external power sources first. Use a dry cloth to clean the equipment's exterior. DO NOT open the equipment or touch the wiring inside to prevent personal injury as well as damage to electrical equipment or other property. DO NOT use aerosol sprays, solvents, or abrasives.

Chapter 2 Product Specifications

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2.1 Electrical Characteristics

Measurement Accuracy					
Electric quantities	Real power	$\pm 0.5\%$	Electric energy	Real power	$\pm 0.5\%$
	Reactive power	$\pm 1\%$		Reactive power	$\pm 1\%$
	Apparent power	$\pm 2\%$		apparent power	$\pm 2\%$
Voltage		$\pm 0.5\%$	Current		$\pm 0.5\%$
Power factor		$\pm 0.5\%$	Total Harmonic Distortion for Current		$\pm 1\%$
Real power demand		$\pm 0.5\%$	Total Harmonic Distortion for Voltage		$\pm 1\%$
Reactive power demand		$\pm 1\%$	Frequency		$\pm 0.5\%$
Apparent power demand		$\pm 2\%$	Harmonic		$\pm 1\%$

Input		
Voltage Connection	1PH2W, 1 CT	3PH3W, Δ connection, 3 CT, 2 PT
	1PH3W, 2 CT	3PH4W, Y connection, 3 CT, No PT
	3PH3W, Δ connection, 3 CT, No PT	3PH4W, Y connection, 3 CT, 3 PT
	3PH3W, Δ connection, 2 CT, No PT	3PH4W, Y connection, 2 CT, 3 PT
Rated Voltage	Line voltage: 35–690 VAC (L-L) Phase voltage: 20–400 VAC (L-N)	
Rated Current	Nominal: 1 A / 5 A	
Measure Current	20mA to 6A	
Start Current	20mA*	
Frequency	50/60 Hz	
Harmonic Wave	31	
CAT Rating	Measuring Category: CAT III	
Power	Operating range	100-240 VAC (maximum power: 4.6 W)
Frequency	Operating frequency	50/60 Hz
Communication	RS-485 port (Applicable only for DPM-C530)	Modbus-RTU, Modbus ASCII, BACnet MS/TP
		Baud rate 9600 / 19200 / 38400/ 76800 bps
	Ethernet (Applicable only for DPM-C530E)	Modbus TCP, DHCP, HTTP
		10/100 Mbps
Mechanical	Dimension (W x H x D)	96 x 96 x 95.4 mm

Characteristics	IP Degree of Protection	IP52 (front display), IP20 (meter body)
Environment	Ambient operating temperature	-20~50°C (-4~122°F)
	Storage temperature	-30~60°C (-22~140°F)
	Relative Humidity	5~95% RH
	Altitude	Below 2000 meters

*Accuracy of measurements guaranteed according to IEC62053-22, accurate range starts from 50mA.

Data Recording	
Maximum / Minimum Instantaneous Values	39 / 39
Alarm Type	29
Alarms History	500

Display	
Screen Type	LCD
Backlight	White LED
Resolution	198 x 160 pixels
LED Indicator	Green: pulse light ; Red: fault light

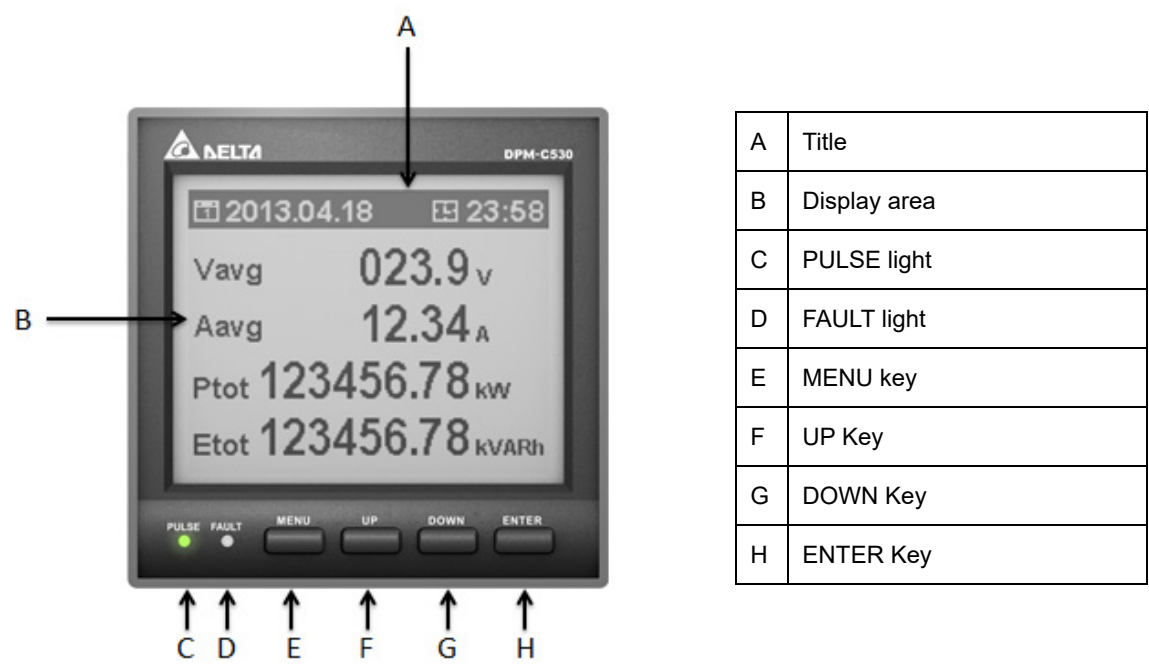
Electromagnetic Compatibility	
Electrostatic Discharge	IEC 61000-4-2
Immunity to Radiated Fields	IEC 61000-4-3
Immunity to Fast Transients	IEC 61000-4-4
Immunity to Impulse Waves	IEC 61000-4-5
Conducted Immunity	IEC 61000-4-6
Immunity to Magnetic Fields	IEC 61000-4-8
Immunity to Voltage Dips	IEC 61000-4-11
Radiated Emissions	FCC Part 15 Class A, EN55011 Class A
Conducted Emissions	FCC Part 15 Class A, EN55011 Class A
Harmonics	IEC 61000-3-2

2.2 Communications Specifications

Communications (Applicable only for DPM-C530)	
RS-485	Modbus-RTU, Modbus ASCII, BACnet MS/TP
Baud rate	9600 / 19200 / 38400 / 76800 bps

Communications (Applicable only for DPM-C530E)	
Ethernet	MODBUS-TCP
Baud rate	10/100 Mbps
Numbers of connection	16(TCP/IP)

2.3 Operating the Display



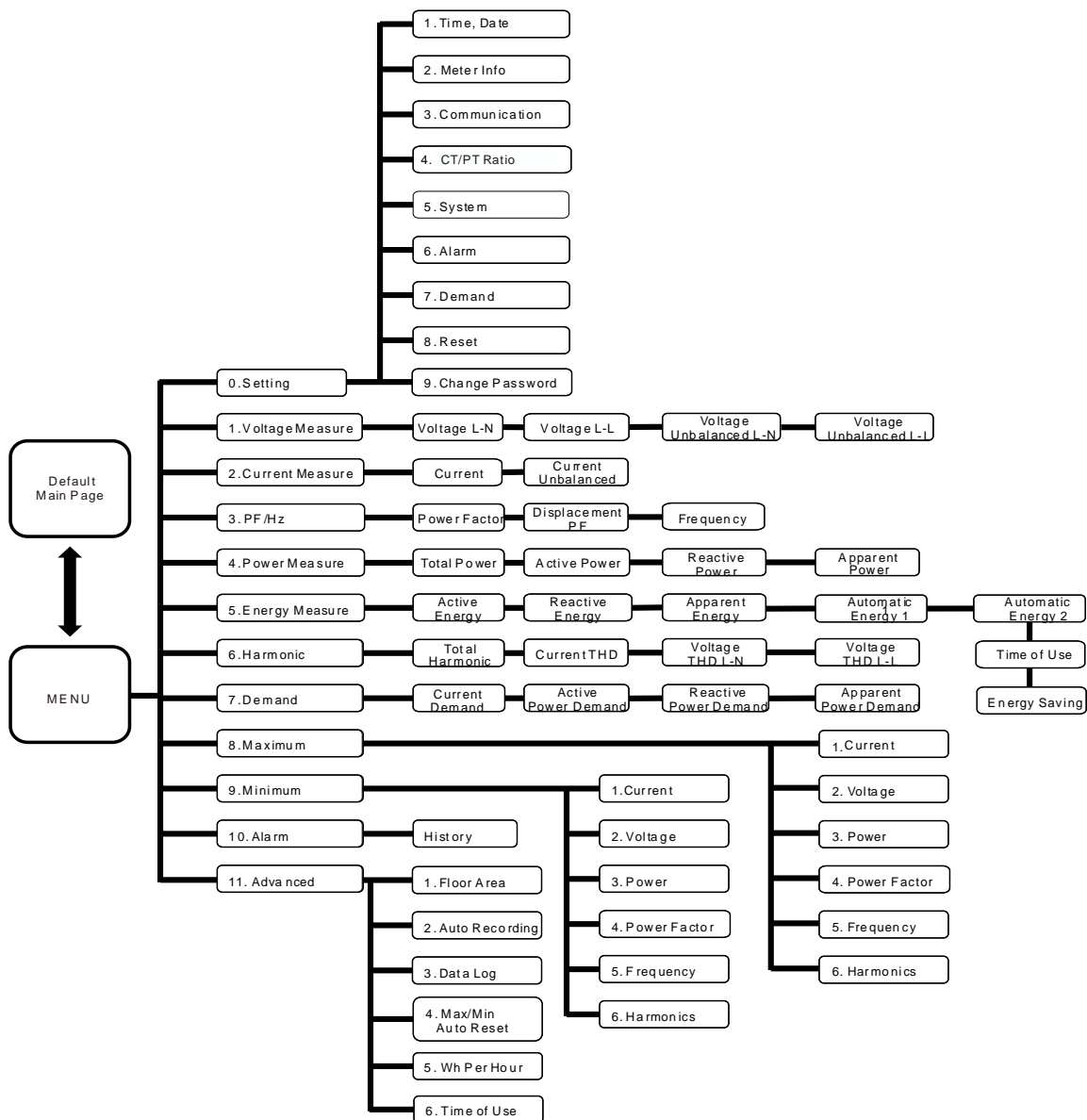
Button	Basic Mode	Setting Mode
MENU Key	Go to Menu or return to the previous screen	Return to the previous screen without saving the current setting
UP Key	To move between items and pages, use the UP key or the DOWN key.	Increment the number
DOWN Key		Decrement the number
ENTER Key	Enter the settings of selected item.	Enter the setting mode and move to the next setting.

*Home page display:

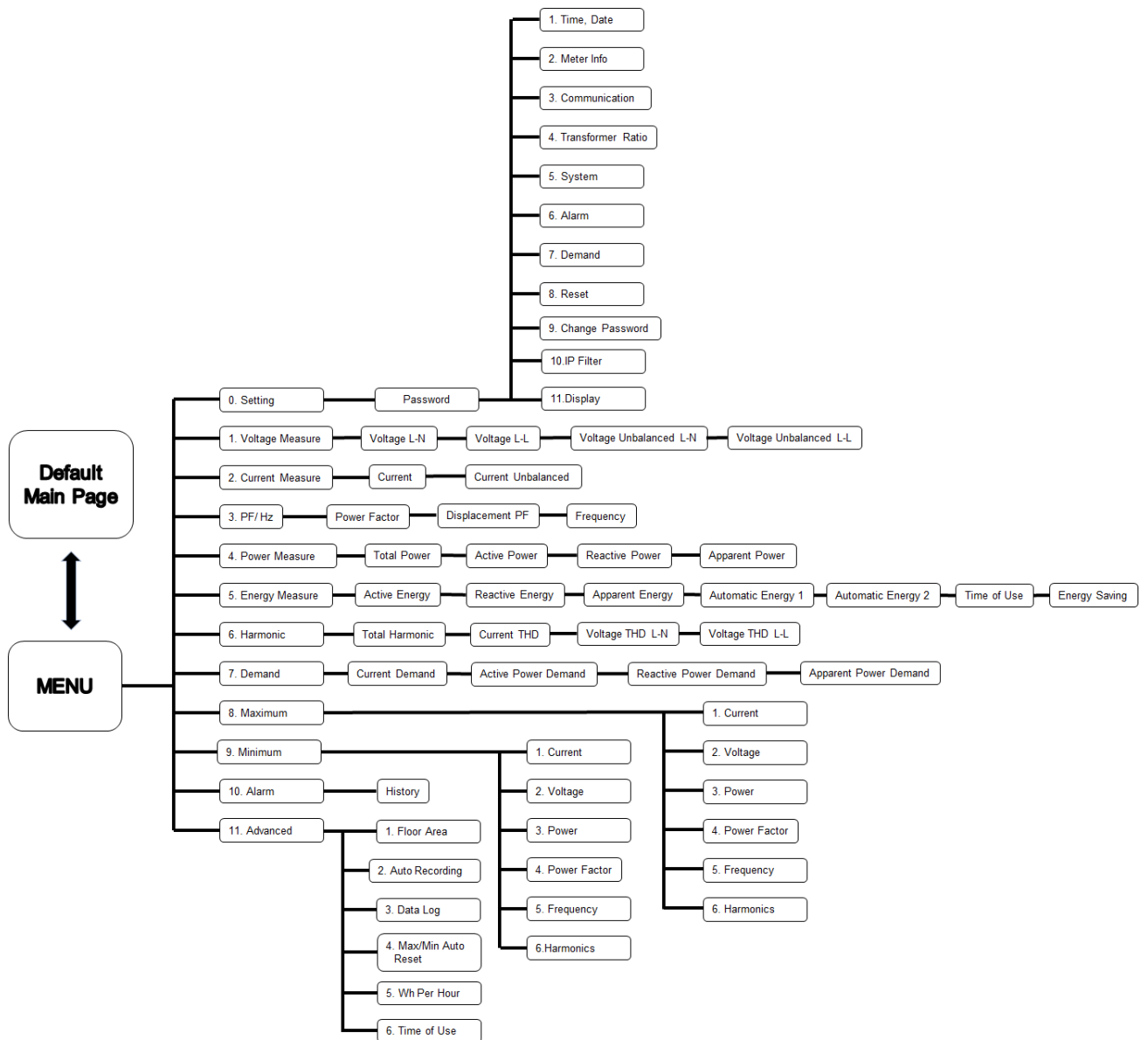
Parameter	Description
Vavg	Average voltage L-L: 1PH3W, 3PH3W
	Average voltage L-N: 1PH2W, 3PH4W
Aavg	Average current value
Ptot	Total real power
Etot	Total energy

2.3.1 Menu Tree

- DPM-C530

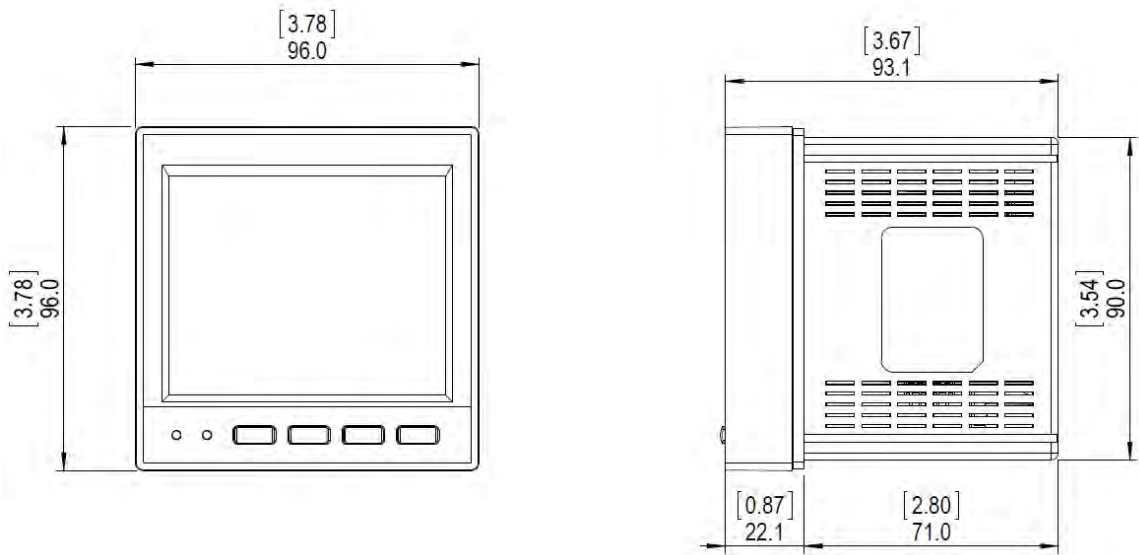


● DPM-C530E



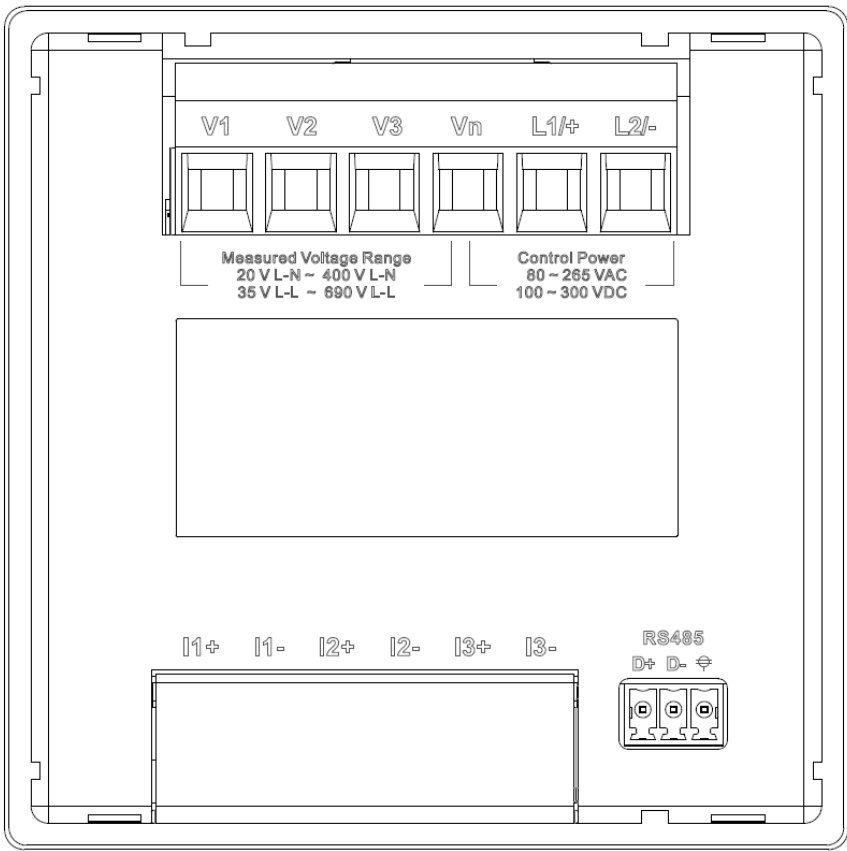
2.4 Dimensions

- DPM-C530 Front



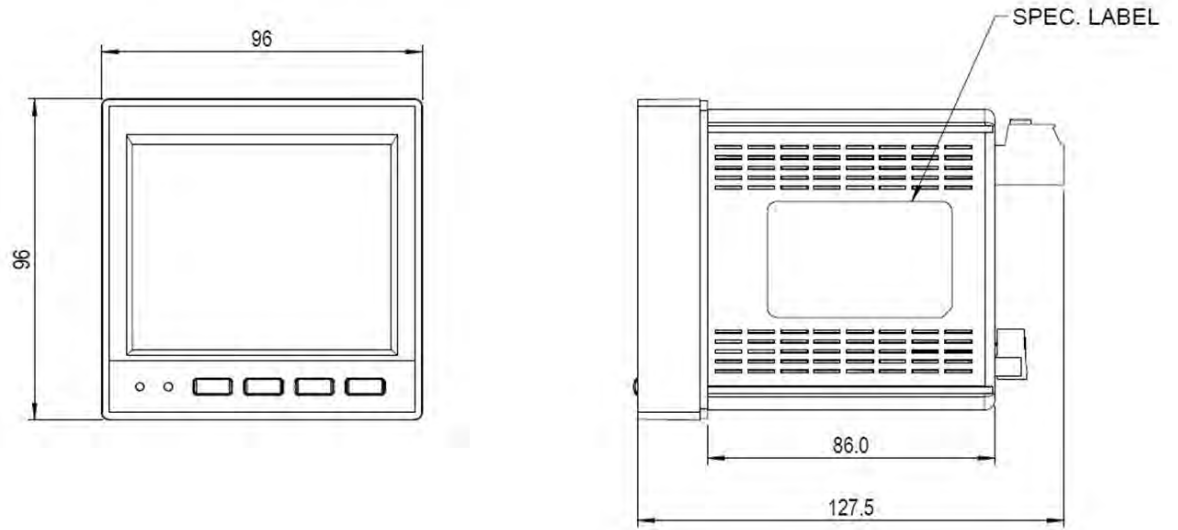
Unit: mm

- DPM-C530 Back

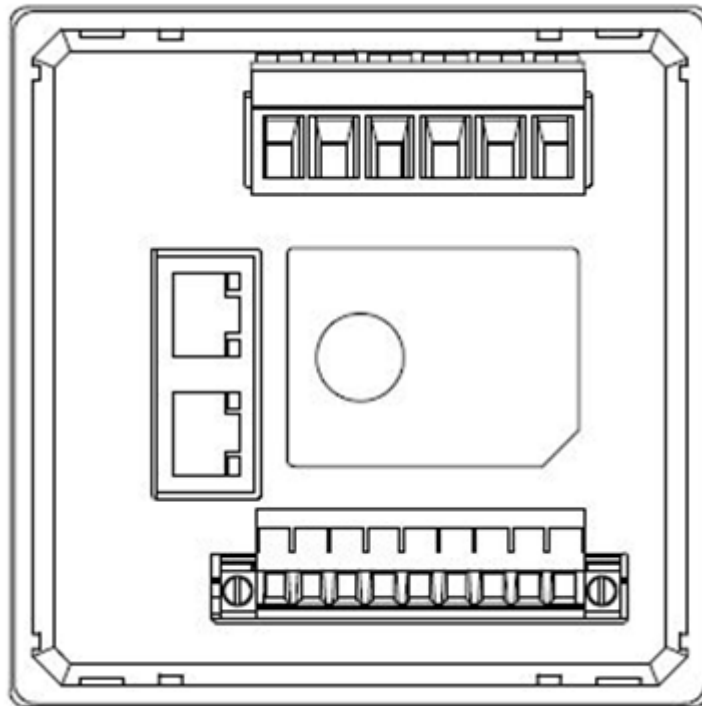


Unit: mm

- **DPM-C530E Front**



- **DPM-C530E Back**



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Chapter 3 Installation

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3.1 Installation

3.1.1 Installation Environment

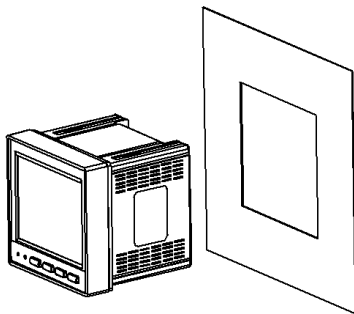
Keep the product in the shipping carton before installation. Store the product properly when it is not to be used for an extended period of time to retain the warranty coverage. Some storage suggestions are listed below.

- Store the power meter in a clean, dry, and controlled environment.
- Store in an ambient temperature range of -30–60°C (-22–140°F).
- Store in a relative humidity range of 5–95%, non-condensing.
- Do not store the product in a place subjected to corrosive gases or liquids.
- Place the product on a solid and durable surface.
- Do not mount the product near heat-radiating elements; or in a location subjected to corrosive gases, liquids, airborne dust or metallic particles; or where it can be subjected to high levels of electromagnetic radiation.

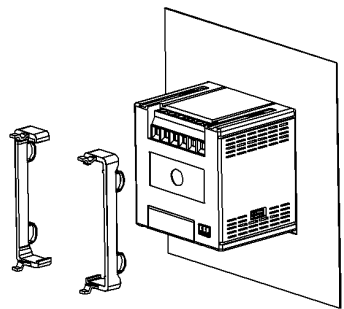
3.1.2 Installation Notes

- Follow the instruction when installing the product to prevent equipment breakdown.
- To increase the cooling efficiency, install the product with sufficient space between adjacent objects and baffles and walls to prevent poor heat dissipation.
- The maximum panel thickness should be 4.0 mm.
- **Installation Steps**

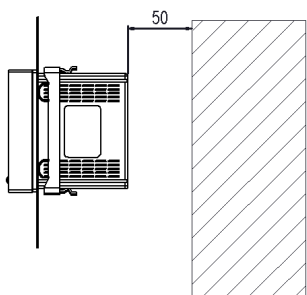
Step 1: Before installing the power meter, open the square hole on the metal plate.



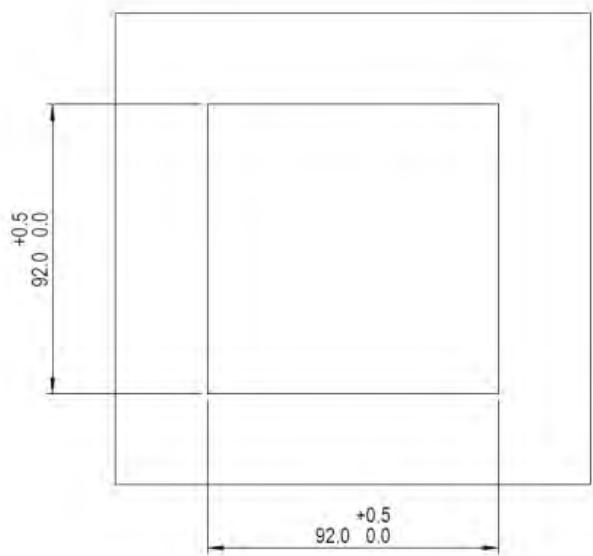
Step 2: Push the meter into the hole and then slide the securing bracket in to the metal plate.



Step 3: Allow 50 mm (2 inches) of clearance at the back of the meter for heat dissipation.



● Mounting Hole Dimensions



Panel Hole
Thickness : 0.8~4.0mm

Unit: mm

3.2 Basic Checks

Items	Contents
General Check	<ul style="list-style-type: none"> ■ Regularly check for mounting looseness where the power meter and device are connected. ■ Prevent foreign objects, such as oil, water, or metal powder entering the device through the ventilation holes. Prevent drill shavings or other debris entering the power meter. ■ If the power meter is installed at a location with harmful gas or dust, prevent those materials from entering the power meter.
Pre-operation Check (not supplied with power)	<ul style="list-style-type: none"> ■ Insulate the connections at the wiring terminals. ■ Communications wiring should be done properly to prevent abnormal operations. ■ Check for the presence of conductive and flammable objects, such as screws or metal pieces in the power meter. ■ If electronic devices near to the power meter experience electromagnetic interference, take steps to reduce the electromagnetic interference. ■ Check for the correct voltage level for the power supplied to the power meter.
Pre-running Check (supplied with power)	<ul style="list-style-type: none"> ■ Check if the power indicator light is lit. ■ Check if communication between every device is normal. ■ If there is any abnormal response from the power meter, contact your distributor or our customer service center.

3.3 Wiring

3.3.1 Wiring Diagrams

- To avoid electric shock, do not change the wiring when the power is on.
- It is necessary to install a breaker switch on the power cord of the meter due to no power switch on the power meter.
- When the measured voltage is higher than the rated specification for the device, it is necessary to use an external potential transformer (PT).
- When the measured current is higher than the rated specification for the device, it is necessary to use an external current transformer (CT).

The following table shows the recommended wiring materials.

Connecting Terminals	Wire Diameters	Screw Turning Torque	Temperature rating
Operating Power	AWG 10–24	7.14 kgf-cm (0.7 N·m)	above 70°C
Voltage Measurement	AWG 10–24	7.14 kgf-cm (0.7 N·m)	above 70°C
Current Measurement	AWG 14–22	8.0 kgf-cm (0.79 N·m)	above 70°C
RS-485	AWG 14–28	2.04 kgf-cm (0.2 N·m)	above 70°C
Ethernet	Cat 5/Cat 5E/Cat 6	-	-

● Connection Diagrams

<p>3PH3W, Δ connection, 3 CT, No PT</p>	<p>3PH3W, Δ connection, 2 CT, No PT</p>
<p>3PH3W, Δ connection, 3 CT, 2 PT</p>	<p>3PH4W, Y connection, 3 CT, No PT</p>
<p>3PH4W, Y connection, 3 CT, 3 PT</p>	<p>3PH4W, Y connection, 2 CT, 3 PT</p>
<p>1PH2W, 1 CT</p>	<p>1PH3W, 2 CT</p>

The following table lists the symbols used in the diagram.

Symbol					
Description	Grounding	Current transformer	Terminal block	Voltage transformer	Fuse

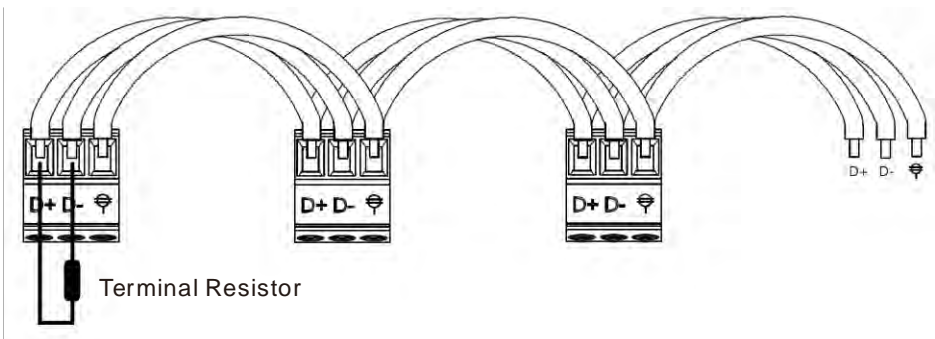
3.3.2 Communication Characteristics

● Communications Specifications (DPM-530):

Max. Communication Distance	1200 m	Baud Rate	9600, 19200, 38400 bps
Max. Connection Number	32	Data Length	7-, 8-bits
Communication Protocols	Modbus RTU/ASCII, BACnet MS/TP	Parity	None, Odd, Even
Function Code	03, 06, 10, FE	Stop Bits	1, 2

Note: The 7-bit data length is not available for the Modbus RTU protocol.

- Use shielded twisted-pair cables for RS485 communication. When connecting multiple devices in series, use the wiring method in the following diagram.



- Connect the D+ communication terminal for all devices on the same twisted pair cable. Connect the D- terminals on another twisted pair cable. Ground the cable shield. Install a terminal resistor on the terminal device as shown.
- Use cables with a diameter of 14–28 AWG.

- **Communications Specifications (DPM-530E):**

Max. Communication Distance	100 m	Baud Rate	10/100Mbps
Communication Protocols	MODBUS TCP	Function Code	03, 06, 10, FE
Topology	Daisy Chain (without Ring topology)		

Note: The Ethernet communication uses a standard network line to connect multiple devices.

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4.1 General Operation

1. Use the UP and DOWN keys to switch among setting pages.
2. Use the MENU key to go back to Menu page.

Note 1: Use the ENTER key to enter a setting page and confirm the setting.

4.1.1 Setting Menu

- **Voltage Measurement:** Voltage values measured by the power meter, including voltage L-N, voltage L-L, voltage L-N unbalance, and voltage L-L unbalance.
- **Current Measurement:** Current values measured by the power meter, including current and current unbalance.
- **Power Factor, Frequency (PF, Hz):** Power factor and frequency values measured by the power meter, including power factor, displacement power factor, and frequency.
- **Power Measurement:** Power values measured by the power meter, including active power, reactive power, and apparent power in each phase and in total.
- **Energy Measurement:** Energy values measured by the power meter, including active, reactive, and apparent electrical energy delivered and received.
- **Harmonic:** Harmonic values measured by the power meter, including total harmonic distortion for voltage and current in each phase and in total.
- **Demand:** Demand values measured by the power meter, including demands for active power, reactive power, apparent power and current of the last, present, predicted or peak demands.
- **Maximum:** Maximum values measured by the power meter, including voltage, current, power factor, frequency, power, harmonic, and demand.
- **Minimum:** Minimum values measured by the power meter, including voltage, current, power factor, frequency, power, harmonic, and demand.
- **Alarm:** Power meter alarm parameters
 1. Press MENU to display the setting menu.
 2. Select a setting item.
 3. Use UP and DOWN to switch among setting pages.
 4. Press MENU to return to the setting menu.

Example: When you enter the option 1, you see the Voltage L-N setting page. Press DOWN to display the Voltage L-L setting page. Press DOWN again to display the Voltage Unbalanced L-N setting page. And when you press UP from here, you display the Voltage L-L setting page.

Note: Press ENTER in the demand settings pages of current, active power, reactive power and apparent power to switch to the peak values date and time setting page. Press ENTER to return to the previous page. The other keys have no function here.

4.2 Basic Setups

4.2.1 Set up the Time and Date

- **Time:** Present power meter time; the time format includes the hour, minute, and second.
- **Date:** Present power meter date; the date format includes the last two digits of the year, month, date and day.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 1 and press ENTER to enter the Date menu.
 4. Select Date or Time and then press ENTER to set the date or time.
 5. After you select the option, use UP and DOWN to set the time and date.
 6. Press ENTER to confirm the number and move to the next number.
 7. Repeat steps 5–6 until you complete the date and time settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 8. Press MENU to go back to the setting menu.

4.2.2 Meter Information

Meter related information:

- **Model:** DPM-C530 / DPM-C530E
- **FW Version:** Firmware version; 1.xxxx
- **FW Date:** Firmware release date; XXXXYZZ (XXXX: year, YY: month, ZZ: day)
- **Meter Const:** Meter constant, amount of kWh used
- **Operation Time:** Total operation time by days and by clock.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 2 and press ENTER to enter the Meter Information page.
 4. Press MENU to go back to the setting menu.

4.2.3 RS485 Communication (Applicable only for DPM-C530)

- **Address (ID):** Device ID; the address range is 1–254 (default: 1). 255 is the broadcast ID.
- **Protocol:** Transmission modes; options are RTU (default) and ASCII.
- **Baud Rate (BR):** Transmission speed; the default setting is 9600 kbps.
- **Data Bit:** Packed data length; options are 7- and 8-bit (default). 8-bit is the only option for RTU mode.
- **Parity setting (PA):** Odd and even checking bit for communication; options are None (default), Even and Odd.
- **Stop Bit:** The transmission complete signal; options are 1- (default) and 2-bits.

- **Set up Steps**

1. Press MENU to display the setting menu.
2. Select 0 and press ENTER to enter the Setup menu.
3. Select 3 and press ENTER to enter the Communication menu.
4. Select Address and then press ENTER to set communication parameters.
5. After you select an option, use UP and DOWN to select the desired number.
6. Press ENTER to confirm the setting and move to the next setting.
7. Repeat steps 5–6 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
8. Select Protocol and then press ENTER to set the protocol parameters.
9. After you select an option, use UP and DOWN to select the mode (RTU or ASCII) for the address and press ENTER to confirm the setting.
10. Press ENTER to save the setting or press MENU to cancel without saving the changes.
11. Repeat the above steps for the Baud Rate, Data Bit, Parity, and Stop Bit settings.
12. Press MENU to go back to the setting menu.

4.2.4 Ethernet Communication (Applicable only for DPM-C530E)

- **Address:** Device ID; the address range is 1–254 (default: 1). 255 is the broadcast ID.
- **IP setting:** IP access mode; options are Static (default) and DHCP.
- **IP:** IP address of the device, the default is set to 192.168.1.5.
- **Mask:** Determine whether the IP address of the target device situates in the same subnet with the local device. The default is set to 255.255.255.0.
- **Gateway:** Help devices in different subnets to communicate with each other. The default is set to 192.168.1.1.
- **Keep Alive Time:** TCP idle timeout. The default is set to 30 seconds.
- **Ethernet setting:** Load the setting values mentioned above after confirm the correctness of all Ethernet parameter settings
- **Set up Steps:**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 3 and press ENTER to enter the Communication menu.
 4. Select Address and then press ENTER to set communication parameters.
 5. After you select an option, use UP and DOWN to select the desired number.
 6. Press ENTER to confirm the setting and move to the next setting.
 7. Repeat steps 5–6 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 8. Select IP setting and then press ENTER to set the parameters.
 9. After you select an option, use UP and DOWN to select the mode (Static or DHCP) and press ENTER

to confirm the setting.

10. Press ENTER to save the setting or press MENU to cancel without saving the changes.
11. Repeat the above steps for the Mask, Gateway, and Keep alive time settings.
12. Then select Ethernet setting and press ENTER.
13. Choose "Enable" and press ENTER to load all the Ethernet parameter values.
14. Once Enable of Ethernet setting shifts to Disable, the loading task is completed and the communication would be performed with the new setting values.
15. Press MENU to go back to the setting menu.

4.2.5 IP Filter (Applicable only for DPM-C530E)

- **Filter:** Perform IP filtering function. The default setting is 0.0.0.0.
- **Confirm:** Confirm the correctness of all parameter settings and load the setting values.
- **Set up Steps:**
 - (1) Press MENU to display the setting menu.
 - (2) Select 0 and press ENTER to enter the Setup menu.
 - (3) Select 10. IP Filter and press ENTER to enter the selected item.
 - (4) After you select an option, use UP and DOWN to select the desired number.
 - (5) Press ENTER to confirm the setting and move to the next setting.
 - (6) Repeat steps 4-5 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 - (7) Then select Confirm and press ENTER after the settings of IP Filter are completed.
 - (8) Choose "Enable" and press ENTER to load all the IP Filter parameter values.
 - (9) Once Enable of Ethernet setting shifts to Disable, the loading task is completed. Press MENU to go back to the setting menu.

4.2.6 Set up the Transformer Ratio

- **CT Primary:** Primary-side current transformer amperes; 1–9999 A, 1 A is default.
- **CT Secondary:** Secondary-side current transformer amperes; options are 1 A (default), 2.5A and 5 A.
- **PT Primary:** Primary-side potential transformer voltage; 1–65535 V, 1 V is default.
- **PT Secondary:** Secondary-side potential transformer voltage; 1–9999 V, 1 V is default.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 4 and press ENTER to enter the Transformer Ratio menu.
 4. Select CT Primary and press ENTER to set the CT Primary settings.
 5. After you select the option, use UP and DOWN to select the number for the ampere or voltage.

6. Press ENTER to confirm the setting and move to the next setting.
7. Repeat steps 5–6 until you complete setting the latest digit. Press ENTER to save the setting or press MENU to cancel without saving the changes.
8. Repeat the above steps to set up the other settings.
9. Press MENU to go back to the setting menu.

4.2.7 Set up the System

- **Language:** Language displayed on the power meter LCD; options are English (default), Japanese, Simplified Chinese and Traditional Chinese.
- **Back Light:** Brightness of the power meter LCD; options are 100% (default), 50%, and 25%.
- **Timeout:** Time remaining before the backlight dims; options are 0–90 seconds or always on when you select 100% for the BackLight. When you select 50% or 25%, the Timeout value is the time before the backlight starts to dim. Press any key and the backlight brightens to 25% or 50% based on the selected BackLight percentage. The default is 30 seconds.
- **System:** Options are one-phase two-wire (1PH2W), one-phase three-wire (1PH3W), three-phase three-wire (3PH3W), and three-phase four-wire (3PH4W; default).
- **Rotation:** Options are ABC mode (default) and CBA mode. When the phase A wiring is connected to the meters phase C and phase C wiring is connected to the meter's phase A, you can use CBA mode without having to reconnect the wiring. For general situations (phase A wiring to phase A of the meter, and phase C wiring to phase C of the meter), you can use ABC mode.
- **Number CT:** The number of CTs on the system; options are 0, 1, 2 and 3 (default).
- **Number PT:** The number of PTs on the system; options are 0, 2 and 3 (default).
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 5 and press ENTER to enter the System menu.
 4. Select Language and then press ENTER to select the language.
 5. After you select the option, use UP and DOWN to set the option. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 6. Repeat the above steps to set up Backlight, Timeout, System, Rotation, Number CT and Number PT.
 7. Select Timeout and then press ENTER to set the timeout.
 8. After you select the option, use UP and DOWN to select the value.
 9. Press ENTER to save the setting and move to the next setting.
 10. Repeat steps 9–10 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 11. Press MENU to go back to the setting menu.

4.2.8 Set up the Alarms

There are 29 types of supported alarm, including Over Current, Under Current, Over Neutral Current, Over Voltage LL, Under Voltage LL, Over Voltage LN, Under Voltage LN, Over Volt Unbalance, Over AMP Unbalance, Over Active power, Over Reactive Power, Over Apparent Power, LEAD PF, Lag PF, Lead DPF, Lag DPF, Over Current Demand, Over kW Demand, Over kVAR Demand, Over kVA Demand, Over Frequency, Under Frequency, Over Voltage THD, Over Current THD, Phase Loss, Meter Reset, Phase Rotation, Over DUI and Over EUI.

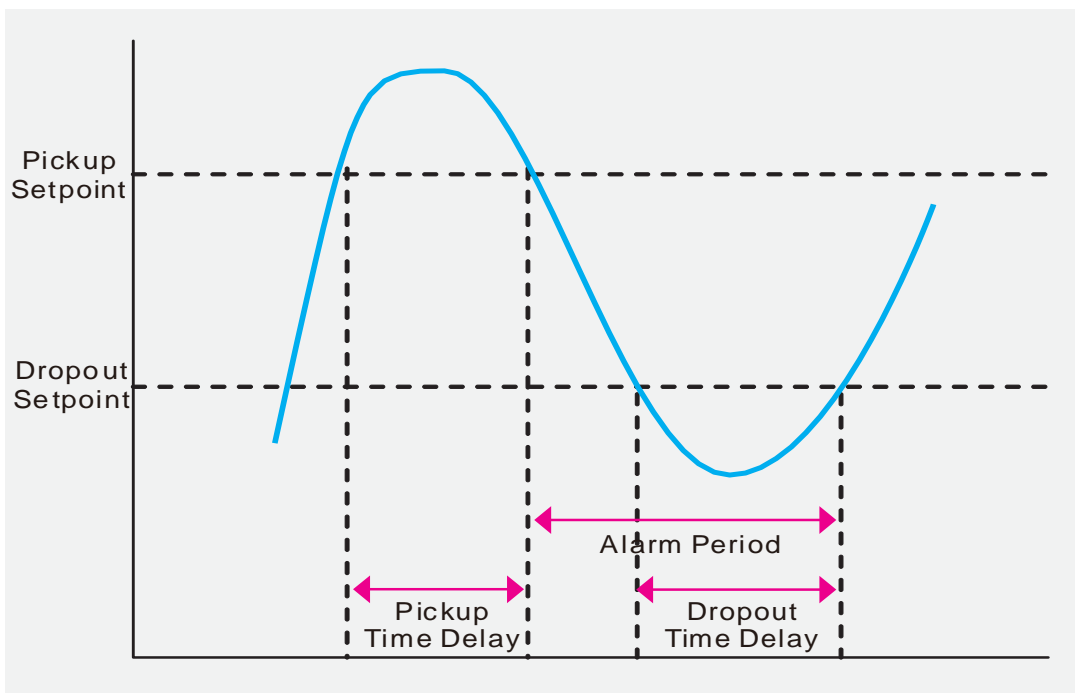
The setting options for each alarm type are listed below.

- Alarm: Options are Enable and Disable (default).
- Pickup: When the meter exceeds the Pickup value (default: 0), it triggers the alarm.
- Time Delay (establish): When you set this time delay, even when the meter exceeds the Pickup value, the alarm is not triggered after the Time Delay (establish) setting.
- Dropout: When the meter is below the Dropout value (default: 0), the alarm is disabled.
- Time Delay (cancel): When you set this time delay, even when the meter is below the Dropout value, the alarm is disabled after the Time Delay (cancel) setting.

- **Set up Steps**

1. Press MENU to display the setting menu.
2. Select 0 and press ENTER to enter the Setup menu.
3. Select 6 and press ENTER to enter the Alarm menu.
4. Select the setting item and then press ENTER to set the item.
5. After you select the option, use UP and DOWN to set the option.
6. Press ENTER to save the setting. Press MENU to cancel without saving the changes.
7. Select Pickup and then press ENTER to set the alarm trigger value.
8. After you select the option, use UP and DOWN to select the value.
9. Press ENTER to save the setting and move on to the next digit.
10. Repeat steps 8–9 until you complete the settings. Press MENU to cancel without saving the changes.
11. Select Time Delay and then press ENTER to set the alarm delay time (establish).
12. After you select the option, use UP and DOWN to select the value.
13. Press ENTER to save the setting and move on to the next digit.
14. Repeat steps 12–13 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
15. Select Dropout and then press ENTER to set the disable alarm value.
16. After you select the option, use UP and DOWN to select the value.
17. Press ENTER to save the setting and move on to the next digit.
18. Repeat steps 16–17 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.

19. Select Time Delay and then press ENTER to set the alarm delay time (cancel).
20. After you select the option, use UP and DOWN to select the value.
21. Press ENTER to save the setting and move on to the next digit.
22. Repeat steps 20–21 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
23. Repeat the above steps to set up all the 29 alarm types.
24. Press MENU to go back to the setting menu.



4.2.9 Set up the Demands

- **Method:** Supports time block calculations.
- **Interval:** Time intervals for demands; 1–60 minutes, 1 is default.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 7 and press ENTER to enter the Demand menu.
 4. Select the item to set up and then press ENTER.
 5. After you select the option, use UP and DOWN to select the value.
 6. Press ENTER to save the setting and move on to the next digit.
 7. Repeat steps 5–6 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 8. Press MENU to go back to the setting menu.

4.2.10 Set up the Resets

There are seven types of supported resets, including Default, Energy, Demand, Alarm, MaxMin, Data Log, and ClearAll.

- **Default:** Restore all the settings back to the defaults.
- **Energy:** Reset all the accumulated energy values and automatic energy values.
- **Demand:** Clear the current demand, power factor demand, recorded time and date.
- **Alarm:** Clear all the detected alarm logs.
- **MaxMin:** Clear all maximum values and minimum value logs.
- **Data Log:** Clear the data log stored in the memory.
- **Clear All:** Restore all the settings back to the defaults and clear all logs.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Select 0 and press ENTER to enter the Setup menu.
 3. Select 8 and press ENTER to enter the Reset menu.
 4. Select the item to set up and then press ENTER.
 5. After you select the option, use UP and DOWN to select the setting and then press ENTER to save the setting.
 6. Repeat steps 4–5 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 7. Press MENU to go back to the setting menu.

4.3 Advanced Setups

4.3.1 Set up the Auto Recording

- **Energy 1:** Disable this function to restart auto-recording the group 1 energy value continuously; options are Enable and Disable (default).
- **Auto Day 1:** Set the date to conclude the monthly accumulated energy value; options are 1–31; 0 is default.
- **Energy 2:** Enable this function to restart auto-recording the group 1 energy value continuously; options are Enable and Disable (default).
- **Auto Day 2:** Set the date to conclude the monthly accumulated energy value; options are 1–31; 0 is default.
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Use UP and DOWN to select item 11 on the second page and then press ENTER to enter the Advanced menu.
 3. Use UP and DOWN to select item 2 Auto Recording and press ENTER.
 4. After you select the option, use UP and DOWN to select the setting and then press ENTER to save

the setting.

5. Repeat steps 3–4 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
6. Press MENU to go back to the setting menu.

4.3.2 Set up the Data Log

- **Interval:** Parameter intervals; the first two digits represent minute(s), the last two digits represent second(s). The minimum interval is 0 minute 5 seconds; the maximum is 60 minutes. If you set 0 minute 0 second for the Interval, it means the function is disabled (default).
- **Set up Steps**
 1. Configure Modbus address 0x55B to 0x56B with codes 1 to 17 (17 measured values can be recorded) through RS-485 communication.
 2. Data log records only the date and time if you do not complete Step 1.
 3. Press MENU to display the setting menu.
 4. Use UP and DOWN to select item 11 on the second page and then press ENTER to enter Advanced menu.
 5. Use UP and DOWN to select item 3 Data Log and then press ENTER.
 6. After you select the option, use UP and DOWN to select the digit and then press ENTER to save the setting.
 7. Repeat steps 5–6 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 8. Press MENU to go back to the setting menu.

- **Example**

To record the Voltage L-N and Current values, write 1 (the code for Voltage L-N) into the Modbus address 0x55B with function code 0x06 (single write) or 0x10 (multi-write) first, and then write 2 (the code for Current) into the Modbus address 0x55C with function code 0x06 (single write) or 0x10 (multi-write). Refer to section 5.1 for more information on the codes and Modbus addresses.

- **Note**

(1) Before setting up Interval, make sure to first set the recording parameter codes, or only date and time are recorded. You can set the Interval through a user interface (using the Set up Steps above), or through Modbus Communication (the address is 0x501).

(2) The following table lists the various parameters you can select according to different Intervals.

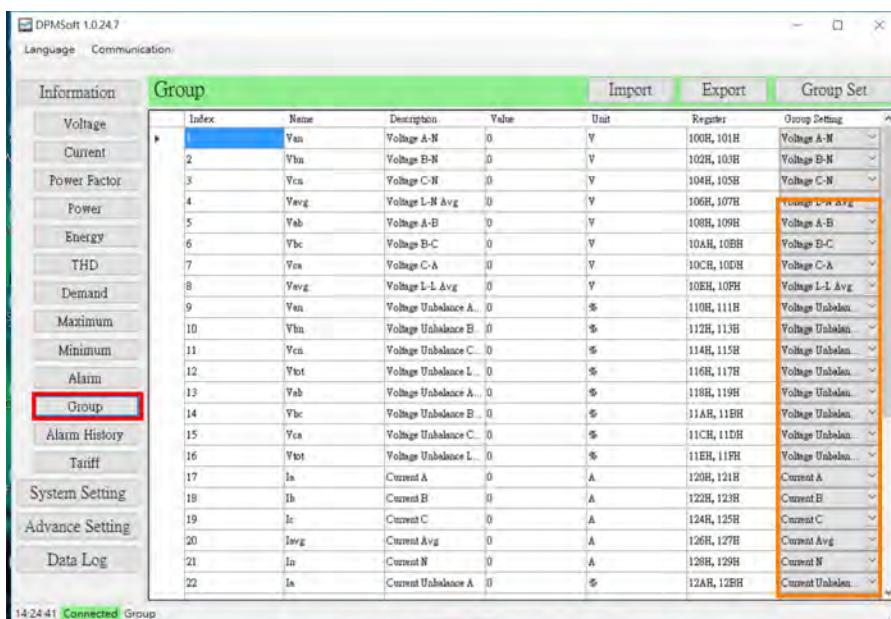
Interval	5 to 59 seconds	1 minute to 4 minutes and 59 seconds	5 minutes to 60 minutes
Maximum Number of Parameters	6	17	17
Maximum Recording days	7	31	62

4.3.3 Set up the Auto Max/Min

- **Interval:** Reset the maximum and minimum values at the end of interval; options are day, month, year and disable (default).
- **Set up Steps**
 1. Press MENU to display the setting menu.
 2. Use UP and DOWN to select item 11 on the second page and then press ENTER to enter the Advanced menu.
 3. Use UP and DOWN to select item 4 Auto MaxMin and then press ENTER.
 4. After you select the option, use UP and DOWN to select the setting and then press ENTER to save the setting.
 5. Repeat steps 3–4 until you complete the settings. Press ENTER to save the setting or press MENU to cancel without saving the changes.
 6. Press MENU to go back to the setting menu.

4.3.4 Set up the Groups

You can use DPMSOFT to set the parameters in groups. Once the PC and device are connected, click the Group icon to set up. Select the setting items on the right side (shown below in the orange block) and then click Group Set to complete setting up.



- **Block transmission:** Mirror the address of the to-be-read measured values to sequential Modbus addresses. The mirrored addresses are 0x100–0x1E7. The default is 0xFFFF.
- **Set up Steps**
 1. Write the address of the to-be-read measured values into sequential Modbus addresses 0x50C–0x551 with function code 0x06 (single write) or 0x10 (multi-write).
 2. Once you complete Step 1, you can read the mirrored Modbus address 0x600–0x645 with function code 0x03 (multi-read) for the measured values.
- **Example**
 1. You can use function code 0x06 (single write) or 0x10 (multi-write) to read the average Voltage L-N value. Write the value 0x100 into Modbus 0x50C and the value 0x101 into Modbus 0x50D in a consecutive order to read the average Voltage L-N value (Modbus 0x100–0x101).
 2. You can use function code 0x06 (single write) or 0x10 (multi-write), to read the average current value. Write the value 0x126 into Modbus 0x50E and the value 0x127 into Modbus 0x50F in a consecutive order to read the average current value (Modbus 0x126–0x127). Refer to section 5.1 for more information on the codes and Modbus addresses.
 3. Once you complete Step 1, you can read mirrored Modbus address 0x600–0x601 with function code 0x03 (multi-read). After the value is converted to IEEE754 format, you can read the average Voltage L-N value. You can also read mirrored Modbus address 0x602–0x603 with function code 0x03 (multi-read). After the value is converted to IEEE754 format, you can read the average current value.

4.4 Power Analysis Values

4.4.1 Total Harmonic Distortion Measurement

The total harmonic distortion (THD) is a measurement of the harmonic distortion and is defined as the ratio between the power of the harmonic frequencies above the base frequency and the power of the base frequency.

The total harmonic distortions for current and voltage are calculated using the following formulas.

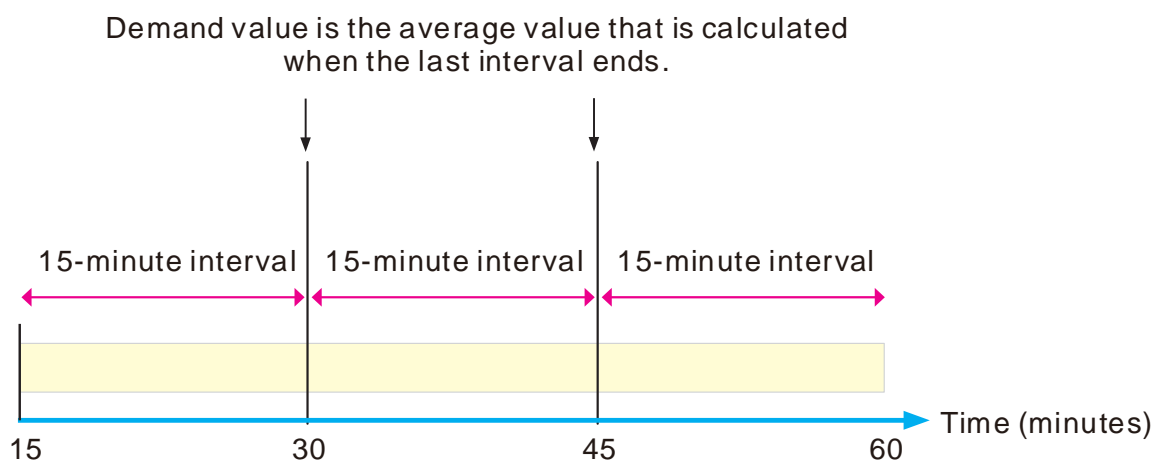
Total Harmonic Distortion for Current	$THD_I = \frac{1}{ I_{fund} } \sqrt{\sum_{n=2}^{31} I_{n.Harm} ^2}$
Total Harmonic Distortion for Voltage	$THD_U = \frac{1}{ U_{fund} } \sqrt{\sum_{n=2}^{31} U_{n.Harm} ^2}$

4.4.2 Demand Calculation Method

The power meter provides measured values for current demand, active power demand, reactive power demand and apparent power demand. You can also calculate the last, present, predicted and peak demand values from above measured values. The power meter supports fixed block interval demand methods. The example shown below uses a 15-minute interval. You can select an interval from 1 to 60 minutes. The meter

updates the present, predicted and peak demand values every second, and updates the last demand value at the end of the interval. The power meter treats last demand value as the present demand after updating.

- Last demand: The power meter calculates the value when the last interval ends.
- Present demand: The power meter calculates the value during the current interval.
- Predicted demand: The power meter calculates the value before the current interval ends.
- Peak demand: The power meter calculates the maximum value during the current interval.



4.5 Display with Decimal Places (Supported by firmware V 1.0406 or later in DPM-C530)

- **Decimal places setting:** Modify the decimal places of electrical energy displayed on the panel. The default is set to 3 decimal places.
- **Set up Steps (Communication):**
 - (1) Set MODBUS address to 0x596 and use function code 0x06(Write Single Register.) or 0x10(Write Multiple Registers) to write the number of the required decimal places. (0: 3 decimal places, 1: 1 decimal place, 2: 2 decimal places)
- **Set up Steps (Touch screen):**
 - (1) Press MENU to display the setting menu.
 - (2) Select 0 and press ENTER to enter the Setup menu.
 - (3) Select 11. Display and press ENTER to enter the selected item
 - (4) Choose "Decimal" and press Enter to start configuring.
 - (5) Use UP and DOWN to select the required mode, such as 3 decimal spaces(3), 2 decimal spaces(2) and 1 decimal space(1).
 - (6) Press ENTER to save the setting or press MENU to cancel without saving the changes.

4.6 Switch Vavg Display on Homepage (Supported by firmware V 1.0410 or

later in DPM-C530)

- **Homepage Vavg display setting:** Modify the Vavg display value featured with 1P3W or 3P4W wiring, which the options are line voltage (VLL) and phase voltage (VLN) (Default).
- **Set up Steps:**
 - (1) Press MENU to display the setting menu.
 - (2) Select 0 and press ENTER to enter the Setup menu.
 - (3) Select 11. Display and press ENTER to enter the selected item.
 - (4) Choose "Voltage" and press Enter to start configuring.
 - (5) Use UP and DOWN to select the required mode, such as line voltage (VLL) or phase voltage (VLN).
 - (6) Press ENTER to save the setting or press MENU to cancel without saving the changes.

Note: With 1P2W and 3P3W wiring, the Vavg display is fixed, which would be phase voltage and line voltage respectively and not configurable.

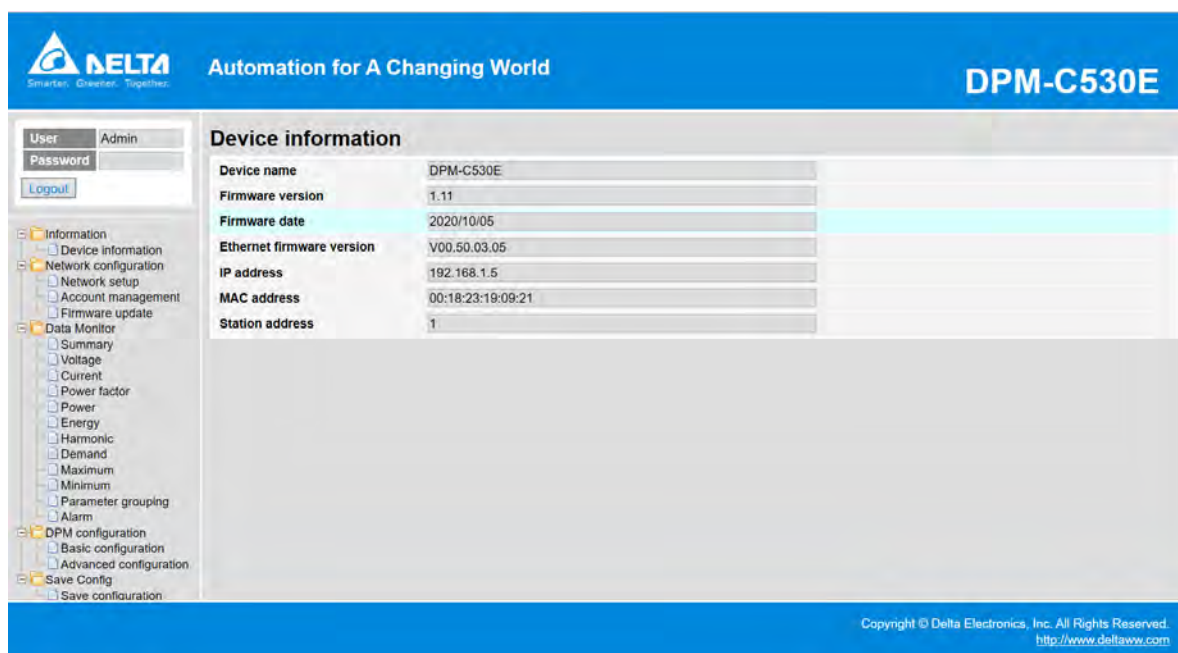
4

4.7 Connect to the Webpage (Applicable only for DPM-C530E)

4.7.1 Webpage Information

- Information: Device Information

Item	Description
Device Name	Power meter model type
Firmware version	Power meter firmware version
Firmware date	Date of the firmware version
Ethernet firmware version	Communication card firmware version
IP address	Internet protocol address
MAC address	Ethernet / physical address
Station address	Power meter Modbus station address



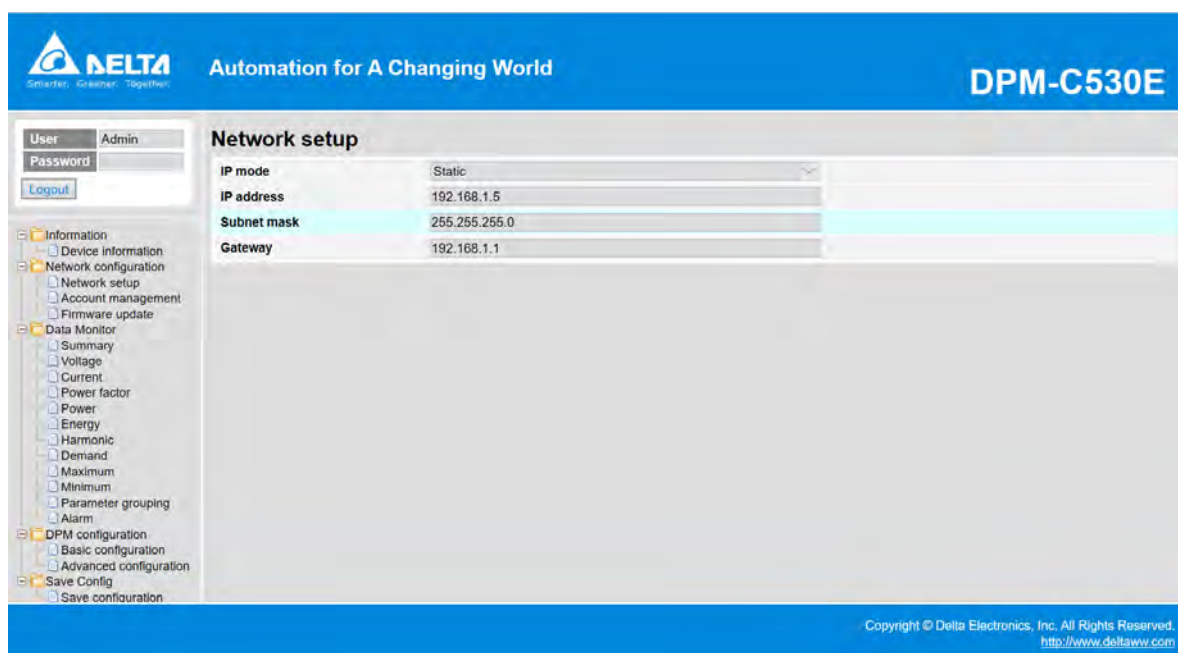
Device information

Device name	DPM-C530E
Firmware version	1.11
Firmware date	2020/10/05
Ethernet firmware version	V00.50.03.05
IP address	192.168.1.5
MAC address	00:18:23:19:09:21
Station address	1

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- Network configuration: Network setup

Item	Description
IP mode	Ethernet configuration
IP address	Internet protocol address
Subnet mask	Subnet mask
Gateway	Default gateway setting



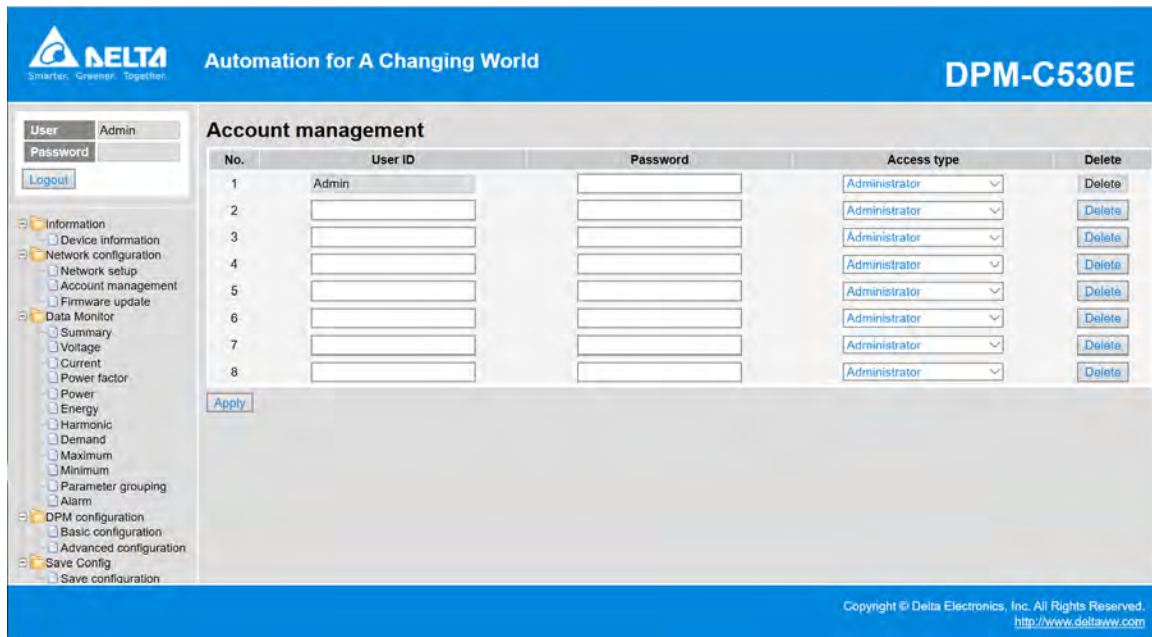
Network setup

IP mode	Static
IP address	192.168.1.5
Subnet mask	255.255.255.0
Gateway	192.168.1.1

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- Network configuration: Account management

Item	Description
User ID	User account
Password	User password
Access type	User access previliges




- Network configuration: Firmware update

Item	Description
Enter firmware update mode	Perform a communication card firmware update.

- Data Monitor: Summary

Item	Description
Voltage LN - Van	Phase A voltage value
Voltage LN - Vbn	Phase B voltage value
Voltage LN - Vcn	Phase C voltage value
Voltage LN - Vavg	Average phase voltage value
Voltage LL - Vab	Phase AB voltage value
Voltage LL - Vbc	Phase BC voltage value
Voltage LL - Vca	Phase CA voltage value
Voltage LL - Vavg	Average line voltage value
Current - Ia	Phase A current value

Current - Ib	Phase B current value
Current - Ic	Phase C current value
Current - Iavg	Average current value
Active Power - Total	Value of total active power
Active Power - Pa	Value of phase A active power
Active Power - Pb	Value of phase B active power
Active Power - Pc	Value of phase C active power
Reactive Power - Total	Value of total reactive power
Reactive Power - Qa	Value of phase A reactive power
Reactive Power - Qb	Value of phase B reactive power
Reactive Power - Qc	Value of phase C reactive power
Apparent Power - Total	Value of total apparent power
Apparent Power - Sa	Value of phase A apparent power
Apparent Power - Sb	Value of phase B apparent power
Apparent Power - Sc	Value of phase C apparent power
Active Energy - Delivered	Positive active energy
Active Energy - Received	Negative active energy
Reactive Energy - Delivered	Positive reactive energy
Reactive Energy - Received	Negative reactive energy
Apparent Energy - Delivered	Positive apparent energy
Apparent Energy - Received	Negative apparent energy
Power Factor - Total	Total power factor value
THD of Current	Value of current THD
THD of Voltage	Value of voltage THD


Automation for A Changing World

DPM-C530E

User

Admin

Password

Logout

Information

Device information

Network configuration

Network setup

Account management

Online update

Data Monitor

Summary

Voltage

Current

Power factor

Power

Energy

Harmonic

Demand

Maximum

Minimum

Parameter grouping

Alarm

DPM configuration

Basic configuration

Advanced configuration

Save Config

Save configuration

Summary

Monitor status:
Update cycle (5s ~ 60s): - 5 +

No.	Description	Value
1	Voltage LN - Van	V
2	Voltage LN - Vbn	V
3	Voltage LN - Vcn	V
4	Voltage LN - Vavg	V
5	Voltage LL - Vab	V
6	Voltage LL - Vbc	V
7	Voltage LL - Vca	V
8	Voltage LL - Vavg	V
9	Current - Ia	A
10	Current - Ib	A
11	Current - Ic	A
12	Current - Iavg	A
13	Active Power - Total	kW
14	Active Power - Pa	kW
15	Active Power - Pb	kW
16	Active Power - Pc	kW

<http://192.168.1.5/upload.htm>

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● Data Monitor: Voltage

Item	Description
Voltage LN - Van	Phase A voltage value
Voltage LN - Vbn	Phase B voltage value
Voltage LN - Vcn	Phase C voltage value
Voltage LN - Vavg	Average phase voltage value
Voltage LL - Vab	Phase AB voltage value
Voltage LL - Vbc	Phase BC voltage value
Voltage LL - Vca	Phase CA voltage value
Voltage LL - Vavg	Average line voltage value
Voltage LN Unbalance- Van	Unbalanced phase A voltage value
Voltage LN Unbalance- Vbn	Unbalanced phase B voltage value
Voltage LN Unbalance- Vcn	Unbalanced phase C voltage value
Voltage LN Unbalance	Unbalanced average phase voltage value
Voltage LL Unbalance- Vab	Unbalanced phase AB voltage value
Voltage LL Unbalance- Vbc	Unbalanced phase BC voltage value
Voltage LL Unbalance- Vca	Unbalanced phase CA voltage value
Voltage LL Unbalance	Unbalanced average line voltage value

The screenshot shows the DPM-C530E web interface. The top header includes the Delta logo, the slogan "Automation for A Changing World", and the model name "DPM-C530E". The left sidebar contains a navigation menu with options like "User", "Admin", "Password", "Logout", "Information", "Device information", "Network configuration", "Data Monitor", "DPM configuration", and "Save configuration". The main content area is titled "Voltage" and displays a table of voltage parameters. The table has columns for "No.", "Description", and "Value". The "Monitor status" is indicated by a yellow light icon, and the "Update cycle" is set to 5s ~ 60s. The table lists 16 items, including phase voltages (Van, Vbn, Vcn), line voltages (Vab, Vbc, Vca), and unbalanced voltages. The values are displayed in a column on the right, with units like V and %.

● Data Monitor: Current

Item	Description
Current - Ia	Phase A current value
Current - Ib	Phase B current value

Current - Ic	Phase C current value
Current - Iavg	Average current value
Neutral Current - In	Value of the neutral current
Current Unbalance - Ia	Unbalanced phase A current value
Current Unbalance - Ib	Unbalanced phase B current value
Current Unbalance - Ic	Unbalanced phase C current value
Current Unbalance	Unbalanced average current value

The screenshot shows the DPM-C530E web interface. The top header features the Delta logo and the slogan "Automation for A Changing World". The page title is "DPM-C530E". On the left, there is a navigation menu with options like "Information", "Network configuration", "Data Monitor", and "DPM configuration". The main content area is titled "Current" and displays a table of current values. The table has columns for "No.", "Description", and "Value". The values are displayed in a grid format.

No.	Description	Value
1	Current - Ia	A
2	Current - Ib	A
3	Current - Ic	A
4	Current - Iavg	A
5	Neutral Current - In	A
6	Current Unbalance - Ia	%
7	Current Unbalance - Ib	%
8	Current Unbalance - Ic	%
9	Current Unbalance	%

The interface also includes a "Monitor status" indicator and an "Update cycle (5s ~ 60s)" setting. The bottom of the page shows the URL "http://192.168.1.5/device_info.htm" and the copyright notice "Copyright © Delta Electronics, Inc. All Rights Reserved. http://www.deltaww.com".

- Data Monitor: Power

Item	Description
Active Power - Total	Value of total active power
Active Power - Pa	Value of phase A active power
Active Power - Pb	Value of phase B active power
Active Power - Pc	Value of phase C active power
Reactive Power -Total	Value of total reactive power
Reactive Power - Qa	Value of phase A reactive power
Reactive Power - Qb	Value of phase B reactive power
Reactive Power - Qc	Value of phase C reactive power
Apparent Power - Total	Value of total apparent power
Apparent Power - Sa	Value of phase A apparent power
Apparent Power - Sb	Value of phase B apparent power
Apparent Power - Sc	Value of phase C apparent power

Power

Monitor status: ■ Update cycle (5s ~ 60s):

No.	Description	Value	Unit
1	Active Power - Total	0.000	kW
2	Active Power - Pa	0.000	kW
3	Active Power - Pb	0.000	kW
4	Active Power - Pc	0.000	kW
5	Reactive Power - Total	0.000	kVAR
6	Reactive Power - Qa	0.000	kVAR
7	Reactive Power - Qb	0.000	kVAR
8	Reactive Power - Qc	0.000	kVAR
9	Apparent Power - Total	0.000	kVA
10	Apparent Power - Sa	0.000	kVA
11	Apparent Power - Sb	0.000	kVA
12	Apparent Power - Sc	0.000	kVA

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• Data Monitor: Power Factor

Item	Description
Power Factor - Total	Total power factor value
Power Factor - PFa	Phase A power factor value
Power Factor - PFb	Phase B power factor value
Power Factor - PFc	Phase C power factor value
Displacement Power Factor - Total	Value of total displacement power factor
Displacement Power Factor - DPFa	Value of phase A displacement power factor
Displacement Power Factor - DPFb	Value of phase B displacement power factor
Displacement Power Factor - DPFc	Value of phase C displacement power factor
Frequency	Frequency value

Power factor

Monitor status: ■ Update cycle (5s ~ 60s):

No.	Description	Value	Unit
1	Power Factor - Total	0.00000	
2	Power Factor - PFa	0.00000	
3	Power Factor - PFb	0.00000	
4	Power Factor - PFc	0.00000	
5	Displacement Power Factor - Total	0.00000	
6	Displacement Power Factor - DPFa	0.00000	
7	Displacement Power Factor - DPFb	0.00000	
8	Displacement Power Factor - DPFc	0.00000	
9	Frequency	0.0000	Hz

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- Data Monitor: Energy

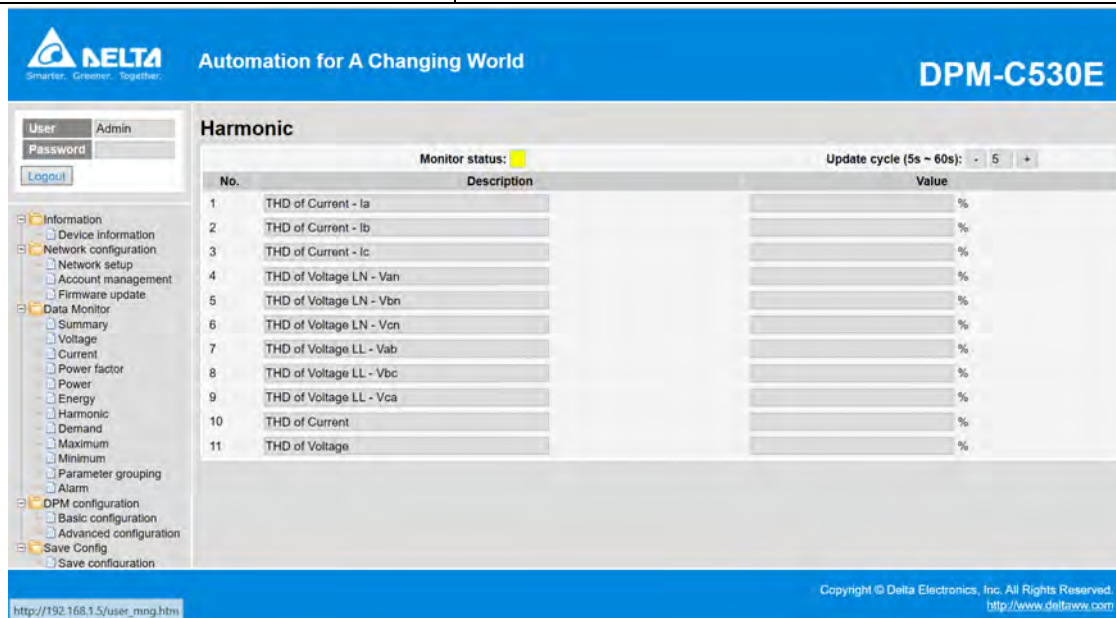
Item	Description
Active Energy - Delivered	Positive active energy
Active Energy - Received	Negative active energy
Reactive Energy - Delivered	Positive reactive energy
Reactive Energy - Received	Negative reactive energy
Apparent Energy - Delivered	Positive apparent energy
Apparent Energy - Received	Negative apparent energy
Active energy – delivered + received	Positive + negative active energy
Active energy – delivered - received	Positive - negative active energy
Reactive energy – delivered + received	Positive + negative reactive energy
Reactive energy – delivered - received	Positive - negative reactive energy
Apparent energy – delivered + received	Positive + negative apparent energy
Apparent energy – delivered - received	Positive - negative apparent energy

The screenshot shows the Delta DPM-C530E web interface. The top header includes the Delta logo, the slogan 'Automation for A Changing World', and the model 'DPM-C530E'. The left sidebar contains a navigation menu with categories: Information, Network configuration, Data Monitor, and DPM configuration. The 'Data Monitor' section is expanded, showing options like Summary, Voltage, Current, Power factor, Power, Energy, Harmonic, Demand, Maximum, Minimum, Parameter grouping, Alarm, and Save configuration. The main content area is titled 'Energy' and shows a 'Monitor status: OK' indicator. Below this is a table with 12 rows, each representing a different energy measurement. The table has three columns: 'No.', 'Description', and 'Value'. The measurements include Active energy (delivered, received, and combined), Reactive energy (delivered, received, and combined), and Apparent energy (delivered, received, and combined). The 'Value' column shows the units for each measurement (kWh, kVARh, or kVAh). The interface also includes a 'Logout' button and a 'Save configuration' button.

- Data Monitor: Harmonic

Item	Description
THD of Current - Ia	Value of phase A current harmonics
THD of Current - Ib	Value of phase B current harmonics
THD of Current - Ic	Value of phase C current harmonics
THD of Voltage LN - Van	Value of phase A voltage harmonics
THD of Voltage LN - Vbn	Value of phase B voltage harmonics
THD of Voltage LN - Vcn	Value of phase C voltage harmonics
THD of Voltage LL - Vab	Value of line AB voltage harmonics

THD of Voltage LL - Vbc	Value of line BC voltage harmonics
THD of Voltage LL - Vca	Value of line CA voltage harmonics
THD of Current	Value of current THD
THD of Voltage	Value of voltage THD



- Data Monitor: Demand

Item	Description
Current Demand - Present	Value of the current demand for present
Current Demand - Last	Value of the previous current demand
Current Demand - Predicted	Value of the predicted current demand
Current Demand - Peak	Value of the peak current demand
Date of Current Demand Peak	Peak current demand date
Time of Current Demand Peak	Peak current demand time
Active Power Demand - Present	Value of the active power demand for present
Active Power Demand - Last	Value of the previous active power demand
Active Power Demand - Predicted	Value of the predicted active power demand
Active Power Demand - Peak	Value of the peak active power demand
Date of Active Power Demand Peak	Peak active power demand date
Time of Active Power Demand Peak	Peak active power demand time
Reactive Power Demand - Present	Value of the reactive power demand for present
Reactive Power Demand - Last	Value of the previous reactive power demand
Reactive Power Demand - Predicted	Value of the predicted reactive power demand
Reactive Power Demand - Peak	Value of the peak reactive power demand
Date of Reactive Power Demand Peak	Peak reactive power demand date

Time of Reactive Power Demand Peak	Peak reactive power demand time
Apparent Power Demand - Present	Value of the apparent power demand for present
Apparent Power Demand - Last	Value of the previous reactive power demand
Apparent Power Demand - Predicted	Value of the predicted reactive power demand
Apparent Power Demand - Peak	Value of the peak reactive power demand
Date of Apparent Power Demand Peak	Peak reactive power demand date
Time of Apparent Power Demand Peak	Peak reactive power demand time

DELTA Automation for A Changing World **DPM-C530E**

User: Admin Password: [] Logout

Demand Monitor status: [] Update cycle (5s ~ 60s): 5

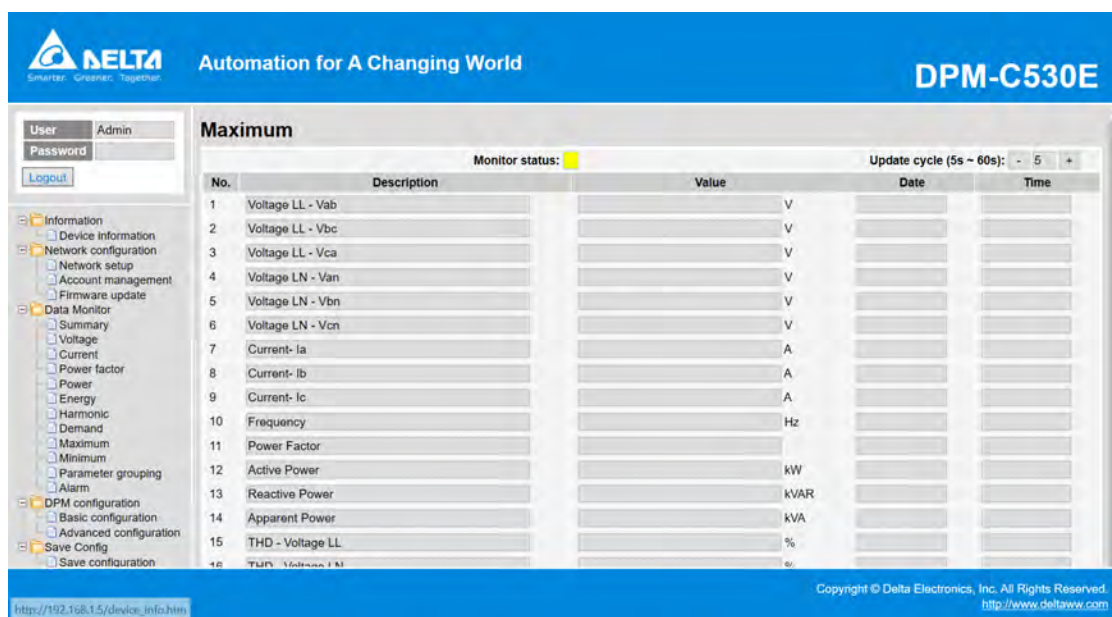
No.	Description	Value	Date	Time
1	Current Demand - Present	A		
2	Current Demand - Last	A		
3	Current Demand - Predicted	A		
4	Current Demand - Peak	A		
5	Active Power Demand - Present	kW		
6	Active Power Demand - Last	kW		
7	Active Power Demand - Predicted	kW		
8	Active Power Demand - Peak	kW		
9	Reactive Power Demand - Present	kVAR		
10	Reactive Power Demand - Last	kVAR		
11	Reactive Power Demand - Predicted	kVAR		
12	Reactive Power Demand - Peak	kVAR		
13	Apparent Power Demand - Present	kVA		
14	Apparent Power Demand - Last	kVA		
15	Apparent Power Demand - Predicted	kVA		
16	Apparent Power Demand - Peak	kVA		

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- Data Monitor: Maximum

Item	Description
Voltage LL - Vab	The maximum line AB voltage value
Date of Voltage LL - Vab	Date of max. line AB voltage
Time of Voltage LL - Vab	Time of max. line AB voltage
Voltage LL - Vbc	The maximum line BC voltage value
Date of Voltage LL - Vbc	Date of max. line BC voltage
Time of Voltage LL - Vbc	Time of max. line BC voltage
Voltage LL - Vca	The maximum line CA voltage value
Date of Voltage LL - Vca	Date of max. line CA voltage
Time of Voltage LL - Vca	Time of max. line CA voltage
Voltage LN - Van	The maximum phase A voltage value
Date of Voltage LN - Van	Date of max. phase A voltage
Time of Voltage LN - Van	Time of max. phase A voltage
Voltage LN - Vbn	The maximum phase B voltage value
Date of Voltage LN - Vbn	Date of max. phase B voltage

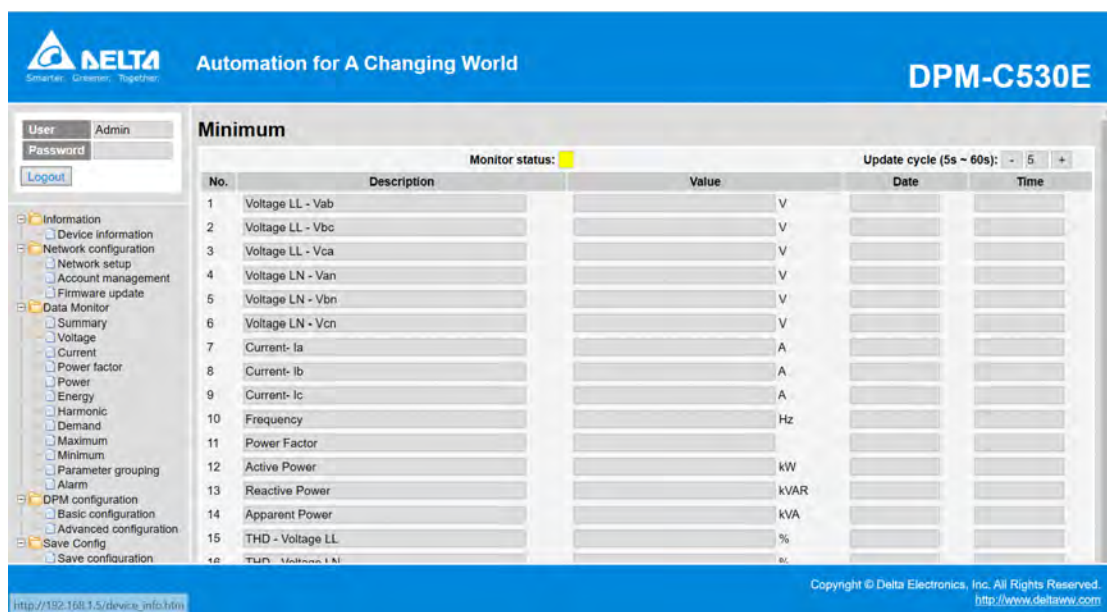
Time of Voltage LN - Vbn	Time of max. phase B voltage
Voltage LN - Vcn	The maximum phase C voltage value
Date of Voltage LN - Vcn	Date of max. phase C voltage
Time of Voltage LN - Vcn	Time of max. phase C voltage
Current- Ia	The maximum phase A current value
Date of - Ia	Date of the max. phase A current
Time of Current - Ia	Time of the max. phase A current
Current- Ib	The maximum phase B current value
Date of Current - Ib	Date of the max. phase B current
Time of Current - Ib	Time of the max. phase B current
Current- Ic	The maximum phase C current value
Date of Current - Ic	Date of the max. phase C current
Time of Current - Ic	Time of the max. phase C current
Frequency	The maximum frequency value
Date of Frequency	Date of the max. frequency
Time of Frequency	Time of the max. frequency
Power Factor	The maximum frequency value
Date of Power Factor	Date of the max. frequency
Time of Power Factor	Time of the max. frequency
Active Power	The maximum active power value
Date of Active Power	Date of the max. active power
Time of Active Power	Time of the max. active power
Reactive Power	The maximum reactive power value
Date of Reactive Power	Date of the max. reactive power
Time of Reactive Power	Time of the max. reactive power
Apparent Power	The maximum apparent power value
Date of Apparent Power	Date of the max. apparent power
Time of Apparent Power	Time of the max. apparent power
THD - Voltage LL	The maximum line voltage THD value
Date of THD - Voltage LL	Date of the max. line voltage THD
Time of THD - Voltage LL	Time of the max. line voltage THD
THD - Voltage LN	The maximum phase voltage THD value
Date of THD - Voltage LN	Date of the max. phase voltage THD
Time of THD - Voltage LN	Time of the max. phase voltage THD
THD - Current	The maximum current THD value
Date of THD - Current	Date of the max. current THD
Time of THD - Current	Time of the max. current THD



- Data Monitor: Minimum

Item	Description
Voltage LL - Vab	The minimum line AB voltage value
Date of Voltage LL - Vab	Date of min. line AB voltage
Time of Voltage LL - Vab	Time of min. line AB voltage
Voltage LL - Vbc	The minimum line BC voltage value
Date of Voltage LL - Vbc	Date of min. line BC voltage
Time of Voltage LL - Vbc	Time of min. line BC voltage
Voltage LL - Vca	The minimum line CA voltage value
Date of Voltage LL - Vca	Date of min. line CA voltage
Time of Voltage LL - Vca	Time of min. line CA voltage
Voltage LN - Van	The minimum phase A voltage value
Date of Voltage LN - Van	Date of min. phase A voltage
Time of Voltage LN - Van	Time of min. phase A voltage
Voltage LN - Vbn	The minimum phase B voltage value
Date of Voltage LN - Vbn	Date of min. phase B voltage
Time of Voltage LN - Vbn	Time of min. phase B voltage
Voltage LN - Vcn	The minimum phase C voltage value
Date of Voltage LN - Vcn	Date of min. phase C voltage
Time of Voltage LN - Vcn	Time of min. phase C voltage
Current- Ia	The minimum phase A current value
Date of - Ia	Date of the min. phase A current
Time of Current - Ia	Time of the min. phase A current

Current- Ib	The minimum phase B current value
Date of Current - Ib	Date of the min. phase B current
Time of Current - Ib	Time of the min. phase B current
Current- Ic	The minimum phase C current value
Date of Current - Ic	Date of the min. phase C current
Time of Current - Ic	Time of the min. phase C current
Frequency	The minimum frequency value
Date of Frequency	Date of the min. frequency
Time of Frequency	Time of the min. frequency
Power Factor	The minimum frequency value
Date of Power Factor	Date of the min. frequency
Time of Power Factor	Time of the min. frequency
Active Power	The minimum active power value
Date of Active Power	Date of the min. active power
Time of Active Power	Time of the min. active power
Reactive Power	The minimum reactive power value
Date of Reactive Power	Date of the min. reactive power
Time of Reactive Power	Time of the min. reactive power
Apparent Power	The minimum apparent power value
Date of Apparent Power	Date of the min. apparent power
Time of Apparent Power	Time of the min. apparent power
THD - Voltage LL	The minimum line voltage THD value
Date of THD - Voltage LL	Date of the min. line voltage THD
Time of THD - Voltage LL	Time of the min. line voltage THD
THD - Voltage LN	The minimum phase voltage THD value
Date of THD - Voltage LN	Date of the min. phase voltage THD
Time of THD - Voltage LN	Time of the min. phase voltage THD
THD - Current	The minimum current THD value
Date of THD - Current	Date of the min. current THD
Time of THD - Current	Time of the min. current THD

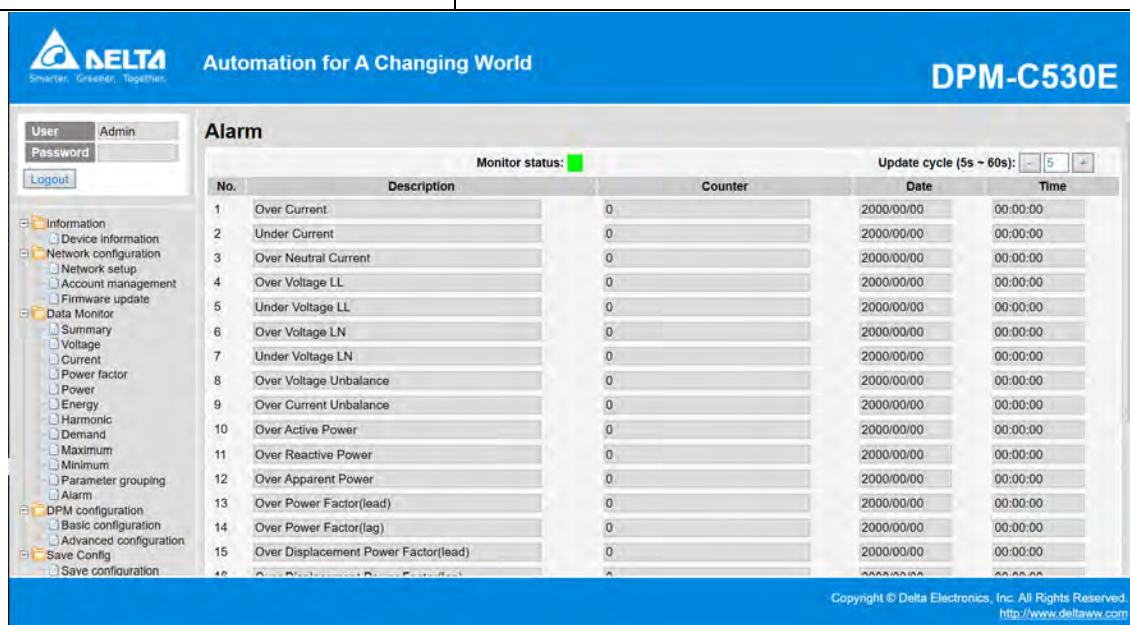


- Data Monitor: Parameter grouping

- Data Monitor: Alarm

Item	Description
Over Current	Over current alarm
Under Current	Under current alarm
Over Neutral Current	Over neutral current alarm
Over Voltage LL	Over line voltage alarm
Under Voltage LL	Under line voltage alarm
Over Voltage LN	Over phase voltage alarm
Under Voltage LN	Under phase voltage alarm
Over Voltage Unbalance	Unbalanced over voltage alarm
Over Current Unbalance	Unbalanced over current alarm
Over Active Power	Over active power alarm
Over Reactive Power	Over reactive power alarm
Over Apparent Power	Over apparent power alarm
Over Power Factor(lead)	Over power factor(lead) alarm
Over Power Factor(lag)	Over power factor(lag) alarm
Over Displacement Power Factor(lead)	Over displacement power factor(lead) alarm
Over Displacement Power Factor(lag)	Over displacement power factor(lag) alarm
Over Current Demand	Over current demand alarm
Over Active Power Demand	Over active power demand alarm
Over Reactive Power Demand	Over reactive power demand alarm

Over Apparent Power Demand	Over apparent power demand alarm
Over Frequency	Over frequency alarm
Under Frequency	Under frequency alarm
Over THD of Voltage	Over voltage THD alarm
Over THD of Current	Over current THD alarm
Reset	Reset alarm
Phase Loss	Phase loss alarm
Phase Rotation	Phase rotation alarm
Over DUI	Over DUI alarm
Over EUI	Over EUI alarm



- DPM configuration: Basic configuration

Item	Description
Wiring	System wiring
Primary Current Transformer	The primary of current transformer
Secondary Current Transformer	The secondary of current transformer
Primary Voltage Transformer	The primary of voltage transformer
Secondary Voltage Transformer	The secondary of voltage transformer
The number of Transformer	Transformer counts

DELTA Automation for A Changing World DPM-C530E

User: Admin Password: [] Logout

Basic configuration

Wiring: 3Φ4W

Primary Current Transformer: 5 A

Secondary Current Transformer: 5 A

Primary Voltage Transformer: 1 V

Secondary Voltage Transformer: 1 V

The number of Transformer: 3CT3PT

Apply

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4

- DPM configuration: Advanced configuration

Item	Description
Auto Metering #1	Auto metering #1 function switch
Auto Metering #1 Day	Auto metering #1 date setting
Auto Metering #2	Auto metering #2 function switch
Auto Metering #2 Day	Auto metering #2 date setting
Tariff #1~#8 - Rate	Tariff #1~#8 – rate setting
Tariff #1~#8 – Start Time	The start time of tariff#1~#8
Tariff #1~#8 – Stop Time	The stop time of tariff#1~#8
Data Log – Interval (Minute:Second)	The interval time setting of data log
Data Log - Content#1~17	The parametre setting of data log

DELTA Automation for A Changing World DPM-C530E

User: Admin Password: [] Logout

Advanced configuration

Auto Metering #1: Disable Day: 1

Auto Metering #2: Disable Day: 1

Tariff #1 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #2 - Rate: P2 Start Time: 00:255 Stop Time: 255:255

Tariff #3 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #4 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #5 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #6 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #7 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Tariff #8 - Rate: P3 Start Time: 00:00 Stop Time: 00:00

Data Log - Interval(Minute:Second): 00:00

Data Log - Content#1: None

Data Log - Content#2: None

Data Log - Content#3: None

Data Log - Content#4: None

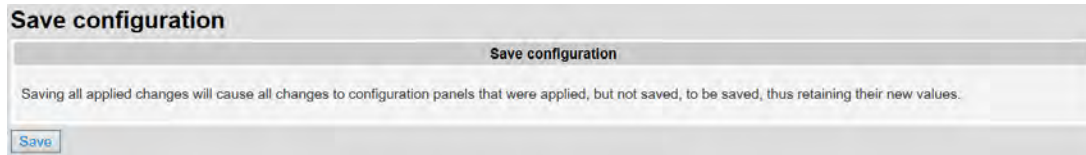
Data Log - Content#5: None

Data Log - Content#6: None

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- Save Config: Save configuration

After DPM configuration (Include: Basic and Advanced configuration) is completed, enter this page and press “Save” to load the parameter settings.



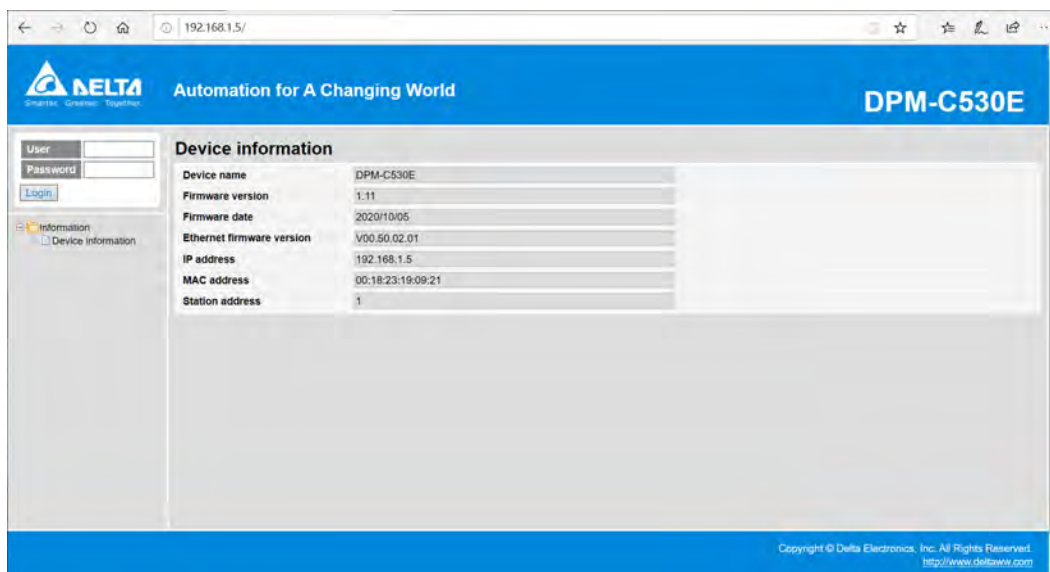
4.7.2 Webpage Connection

- Steps are as follows:

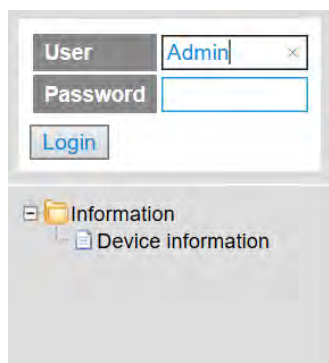
(1) Open the web browser and enter the IP address of power meter to the address bar. (This example demonstrates with IP 192.168.1.5)



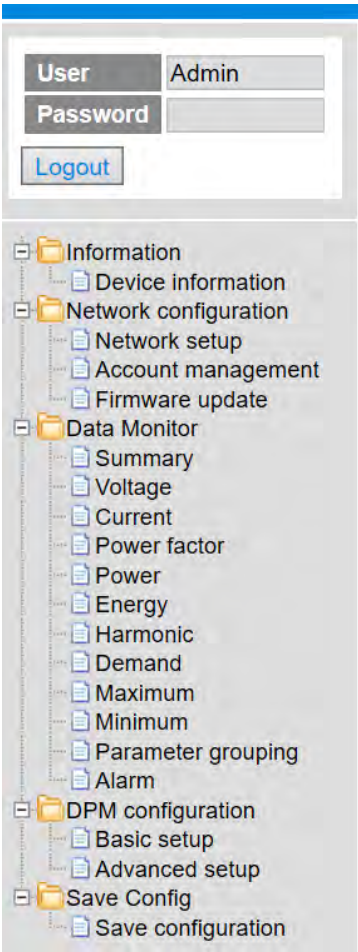
(2) Open the power meter homepage via the web browser after connecting successfully.



(3) If you have not yet configured the account and password, enter the default (User: Admin) and press “Login”.



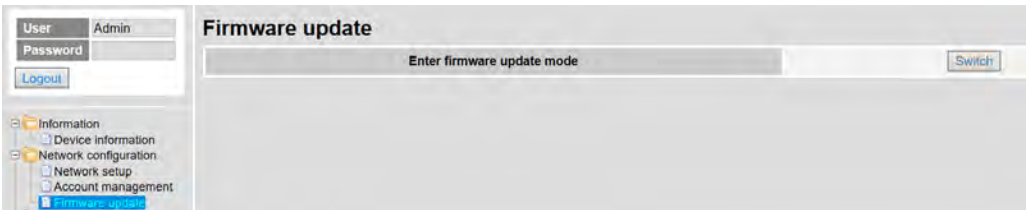
(4) After login successfully, the device tree would be displayed in the following area.



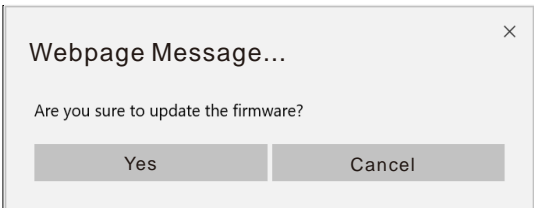
4.7.3 Communication Card Firmware Update

● Steps are as follows:

- (1) Open the browser and connect to the power meter.
- (2) Choose “Firmware update” and press “Switch”.



(3) A notification window appears, then click “Yes”.



- (4) The webpage switches to firmware update page automatically.

Note: In case that the webpage does not change, please click the refresh button of the webpage.

The screenshot shows the 'Firmware Updater (Release Date: 2020/04/22)' interface. Under 'Select the firmware file', there is a text input field and 'Browse' and 'Update' buttons. The 'Update status' is 'Ready' with a green progress bar. Below this is a 'Default' section with a 'Clear all parameter setting.' link and a 'Clear' button.

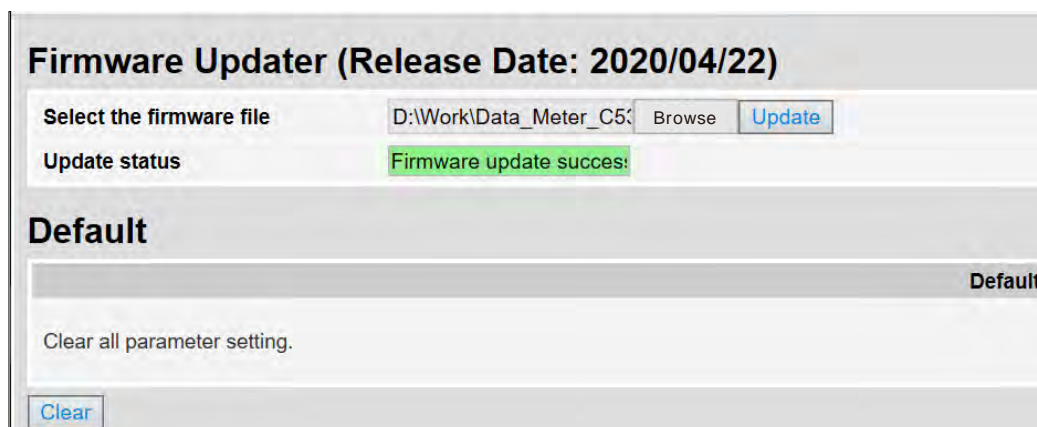
- (5) Click “Browse” after the update status shows “Ready”. Then choose the target file (web file) to update and click OK.
- (6) Hit the Update button.

This screenshot is similar to the previous one, but the file path 'D:\Work\Data_Meter_C530' is entered in the 'Select the firmware file' field. The 'Update' button is highlighted with a red rectangle.

- (7) The update status shows “File upload processing”, which means the firmware of communication card is being updating.

The screenshot shows the 'Firmware Updater' interface with the 'Update status' now 'File upload processing' with a yellow progress bar. The 'Update' button is now disabled and greyed out.

- (8) Once the update status shows “Firmware update success”, the firmware updating task is completed.



The screenshot shows the 'Firmware Updater' interface with the title 'Firmware Updater (Release Date: 2020/04/22)'. It includes a 'Select the firmware file' section with a text input 'D:\Work\Data_Meter_C530E', a 'Browse' button, and an 'Update' button. Below this, the 'Update status' is displayed as 'Firmware update success!'. A 'Default' section contains a 'Clear all parameter setting.' button and a 'Clear' button.

- (9) After reboot the power meter, connect to the webpage information: Check whether the firmware version in the Device Information is correct.

Device information	
Device name	DPM-C530E
Firmware version	1.11
Firmware date	2020/10/05
Ethernet firmware version	V00.50.03.05
IP address	192.168.1.5
MAC address	00:18:23:19:09:21
Station address	1

MEMO

Chapter 5 Parameters and Functions

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5.1 Overview of Parameters

Modbus Address		Item	Range	Data Type	Unit	Data Size (byte)	Read (R) / Write (W)
Hex	Modicom Format						
0. System Parameters: 0001 – 00FF							
1	40002	Present date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R/W
2	40003		Date: 1–31 Week: Sun–Sat	byte	Date, Week	2	R/W
3	40004	Present time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
4	40005		Second: 00–59	word	Second	2	R/W
5	40006	Meter Constant	3200	uint	P/kWh	2	R
6	40007	Meter Model	0 : None 7 : DPM-C530 8 : DPM-C530E	word		2	R
7	40008	Total running time of the meter	Day: 0–65535	uint	Day	2	R
8	40009		Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
9	40010	Firmware version	0.0000 ~ 9.9999 (DPM-C530) 0.00 ~ 9.99 (DPM-C530E)	uint		2	R
A	40011	Firmware release date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
B	40012		Date: 1–31	word	Date	2	R
C	40013	Phase rotation	0: ABC 1: CBA	word		2	R/W

C	40013	Reserved					
D	40014	Power system configuration	0: 3φ4W 1: 3φ3W 2: 1φ2W 3: 1φ3W	word		2	R/W
E	40015	Primary CT (A)	1 – 9999	uint	A	2	R/W
F	40016	Secondary CT (A)	0: 1A 1: 5A	word	A	2	R/W
10	40017	Primary PT	1 – 65535	uint	V	2	R/W
11	40018	Secondary PT	1 – 9999	uint	V	2	R/W
12	40019	Transformer quantities	0: 3CT3PT 1: 3CT2PT 2: 3CT0PT 3: 2CT3PT 4: 2CT2PT 5: 2CT0PT 6: 1CT3PT 7: 1CT2PT 8: 1CT0PT	word		2	R/W
13	40020	Language	0: English 1: Traditional Chinese 2: Simplified Chinese 3: Japanese	word		2	R/W
14	40021	Timeout	0 – 99	word	Second	2	R/W

15	40022	Backlight	0: 100% 1: 50% 2: 25%	word		2	R/W
16	40023	Baud Rate (Applicable only for DPM-C530)	0: 9600 1: 19200 2: 38400 3: 76800 (Supported by V.1.0204 and later)	word	bps	2	R/W
17	40024	Communication mode (Applicable only for DPM-C530)	0: ASCII 1: RTU 2: BACnet MS/TP	word		2	R/W
18	40025	Data bit (Applicable only for DPM-C530)	0: 8 1: 7	word	bit	2	R/W
19	40026	Parity bit (Applicable only for DPM-C530)	0: None 1: Even 2: Odd	word		2	R/W
1A	40027	Stop bit (Applicable only for DPM-C530)	0: 1 1: 2	word	bit	2	R/W
1B	40028	Modbus address / BACnet (MAC ID)	0 – 255 (Modbus) 1 – 127 (BACnet MS/TP) (DPM-C530) 1 ~ 247 (DPM-C530E)	word		2	R/W
1C	40029	Reset	0: None 1: Reset to factory default 2: Reset energy value 3: Reset demand value 4: Clear alarm logs / Times	word		2	W

			5: Reset max./min. values				
			6: Clear logs				
			7: Clear all				
			8: Reset time of use value and accumulated energy value from auto recording				
			9: Reset accumulated energy value from energy saving mode of the measured equipment				
1D	40030	Demand (Calculation method)	0: block 1: sliding (Applicable only for DPM-C530E)	word		2	R
1E	40031	Demand time interval	0–60	word	Minute	2	R/W
Alarm – Over Current							
1F	40032	Alarm enable	0: Disable 1: Enable	word		2	R/W
20	40033	Pickup setpoint (current value exceeding this value triggers alarm)	0.000 – 99999.999	float	A	4	R/W
21	40034						
22	40035	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
23	40036	Dropout setpoint (current value below this value clears alarm)	0.000 – 99999.999	float	A	4	R/W
24	40037						
25	4038	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Under Current							

26	4039	Alarm enable	0: Disable 1: Enable	word		2	R/W
27	40040	Pickup setpoint (current value below this value triggers alarm)	0.000 – 99999.999	float	A	4	R/W
28	40041						
29	40042	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
2A	40043	Dropout setpoint (current value exceeding this value clears alarm)	0.000 – 99999.999	float	A	4	R/W
2B	40044						
2C	40045	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Neutral Current							
2D	40046	Alarm enable	0: Disable 1: Enable	word		2	R/W
2E	40047	Pickup setpoint (neutral current value exceeding this value triggers alarm)	0.000 – 99999.999	float	A	4	R/W
2F	40048						
30	40049	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
31	40050	Dropout setpoint (neutral current value below this value clears alarm)	0.000 – 99999.999	float	A	4	R/W
32	40051						
33	40052	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Voltage L-L							

34	40053	Alarm enable	0: Disable 1: Enable	word		2	R/W
35	40054	Pickup setpoint (line voltage value exceeding this value triggers alarm)	0.000 – 99999.999	float	V	4	R/W
36	40055						
37	40056	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
38	40057	Dropout setpoint (line voltage value below this value clears alarm)	0.000 – 99999.999	float	V	4	R/W
39	40058						
3A	40059	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Under Voltage L–L							
3B	40060	Alarm enable	0: Disable 1: Enable	word		2	R/W
3C	40061	Pickup setpoint (line voltage value below this value triggers alarm)	0.000 – 99999.999	float	V	4	R/W
3D	40062						
3E	40063	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
3F	40064	Dropout setpoint (line voltage value exceeding this value clears alarm)	0.000 – 99999.999	float	V	4	R/W
40	40065						
41	40066	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Voltage L–N							

42	40067	Alarm enable	0: Disable 1: Enable	word		2	R/W
43	40068	Pickup setpoint (phase voltage value exceeding this value triggers alarm)	0.000 – 99999.999	float	V	4	R/W
44	40069						
45	40070	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
46	40071	Dropout setpoint (phase voltage value below this value clears alarm)	0.000 – 99999.999	float	V	4	R/W
47	40072						
48	40073	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Under Voltage L–N							
49	40074	Alarm enable	0: Disable 1: Enable	word		2	R/W
4A	40075	Pickup setpoint (phase value below this value triggers alarm)	0.000 – 99999.999	float	V	4	R/W
4B	40076						
4C	40077	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
4D	40078	Dropout setpoint (phase voltage value exceeding this value clears alarm)	0.000 – 99999.999	float	V	4	R/W
4E	40079						
4F	40080	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Voltage Unbalance							

50	40081	Alarm enable	0: Disable 1: Enable	word		2	R/W
51	40082	Pickup setpoint (over voltage unbalance value exceeding this value triggers alarm)	0.00 – 99.99	float	%	4	R/W
52	40083						
53	40084	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
54	40085	Dropout setpoint (over voltage unbalance value below this value clears alarm)	0.00 – 99.99	float	%	4	R/W
55	40086						
56	40087	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Current Unbalance							
57	40088	Alarm enable	0: Disable 1: Enable	word		2	R/W
58	40089	Pickup setpoint (over current unbalance value below this value triggers alarm)	0.00 – 99.99	float	%	4	R/W
59	40090						
5A	40091	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
5B	40092	Dropout setpoint (over current unbalance value exceeding this value clears alarm)	0.00 – 99.99	float	%	4	R/W
5C	40093						
5D	40094	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Active Power							

5E	40095	Alarm enable	0: Disable 1: Enable	word		2	R/W
5F	40096	Pickup setpoint (total active power value exceeding this value triggers alarm)	0.000 – 99999.999	float	kW	4	R/W
60	40097						
61	40098	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
62	40099	Dropout setpoint (total active power value below this value clears alarm)	0.000 – 99999.999	float	kW	4	R/W
63	40100						
64	40101	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Over Reactive Power							
65	40102	Alarm enable	0: Disable 1: Enable	word		2	R/W
66	40103	Pickup setpoint (total reactive power value exceeding this value triggers alarm)	0.000 – 99999.999	float	kVAR	4	R/W
67	40104						
68	40105	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
69	40106	Dropout setpoint (total reactive power value below this value clears alarm)	0.000 – 99999.999	float	kVAR	4	R/W
6A	40107						
6B	40108	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Apparent Power							

6C	40109	Alarm enable	0: Disable 1: Enable	word		2	R/W
6D	40110	Pickup setpoint (total apparent power value exceeding this value triggers alarm)	0.000 – 99999.999	float	kVA	4	R/W
6E	40111						
6F	40112	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
70	40113	Dropout setpoint (total apparent power value below this value clears alarm)	0.000 – 99999.999	float	kVA	4	R/W
71	40114						
72	40115	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Lead PF							
73	40116	Alarm enable	0: Disable 1: Enable	word		2	R/W
74	40117	Pickup setpoint (total power factor value below this value triggers alarm)	0.00000 – 1.00000	float		4	R/W
75	40118						
76	40119	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
77	40120	Dropout setpoint (total power factor value exceeding this value clears alarm)	0.00000 – 1.00000	float		4	R/W
78	40121						
79	40122	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Lag PF							

7A	40123	Alarm enable	0: Disable 1: Enable	word		2	R/W
7B	40124	Pickup setpoint (total power factor value below this value triggers alarm)	0.00000 – 1.00000	float		4	R/W
7C	40125						
7D	40126	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
7E	40127	Dropout setpoint (total power factor value exceeding this value clears alarm)	0.00000 – 1.00000	float		4	R/W
7F	40128						
80	40129	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Lead Displacement PF							
81	40130	Alarm enable	0: Disable 1: Enable	word		2	R/W
82	40131	Pickup setpoint (total displacement power factor value below this value triggers alarm)	0.00000 – 1.00000	float		4	R/W
83	40132						
84	40133	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
85	40134	Dropout setpoint total displacement power factor value exceeding this value clears alarm)	0.00000 – 1.00000	float		4	R/W
86	40135						
87	40136	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W

Alarm – Lag Displacement PF							
88	40137	Alarm enable	0: Disable 1: Enable	word		2	R/W
89	40138	Pickup setpoint (total displacement power	0.00000 – 1.00000	float		4	R/W
8A	40139	factor value below this value triggers alarm)					
8B	40140	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
8C	40141	Dropout setpoint (total displacement power	0.00000 – 1.00000	float		4	R/W
8D	40142	factor value exceeding this value clears alarm)					
8E	40143	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Current Demand							
8F	40144	Alarm enable	0: Disable 1: Enable	word		2	R/W
90	40145	Pickup setpoint (current demand	0.000 – 99999.999	float	A	4	R/W
91	40146	value exceeding this value triggers alarm)					
92	40147	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
93	40148	Dropout setpoint (current demand	0.000 – 99999.999	float	A	4	R/W
94	40149	value below this value clears alarm)					

95	40150	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Active Power Demand							
96	40151	Alarm enable	0: Disable 1: Enable	word		2	R/W
97	40152	Pickup setpoint (active power demand value exceeding this value triggers alarm)	0.000 – 99999.999	float	kW	4	R/W
98	40153						
99	40154	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
9A	40155	Dropout setpoint (active power demand value below this value clears alarm)	0.000 – 99999.999	float	kW	4	R/W
9B	40156						
9C	40157	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Reactive Power Demand							
9D	40158	Alarm enable	0: Disable 1: Enable	word		2	R/W
9E	40159	Pickup setpoint (reactive power demand value exceeding this value triggers alarm)	0.000 – 99999.999	float	kW	4	R/W
9F	40160						
A0	40161	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
A1	40162	Dropout setpoint (reactive power	0.000 – 99999.999	float	kW	4	R/W

A2	40163	demand value below this value clears alarm)					
A3	40164	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Apparent Power Demand							
A4	40165	Alarm enable	0: Disable 1: Enable	word		2	R/W
A5	40166	Pickup setpoint (apparent power demand value exceeding this value triggers alarm)	0.000 – 99999.999	float	kW	4	R/W
A6	40167						
A7	40168	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
A8	40169	Dropout setpoint (apparent power demand value below this value clears alarm)	0.000 – 99999.999	float	kW	4	R/W
A9	40170						
AA	40171	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over Frequency							
AB	40172	Alarm enable	0: Disable 1: Enable	word		2	R/W
AC	40173	Pickup setpoint (frequency value exceeding this value triggers alarm)	0.0000 – 99.9999	float	Hz	4	R/W
AD	40174						

AE	40175	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
AF	40176	Dropout setpoint (frequency value	0.0000 – 99.9999	float	Hz	4	R/W
B0	40177	below this value clears alarm)					
B1	40178	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Under Frequency							
B2	40179	Alarm enable	0: Disable 1: Enable	word		2	R/W
B3	40180	Pickup setpoint (frequency value	0.0000 – 99.9999	float	Hz	4	R/W
B4	40181	below this value triggers alarm)					
B5	40182	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
B6	40183	Dropout setpoint (frequency value	0.0000 – 99.9999	float	Hz	4	R/W
B7	40184	exceeding this value, alarm cleared)					
B8	40185	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over THD Voltage							
B9	40186	Alarm enable	0: Disable 1: Enable	word		2	R/W
BA	40187	Pickup setpoint (THD voltage value	0.000 – 999.999	float	%	4	R/W

BB	40188	exceeding this value triggers alarm)					
BC	40189	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
BD	40190	Dropout setpoint (THD voltage value below this value, alarm cleared)	0.000 – 999.999	float	%	4	R/W
BE	40191						
BF	40192	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Over THD Current							
C0	40193	Alarm enable	0: Disable 1: Enable	word		2	R/W
C1	40194	Pickup setpoint (THD current value exceeding this value triggers alarm)	0.000 – 999.999	float	%	4	R/W
C2	40195						
C3	40196	Pickup time delay (alarm–trigger delay)	0 – 99	word	s	2	R/W
C4	40197	Dropout setpoint (THD current value below this value, alarm cleared)	0.000 – 999.999	float	%	4	R/W
C5	40198						
C6	40199	Dropout time delay (alarm–clear delay)	0 – 99	word	s	2	R/W
Alarm – Phase Loss							
C7	40200	Alarm enable	0: Disable 1: Enable	word		2	R/W
Alarm – Over DUI							

CE	40207	Alarm enable	0: Disable 1: Enable	word		2	R/W
CF	40208	Pickup setpoint (DUI value exceeding this	0.000 – 99999.999	float	kW / m ²	4	R/W
D0	40209	value triggers alarm)					
D1	40210	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
D2	40211	Dropout setpoint (DUI value below this	0.000 – 99999.999	float	kW / m ²	4	R/W
D3	40212	value, alarm cleared)					
D4	40213	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Over EUI							
D5	40214	Alarm enable	0: Disable 1: Enable	word		2	R/W
D6	40215	Pickup setpoint (EUI value exceeding this	0.000 – 99999.999	float	kWh/ m ²	4	R/W
D7	40216	value triggers alarm)					
D8	40217	Pickup time delay (alarm-trigger delay)	0 – 99	word	s	2	R/W
D9	40218	Dropout setpoint (EUI value below this	0.000 – 99999.999	float	kWh/ m ²	4	R/W
DA	40219	value, alarm cleared)					
DB	40220	Dropout time delay (alarm-clear delay)	0 – 99	word	s	2	R/W
Alarm – Meter Reset							
DC	40221	Alarm enable	0: Disable 1: Enable	word		2	R/W
Alarm – Phase Rotation							

DD	40222	Alarm enable	0: Disable 1: Enable	word		2	R/W
DE	41291	BACnet Device ID (H)	0 – 63	word		2	R/W
DF	41292	BACnet Device ID (L)	0 – 65535	word		2	R/W
1. Meter Parameters: 0100 – 01FF							
100	40257	Phase A voltage	0.000 – 99999.999	float	V	4	R
101	40258						
102	40259	Phase B voltage	0.000 – 99999.999	float	V	4	R
103	40260						
104	40261	Phase C voltage	0.000 – 99999.999	float	V	4	R
105	40262						
106	40263	Average phase voltage	0.000 – 99999.999	float	V	4	R
107	40264						
108	40265	A–B line voltage	0.000 – 99999.999	float	V	4	R
109	40266						
10A	40267	B–C line voltage	0.000 – 99999.999	float	V	4	R
10B	40268						
10C	40269	C–A line voltage	0.000 – 99999.999	float	V	4	R
10D	40270						
10E	40271	Average line voltage	0.000 – 99999.999	float	V	4	R
10F	40272						
110	40273	Phase A voltage unbalance	0.00 – 99.99	float	%	4	R
111	40274						
112	40275	Phase B voltage unbalance	0.00 – 99.99	float	%	4	R
113	40276						

114	40277	Phase C voltage	0.00 – 99.99	float	%	4	R
115	40278	unbalance					
116	40279	Phase voltage	0.00 – 99.99	float	%	4	R
117	40280	unbalance					
118	40281	A–B line voltage	0.00 – 99.99	float	%	4	R
119	40282	unbalance					
11A	40283	B–C line voltage	0.00 – 99.99	float	%	4	R
11B	40284	unbalance					
11C	40285	C–A line voltage	0.00 – 99.99	float	%	4	R
11D	40286	unbalance					
11E	40287	Line voltage	0.00 – 99.99	float	%	4	R
11F	40288	unbalance					
120	40289	Phase A current	0.000 – 99999.999	float	A	4	R
121	40290						
122	40291	Phase B current	0.000 – 99999.999	float	A	4	R
123	40292						
124	40293	Phase C current	0.000 – 99999.999	float	A	4	R
125	40294						
126	40295	Three-phase average	0.000 – 99999.999	float	A	4	R
127	40296	current					
128	40297	Neutral line current	0.000 – 99999.999	float	A	4	R
129	40298						
12A	40299	Phase A current	0.00 – 99.99	float	%	4	R
12B	40300	unbalance					

12C	40301	Phase B current	0.00 – 99.99	float	%	4	R
12D	40302	unbalance					
12E	40303	Phase C current	0.00 – 99.99	float	%	4	R
12F	40304	unbalance					
130	40305	Current unbalance	0.00 – 99.99	float	%	4	R
131	40306						
132	40307	Total power factor	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
133	40308						
134	40309	Power factor of phase A	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
135	40310						
136	40311	Power factor of phase B	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
137	40312						
138	40313	Power factor of phase C	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
139	40314						
13A	40315	Total displacement power factor	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
13B	40316						
13C	40317	Total displacement power factor of phase A	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
13D	40318						
13E	40319	Total displacement power factor of phase B	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
13F	40320						
140	40321	Total displacement power factor of phase C	-1.00000 – 1.00000 (positive: lag; negative: lead)	float		4	R
141	40322						
142	40323	Frequency	0.0000 – 99.9999	float	Hz	4	R
143	40324						

144	40325	Total instantaneous active power	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kW	4	R
145	40326						
146	40327	Instantaneous active power of phase A	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kW	4	R
147	40328						
148	40329	Instantaneous active power of phase B	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kW	4	R
149	40330						
14A	40331	Instantaneous active power of phase C	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kW	4	R
14B	40332						
14C	40333	Total instantaneous reactive power	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kVAR	4	R
14D	40334						
14E	40335	Instantaneous reactive power of phase A	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kVAR	4	R
14F	40336						
150	40337	Instantaneous reactive power of phase B	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kVAR	4	R
151	40338						
152	40339	Instantaneous reactive power of phase C	-99999.999 ~ 99999.999 (positive: power consumption; negative: power supply)	float	kVAR	4	R
153	40340						
154	40341	Instantaneous apparent power	0.000 – 99999.999	float	kVA	4	R
155	40342						
156	40343	Instantaneous apparent power of phase A	0.000 – 99999.999	float	kVA	4	R
157	40344						

158	40345	Instantaneous apparent power of phase B	0.000 – 99999.999	float	kVA	4	R
159	40346						
15A	40347	Instantaneous apparent power of phase C	0.000 – 99999.999	float	kVA	4	R
15B	40348						
15C	40349	Active energy of three - phase delivered	0.000 – 99999,999,999.999	float	kWh	4	R
15D	40350						
15E	40351	Active energy of three - phase received	0.000 – 99999,999,999.999	float	kWh	4	R
15F	40352						
160	40353	Reactive energy of three - phase delivered	0.000 – 99999,999,999.999	float	kVARh	4	R
161	40354						
162	40355	Reactive energy of three - phase received	0.000 – 99999,999,999.999	float	kVARh	4	R
163	40356						
164	40357	Apparent energy of three - phase delivered	0.000 – 99999,999,999.999	float	kVAh	4	R
165	40358						
166	40359	Apparent energy of three - phase received	0.000 – 99999,999,999.999	float	kVAh	4	R
167	40360						
168	40361	Active energy of three - phase delivered + active energy of three - phase received	0.000 – 99999,999,999.999	float	kWh	4	R
169	40362						
16A	40363	Active energy of three - phase delivered – active energy of three - phase received	0.000 – 99999,999,999.999	float	kWh	4	R
16B	40364						

16C	40365	Reactive energy of three - phase delivered + reactive	0.000 – 99999,999,999.999	float	kVARh	4	R
16D	40366	energy of three - phase received					
16E	40367	Reactive energy of three - phase delivered – reactive	0.000 – 99999,999,999.999	float	kVARh	4	R
16F	40368	energy of three - phase received					
170	40369	Apparent energy of three - phase delivered + apparent	0.000 – 99999,999,999.999	float	kVAh	4	R
171	40370	energy of three - phase received					
172	40371	Apparent energy of three - phase delivered – apparent	0.000 – 99999,999,999.999	float	kVAh	4	R
173	40372	energy of three - phase received					
174	40373	Total harmonic distortion for phase A	0.000 – 999.999	float	%	4	R
175	40374	current					
176	40375	Total harmonic distortion for phase B	0.000 – 999.999	float	%	4	R
177	40376	current					
178	40377	Total harmonic distortion for phase C	0.000 – 999.999	float	%	4	R
179	40378	current					
17A	40379	Total harmonic distortion for neutral	0.000 – 999.999	float	%	4	R
17B	40380	line current					
17C	40381	Total harmonic	0.000 – 999.999	float	%	4	R

17D	40382	distortion for phase A voltage					
17E	40383	Total harmonic distortion for phase B voltage	0.000 – 999.999	float	%	4	R
17F	40384						
180	40385	Total harmonic distortion for phase C voltage	0.000 – 999.999	float	%	4	R
181	40386						
182	40387	Total harmonic distortion for phase A–B voltage	0.000 – 999.999	float	%	4	R
183	40388						
184	40389	Total harmonic distortion for phase B–C voltage	0.000 – 999.999	float	%	4	R
185	40390						
186	40391	Total harmonic distortion for phase C–A voltage	0.000 – 999.999	float	%	4	R
187	40392						
188	40393	Total harmonic distortion for current	0.000 – 999.999	float	%	4	R
189	40394						
18A	40395	Total harmonic distortion for voltage	0.000 – 999.999	float	%	4	R
18B	40396						
18C	40397	Present three - phase current demand	0.000 – 99999.999	float	A	4	R
18D	40398						
18E	40399	Last three - phase average current demand	0.000 – 99999.999	float	A	4	R
18F	40400						
190	40401	Predicted three - phase average current demand	0.000 – 99999.999	float	A	4	R
191	40402						
192	40403	Peak value of three -	0.000 – 99999.999	float	A	4	R

193	40404	phase current demand					
194	40405	Date of the three - phase current peak demand value	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
195	40406		Date: 1–31	word	Date	2	R
196	40407	Time of the three - phase current peak demand value	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
197	40408		Second: 00–59	word	Second	2	R
198	40409	Present three - phase active power demand	0.000 – 99999.999	float	kW	4	R
199	40410						
19A	40411	Last three - phase active power demand	0.000 – 99999.999	float	kW	4	R
19B	40412						
19C	40413	Predicted three - phase active power demand	0.000 – 99999.999	float	kW	4	R
19D	40414						
19E	40415	Peak value of three - phase active power demand	0.000 – 99999.999	float	kW	4	R
19F	40416						
1A0	40417	Date of the three - phase active power demand	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
1A1	40418		Date: 1–31	word	Date	2	R
1A2	40419	Time of the three - phase active power demand	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
1A3	40420		Second: 00–59	word	Second	2	R

1A4	40421	Present three - phase	0.000 – 99999.999	float	kVAR	4	R
1A5	40422	reactive power demand					
1A6	40423	Last three - phase	0.000 – 99999.999	float	kVAR	4	R
1A7	40424	reactive power demand					
1A8	40425	Predicted three -	0.000 – 99999.999	float	kVAR	4	R
1A9	40426	phase reactive power demand					
1AA	40427	Peak value of three -	0.000 – 99999.999	float	kVAR	4	R
1AB	40428	phase reactive power demand					
1AC	40429	Date of the three -	Year: 00–99	byte	Year, Month	2	R
		phase reactive power	Month: 1–12				
1AD	40430	demand	Date: 1–31	word	Date	2	R
1AE	40431	Time of the three -	Hour: 00–23	byte	Hour, Minute	2	R
		phase reactive power	Minute: 00–59				
1AF	40432	demand	Second: 00–59	word	Second	2	R
1B0	40433	Present three - phase	0.000 – 99999.999	float	kVA	4	R
1B1	40434	apparent power demand					
1B2	40435	Last three - phase	0.000 – 99999.999	float	kVA	4	R
1B3	40436	apparent power demand					
1B4	40437	Predicted three -	0.000 – 99999.999	float	kVA	4	R
1B5	40438	phase apparent power demand					
1B6	40439	Peak value of three -	0.000 – 99999.999	float	kVA	4	R
1B7	40440	phase apparent power demand					

1B8	40441	Date of the three - phase apparent power demand	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
1B9	40442		Date: 1-31	word	Date	2	R
1BA	40443	Time of the three - phase apparent power demand	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
1BB	40444		Second: 00-59	word	Second	2	R
1BC	40445	DUI (kW / Floor Area)	0.000 – 99999.999	float	kW/m ²	4	R
1BD	40446						
1BE	40447	EUI (kWh / Floor Area)	0.000 – 99999,999,999.999	float	kWh/ m ²	4	R
1BF	40448						
1C0	40449	Auto Date 1 – positive active energy	0.000 – 99999,999,999.999	float	kWh	4	R
1C1	40450						
1C2	40451	Auto Date 1 – reversed active energy	0.000 – 99999,999,999.999	float	kWh	4	R
1C3	40452						
1C4	40453	Auto Date 2 – positive active energy	0.000 – 99999,999,999.999	float	kWh	4	R
1C5	40454						
1C6	40455	Auto Date 2 – reversed active energy	0.000 – 99999,999,999.999	float	kWh	4	R
1C7	40456						
1C8	40457	Auto Date 1 – positive reactive energy	0.000 – 99999,999,999.999	float	kVARh	4	R
1C9	40458						
1CA	40459	Auto Date 1 – reversed reactive energy	0.000 – 99999,999,999.999	float	kVARh	4	R
1CB	40460						
1CC	40461	Auto Date 2 – positive reactive energy	0.000 – 99999,999,999.999	float	kVARh	4	R
1CD	40462						

1CE	40463	Auto Date 2 –	0.000 – 99999,999,999.999	float	kVARh	4	R
1CF	40464	reversed reactive energy					
1D0	40465	Instantaneous total	0.000 – 99999.999	float	kW	4	R
1D1	40466	fundamental active power					
1D2	40467	Instantaneous	0.000 – 99999.999	float	kW	4	R
1D3	40468	fundamental active power of phase A					
1D4	40469	Instantaneous	0.000 – 99999.999	float	kW	4	R
1D5	40470	fundamental active power of phase B					
1D6	40471	Instantaneous	0.000 – 99999.999	float	kW	4	R
1D7	40472	fundamental active power of phase C					
1D8	40473	Instantaneous total	0.000 – 99999.999	float	kVAR	4	R
1D9	40474	fundamental reactive power					
1DA	40475	Instantaneous	0.000 – 99999.999	float	kVAR	4	R
1DB	40476	fundamental reactive power of phase A					
1DC	40477	Instantaneous	0.000 – 99999.999	float	kVAR	4	R
1DD	40478	fundamental reactive power of phase B					
1DE	40479	Instantaneous	0.000 – 99999.999	float	kVAR	4	R
1DF	40480	fundamental reactive power of phase C					
1E0	40481	Instantaneous	0.000 – 99999.999	float	kVA	4	R
1E1	40482	fundamental apparent power					
1E2	40483	Instantaneous	0.000 – 99999.999	float	kVA	4	R
1E3	40484	fundamental apparent power of phase A					
1E4	40485	Instantaneous	0.000 – 99999.999	float	kVA	4	R

1E5	40486	fundamental apparent power of phase B					
1E6	40487	Instantaneous fundamental apparent power of phase C	0.000 – 99999.999	float	kVA	4	R
1E7	40488						
2. Maximum: 0200 – 02FF							
200	40513	Maximum A–B line voltage	0.000 – 99999.999	float	V	4	R
201	40514						
202	40515	Date of maximum A–B line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
203	40516		Date: 1–31	word	Date	2	R
204	40517	Time of maximum A–B line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
205	40518		Second: 00–59	word	Second	2	R
206	40519	Maximum B–C line voltage	0.000 – 99999.999	float	V	4	R
207	40520						
208	40521	Date of maximum B–C line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
209	40522		Date: 1–31	word	Date	2	R
20A	40523	Time of maximum B–C line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
20B	40524		Second: 00–59	word	Second	2	R
20C	40525	Maximum C–A line voltage	0.000 – 99999.999	float	V	4	R
20D	40526						

20E	40527	Date of maximum C–A line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
20F	40528		Date: 1–31	word	Date	2	R
210	40529	Time of maximum C–A line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
211	40530		Second: 00–59	word	Second	2	R
212	40531	Maximum phase A voltage	0.000 – 99999.999	float	V	4	R
213	40532						
214	40533	Date of maximum phase A voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
215	40534		Date: 1–31	word	Date	2	R
216	40535	Time of maximum phase A voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
217	40536		Second: 00–59	word	Second	2	R
218	40537	Maximum phase B voltage	0.000 – 99999.999	float	V	4	R
219	40538						
21A	40539	Date of maximum phase B voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
21B	40540		Date: 1–31	word	Date	2	R
21C	40541	Time of maximum phase B voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
21D	40542		Second: 00–59	word	Second	2	R
21E	40543	Maximum phase C voltage	0.000 – 99999.999	float	V	4	R
21F	40544						

220	40545	Date of maximum phase C voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
221	40546		Date: 1–31	word	Date	2	R
222	40547	Time of maximum phase C voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
223	40548		Second: 00–59	word	Second	2	R
224	40549	Maximum phase A current	0.000 – 99999.999	float	A	4	R
225	40550						
226	40551	Date of maximum phase A current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
227	40552		Date: 1–31	word	Date	2	R
228	40553	Time of maximum phase A current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
229	40554		Second: 00–59	word	Second	2	R
22A	40555	Maximum phase B current	0.000 – 99999.999	float	A	4	R
22B	40556						
22C	40557	Date of maximum phase B current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
22D	40558		Date: 1–31	word	Date	2	R
22E	40559	Time of maximum phase B current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
22F	40560		Second: 00–59	word	Second	2	R
230	40561	Maximum phase C current	0.000 – 99999.999	float	A	4	R
231	40562						

232	40563	Date of maximum phase C current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
233	40564		Date: 1–31	word	Date	2	R
234	40565	Time of maximum phase C current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
235	40566		Second: 00–59	word	Second	2	R
236	40567	Maximum neutral line current	0.000 – 99999.999	float	A	4	R
237	40568						
238	40569	Date of maximum neutral line current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
239	40570		Date: 1–31	word	Date	2	R
23A	40571	Time of maximum neutral line current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
23B	40572		Second: 00–59	word	Second	2	R
23C	40573	Maximum frequency value	0.0000 – 99.9999	float	Hz	4	R
23D	40574						
23E	40575	Date of maximum frequency value	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
23F	40576		Date: 1–31	word	Date	2	R
240	40577	Time of maximum frequency value	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
241	40578		Second: 00–59	word	Second	2	R
242	40579	Maximum total power factor	0.00000 – 1.00000	float		4	R
243	40580						

244	40581	Date of maximum total power factor	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
245	40582		Date: 1–31	word	Date	2	R
246	40583	Time of maximum total power factor	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
247	40584		Second: 00–59	word	Second	2	R
248	40585	Maximum total active power	0.000 – 99999.999	float	kW	4	R
249	40586						
24A	40587	Date of maximum total active power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
24B	40588		Date: 1–31	word	Date	2	R
24C	40589	Time of maximum total active power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
24D	40590		Second: 00–59	word	Second	2	R
24E	40591	Maximum total reactive power	0.000 – 99999.999	float	kVAR	4	R
24F	40592						
250	40593	Date of maximum total reactive power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
251	40594		Date: 1–31	word	Date	2	R
252	40595	Time of maximum total reactive power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
253	40596		Second: 00–59	word	Second	2	R
254	40597	Maximum total apparent power	0.000 – 99999.999	float	kVA	4	R
255	40598						

256	40599	Date of maximum total apparent power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
257	40600		Date: 1–31	word	Date	2	R
258	40601	Time of maximum total apparent power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
259	40602		Second: 00–59	word	Second	2	R
25A	40603	Maximum Total harmonic distortion for	0.000 – 999.999	float	%	4	R
25B	40604	A–B line voltage					
25C	40605	Date of maximum total harmonic distortion for A–B	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
25D	40606	line voltage	Date: 1–31	word	Date	2	R
25E	40607	Time of maximum total harmonic distortion for A–B	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
25F	40608	line voltage	Second: 00–59	word	Second	2	R
260	40609	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
261	40610	B–C line voltage					
262	40611	Date of maximum total harmonic distortion for B–C	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
263	40612	line voltage	Date: 1–31	word	Date		
264	40613	Time of maximum total harmonic distortion for B–C	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
265	40614	line voltage	Second: 00–59	word	Second		
266	40615	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
267	40616	C–A line voltage					

268	40617	Date of maximum total harmonic distortion for C-A	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
269	40618	line voltage	Date: 1-31	word	Date	2	R
26A	40619	Time of maximum total harmonic distortion for C-A	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
26B	40620	line voltage	Second: 00-59	word	Second	2	R
26C	40621	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
26D	40622	phase A voltage					
26E	40623	Date of maximum total harmonic distortion for phase	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
26F	40624	A voltage	Date: 1-31	word	Date		
270	40625	Time of maximum total harmonic distortion for phase	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
271	40626	A voltage	Second: 00-59	word	Second		
272	40627	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
273	40628	phase B voltage					
274	40629	Date of maximum total harmonic distortion for phase	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
275	40630	B voltage	Date: 1-31	word	Date		
276	40631	Time of maximum total harmonic distortion for phase	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
277	40632	B voltage	Second: 00-59	word	Second		
278	40633	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
279	40634	phase C voltage					

27A	40635	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
27B	40636	C voltage	Date: 1–31	word	Date		
27C	40637	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
27D	40638	C voltage	Second: 00–59	word	Second	2	R
27E	40639	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
27F	40640	line voltage					
280	40641	Date of maximum total harmonic distortion for line	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
281	40642	voltage	Date: 1–31	word	Date		
282	40643	Time of maximum total harmonic distortion for line	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
283	40644	voltage	Second: 00–59	word	Second		
284	40645	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
285	40646	phase voltage					
286	40647	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
287	40648	voltage	Date: 1–31	word	Date		
288	40649	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
289	40650	voltage	Second: 00–59	word	Second	2	R
28A	40651	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
28B	40652	phase A current					

28C	40653	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
28D	40654	A current	Date: 1–31	word	Date		
28E	40655	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
28F	40656	A current	Second: 00–59	word	Second	2	R
290	40657	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
291	40658	phase B current					
292	40659	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
293	40660	B current	Date: 1–31	word	Date		
294	40661	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
295	40662	B current	Second: 00–59	word	Second		
296	40663	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
297	40664	phase C current					
298	40665	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
299	40666	C current	Date: 1–31	word	Date		
29A	40667	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
29B	40668	C current	Second: 00–59	word	Second		
29C	40669	Maximum total harmonic distortion for	0.000 – 999.999	float	%	4	R
29D	40670	current					

29E	40671	Date of maximum total harmonic distortion for current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
29F	40672		Date: 1–31	word	Date		
2A0	40673	Time of maximum total harmonic distortion for current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2A1	40674		Second: 00–59	word	Second		
2A2	40675	Maximum total harmonic distortion for A–B line voltage unbalance	0.00 – 99.99	float	%	4	R
2A3	40676						
2A4	40677	Date of maximum total harmonic distortion for A–B line voltage unbalance	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2A5	40678		Date: 1–31	word	Date		
2A6	40679	Time of maximum total harmonic distortion for A–B line voltage unbalance	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2A7	40680		Second: 00–59	word	Second		
2A8	40681	Maximum total harmonic distortion for B–C line voltage unbalance	0.00 – 99.99	float	%	4	R
2A9	40682						
2AA	40683	Date of maximum total harmonic distortion for B–C line voltage unbalance	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2AB	40684		Date: 1–31	word	Date		
2AC	40685	Time of maximum total harmonic distortion for B–C line voltage unbalance	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

2AD	40686	line voltage unbalance	Second: 00–59	word	Second		
2AE	40687	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2AF	40688	C–A line voltage unbalance					
2B0	40689	Date of maximum total harmonic distortion for C–A	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2B1	40690	line voltage unbalance	Date: 1–31	word	Date		
2B2	40691	Time of maximum total harmonic distortion for C–A	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2B3	40692	line voltage unbalance	Second: 00–59	word	Second		
2B4	40693	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2B5	40694	phase A voltage unbalance					
2B6	40695	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2B7	40696	A voltage unbalance	Date: 1–31	word	Date		
2B8	40697	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2B9	40698	A voltage unbalance	Second: 00–59	word	Second		
2BA	40699	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2BB	40700	phase B voltage unbalance					

2BC	40701	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2BD	40702	B voltage unbalance	Date: 1–31	word	Date		
2BE	40703	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2BF	40704	B voltage unbalance	Second: 00–59	word	Second		
2C0	40705	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2C1	40706	phase C voltage unbalance					
2C2	40707	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2C3	40708	C voltage unbalance	Date: 1–31	word	Date		
2C4	40709	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2C5	40710	C voltage unbalance	Second: 00–59	word	Second		
2C6	40711	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2C7	40712	line voltage unbalance					
2C8	40713	Date of maximum total harmonic distortion for line	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2C9	40714	voltage unbalance	Date: 1–31	word	Date	2	R
2CA	40715	Time of maximum total harmonic distortion for line	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2CB	40716	voltage unbalance	Second: 00–59	word	Second	2	R

2CC	40717	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2CD	40718	phase voltage unbalance					
2CE	40719	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2CF	40720	voltage unbalance	Date: 1–31	word	Date		
2D0	40721	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2D1	40722	voltage unbalance	Second: 00–59	word	Second		
2D2	40723	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2D3	40724	phase A current unbalance					
2D4	40725	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2D5	40726	A current unbalance	Date: 1–31	word	Date		
2D6	40727	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2D7	40728	A current unbalance	Second: 00–59	word	Second		
2D8	40729	Maximum total harmonic distortion for	0.00 – 99.99	float	%	4	R
2D9	40730	phase B current unbalance					
2DA	40731	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2DB	40732	B current unbalance	Date: 1–31	word	Date		

2DC	40733	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2DD	40734	B current unbalance	Second: 00–59	word	Second		
2DE	40735	Maximum total harmonic distortion for phase C current unbalance	0.00 – 99.99	float	%	4	R
2DF	40736						
2E0	40737	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2E1	40738	C current unbalance	Date: 1–31	word	Date		
2E2	40739	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2E3	40740	C current unbalance	Second: 00–59	word	Second		
2E4	40741	Maximum total harmonic distortion for phase current unbalance	0.00 – 99.99	float	%	2	R
2E5	40742						
2E6	40743	Date of maximum total harmonic distortion for phase	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
2E7	40744	current unbalance	Date: 1–31	word	Date		
2E8	40745	Time of maximum total harmonic distortion for phase	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
2E9	40746	current unbalance	Second: 00–59	word	Second		
3. Minimum: 0300 – 03FF							
300	40769	Minimum A–B line voltage	0.000 – 99999.999	float	V	4	R
301	40770						

302	40771	Date of minimum A-B line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
303	40772		Date: 1-31	word	Date	2	R
304	40773	Time of minimum A-B line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
305	40774		Second: 00-59	word	Second	2	R
306	40775	Minimum B-C line voltage	0.000 – 99999.999	float	V	4	R
307	40776						
308	40777	Date of minimum B-C line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
309	40778		Date: 1-31	word	Date	2	R
30A	40779	Time of minimum B-C line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
30B	40780		Second: 00-59	word	Second	2	R
30C	40781	Minimum C-A line voltage	0.000 – 99999.999	float	V	4	R
30D	40782						
30E	40783	Date of minimum C-A line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
30F	40784		Date: 1-31	word	Date	2	R
310	40785	Time of minimum C-A line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
311	40786		Second: 00-59	word	Second	2	R
312	40787	Minimum phase A voltage	0.000 – 99999.999	float	V	4	R
313	40788						

314	40789	Date of minimum phase A voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
315	40790		Date: 1–31	word	Date	2	R
316	40791	Time of minimum phase A voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
317	40792		Second: 00–59	word	Second	2	R
318	40793	Minimum phase B voltage	0.000 – 99999.999	float	V	4	R
319	40794						
31A	40795	Date of minimum phase B voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
31B	40796		Date: 1–31	word	Date	2	R
31C	40797	Time of minimum phase B voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
31D	40798		Second: 00–59	word	Second	2	R
31E	40799	Minimum phase C voltage	0.000 – 99999.999	float	V	4	R
31F	40800						
320	40801	Date of minimum phase C voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
321	40802		Date: 1–31	word	Date	2	R
322	40803	Time of minimum phase C voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
323	40804		Second: 00–59	word	Second	2	R
324	40805	Minimum phase A current	0.000 – 99999.999	float	A	4	R
325	40806						

326	40807	Date of minimum phase A current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
327	40808		Date: 1–31	word	Date	2	R
328	40809	Time of minimum phase A current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
329	40810		Second: 00–59	word	Second	2	R
32A	40811	Minimum phase B current	0.000 – 99999.999	float	A	4	R
32B	40812						
32C	40813	Date of minimum phase B current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
32D	40814		Date: 1–31	word	Date	2	R
32E	40815	Time of minimum phase B current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
32F	40816		Second: 00–59	word	Second	2	R
330	40817	Minimum phase C current	0.000 – 99999.999	float	A	4	R
331	40818						
332	40819	Date of minimum phase C current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
333	40820		Date: 1–31	word	Date	2	R
334	40821	Time of minimum phase C current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
335	40822		Second: 00–59	word	Second	2	R
336	40823	Minimum neutral line current	0.000 – 99999.999	float	A	4	R
337	40824						

338	40825	Date of minimum neutral line current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
339	40826		Date: 1–31	word	Date	2	R
33A	40827	Time of minimum neutral line current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
33B	40828		Second: 00–59	word	Second	2	R
33C	40829	Minimum frequency value	0.0000 – 99.9999	float	Hz	4	R
33D	40830						
33E	40831	Date of minimum frequency value	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
33F	40832		Date: 1–31	word	Date	2	R
340	40833	Time of minimum frequency value	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
341	40834		Second: 00–59	word	Second	2	R
342	40835	Minimum total power factor	0.00000 – 1.00000	float		4	R
343	40836						
344	40837	Date of minimum total power factor	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
345	40838		Date: 1–31	word	Date	2	R
346	40839	Time of minimum total power factor	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
347	40840		Second: 00–59	word	Second	2	R
348	40841	Minimum total active power	0.000 – 99999.999	float	kW	4	R
349	40842						

34A	40843	Date of minimum total active power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
34B	40844		Date: 1–31	word	Date	2	R
34C	40845	Time of minimum total active power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
34D	40846		Second: 00–59	word	Second	2	R
34E	40847	Minimum total reactive power	0.000 – 99999.999	float	kVAR	4	R
34F	40848						
350	40849	Date of minimum total reactive power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
351	40850		Date: 1–31	word	Date	2	R
352	40851	Time of minimum total reactive power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
353	40852		Second: 00–59	word	Second	2	R
354	40853	Minimum total apparent power	0.000 – 99999.999	float	kVA	4	R
355	40854						
356	40855	Date of minimum total apparent power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
357	40856		Date: 1–31	word	Date	2	R
358	40857	Time of minimum total apparent power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
359	40858		Second: 00–59	word	Second	2	R
35A	40859	Minimum total harmonic distortion for	0.000 – 999.999	float	%	4	R
35B	40860	A–B line voltage					

35C	40861	Date of minimum total harmonic distortion for A-B line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
35D	40862		Date: 1-31	word	Date		
35E	40863	Time of minimum total harmonic distortion for A-B line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
35F	40864		Second: 00-59	word	Second		
360	40865	Minimum total harmonic distortion for B-C line voltage	0.000 – 999.999	float	%	4	R
361	40866						
362	40867	Date of minimum total harmonic distortion for B-C line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
363	40868		Date: 1-31	word	Date		
364	40869	Time of minimum total harmonic distortion for B-C line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
365	40870		Second: 00-59	word	Second		
366	40871	Minimum total harmonic distortion for C-A line voltage	0.000 – 999.999	float	%	4	R
367	40872						
368	40873	Date of minimum total harmonic distortion for C-A line voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
369	40874		Date: 1-31	word	Date	2	R
36A	40875	Time of minimum total harmonic distortion for C-A line voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
36B	40876		Second: 00-59	word	Second		
36C	40877	Minimum total harmonic distortion for phase A voltage	0.000 – 999.999	float	%	4	R
36D	40878						

36E	40879	Date of minimum total harmonic distortion for phase A voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
36F	40880		Date: 1–31	word	Date		
370	40881	Time of minimum total harmonic distortion for phase A voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
371	40882		Second: 00–59	word	Second		
372	40883	Minimum total harmonic distortion for phase B voltage	0.000 – 999.999	float	%	4	R
373	40884						
374	40885	Date of minimum total harmonic distortion for phase B voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
375	40886		Date: 1–31	word	Date		
376	40887	Time of minimum total harmonic distortion for phase B voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
377	40888		Second: 00–59	word	Second		
378	40889	Minimum total harmonic distortion for phase C voltage	0.000 – 999.999	float	%	4	R
379	40890						
37A	40891	Date of minimum total harmonic distortion for phase C voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
37B	40892		Date: 1–31	word	Date		
37C	40893	Time of minimum total harmonic distortion for phase C voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
37D	40894		Second: 00–59	word	Second		
37E	40895	Minimum total harmonic distortion for line voltage	0.000 – 999.999	float	%	4	R
37F	40896						

380	40897	Date of minimum total harmonic distortion for line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
381	40898		Date: 1–31	word	Date		
382	40899	Time of minimum total harmonic distortion for line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
383	40900		Second: 00–59	word	Second		
384	40901	Minimum total harmonic distortion for phase voltage	0.000 – 999.999	float	%	4	R
385	40902						
386	40903	Date of minimum total harmonic distortion for phase voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
387	40904		Date: 1–31	word	Date		
388	40905	Time of minimum total harmonic distortion for phase voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
389	40906		Second: 00–59	word	Second		
38A	40907	Minimum total harmonic distortion for phase A current	0.000 – 999.999	float	%	4	R
38B	40908						
38C	40909	Date of minimum total harmonic distortion for phase A current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
38D	40910		Date: 1–31	word	Date		
38E	40911	Time of minimum total harmonic distortion for phase A current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
38F	40912		Second: 00–59	word	Second		
390	40913	Minimum total harmonic distortion for phase B current	0.000 – 999.999	float	%	4	R
391	40914						

392	40915	Date of minimum total harmonic distortion for phase B current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
393	40916		Date: 1–31	word	Date		
394	40917	Time of minimum total harmonic distortion for phase B current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
395	40918		Second: 00–59	word	Second		
396	40919	Minimum total harmonic distortion for phase C current	0.000 – 999.999	float	%	4	R
397	40920						
398	40921	Date of minimum total harmonic distortion for phase C current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
399	40922		Date: 1–31	word	Date		
39A	40923	Time of minimum total harmonic distortion for phase C current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
39B	40924		Second: 00–59	word	Second		
39C	40925	Minimum total harmonic distortion for current	0.000 – 999.999	float	%	4	R
39D	40926						
39E	40927	Date of minimum total harmonic distortion for current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
39F	40928		Date: 1–31	word	Date		
3A0	40929	Time of minimum total harmonic distortion for current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3A1	40930		Second: 00–59	word	Second		
3A2	40931	Minimum total harmonic distortion for	0.00 – 99.99	float	%	4	R

3A3	40932	A–B line voltage unbalance					
3A4	40933	Date of minimum total harmonic distortion for A–B line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3A5	40934	unbalance	Date: 1–31	word	Date		
3A6	40935	Time of minimum total harmonic distortion for A–B line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3A7	40936	unbalance	Second: 00–59	word	Second		
3A8	40937	Minimum total harmonic distortion for B–C line voltage	0.00 – 99.99	float	%	4	R
3A9	40938	unbalance					
3AA	40939	Date of minimum total harmonic distortion for B–C line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3AB	40940	unbalance	Date: 1–31	word	Date		
3AC	40941	Time of minimum total harmonic distortion for B–C line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3AD	40942	unbalance	Second: 00–59	word	Second		
3AE	40943	Minimum total harmonic distortion for C–A line voltage	0.00 – 99.99	float	%	4	R
3AF	40944	unbalance					
3B0	40945	Date of minimum total harmonic distortion for C–A line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3B1	40946	unbalance	Date: 1–31	word	Date		
3B2	40947	Time of minimum total harmonic distortion for C–A line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

3B3	40948	unbalance	Second: 00–59	word	Second		
3B4	40949	Minimum total harmonic distortion for phase A voltage	0.00 – 99.99	float	%	4	R
3B5	40950	unbalance					
3B6	40951	Date of minimum total harmonic distortion for phase A voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3B7	40952	unbalance	Date: 1–31	word	Date		
3B8	40953	Time of minimum total harmonic distortion for phase A voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3B9	40954	unbalance	Second: 00–59	word	Second		
3BA	40955	Minimum total harmonic distortion for phase B voltage	0.00 – 99.99	float	%	4	R
3BB	40956	unbalance					
3BC	40957	Date of minimum total harmonic distortion for phase B voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3BD	40958	unbalance	Date: 1–31	word	Date		
3BE	40959	Time of minimum total harmonic distortion for phase B voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3BF	40960	unbalance	Second: 00–59	word	Second		
3C0	40961	Minimum total harmonic distortion for phase C voltage	0.00 – 99.99	float	%	4	R
3C1	40962	unbalance					
3C2	40963	Date of minimum total harmonic distortion for phase C voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3C3	40964	unbalance	Date: 1–31	word	Date		

3C4	40965	Time of minimum total harmonic distortion for phase C voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3C5	40966	unbalance	Second: 00–59	word	Second		
3C6	40967	Minimum total harmonic distortion for line voltage	0.00 – 99.99	float	%	4	R
3C7	40968	unbalance					
3C8	40969	Date of minimum total harmonic distortion for line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3C9	40970	unbalance	Date: 1–31	word	Date		
3CA	40971	Time of minimum total harmonic distortion for line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3CB	40972	unbalance	Second: 00–59	word	Second		
3CC	40973	Minimum total harmonic distortion for phase voltage	0.00 – 99.99	float	%	4	R
3CD	40974	unbalance					
3CE	40975	Date of minimum total harmonic distortion for phase voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3CF	40976	unbalance	Date: 1–31	word	Date		
3D0	40977	Time of minimum total harmonic distortion for phase voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3D1	40978	unbalance	Second: 00–59	word	Second		
3D2	40979	Minimum total harmonic distortion for phase A current	0.00 – 99.99	float	%	4	R
3D3	40980	unbalance					

3D4	40981	Date of minimum total harmonic distortion for phase A current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3D5	40982	unbalance	Date: 1–31	word	Date		
3D6	40983	Time of minimum total harmonic distortion for phase A current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3D7	40984	unbalance	Second: 00–59	word	Second		
3D8	40985	Minimum total harmonic distortion for phase B current	0.00 – 99.99	float	%	4	R
3D9	40986	unbalance					
3DA	40987	Date of minimum total harmonic distortion for phase B current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3DB	40988	unbalance	Date: 1–31	word	Date		
3DC	40989	Time of minimum total harmonic distortion for phase B current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3DD	40990	unbalance	Second: 00–59	word	Second		
3DE	40991	Minimum total harmonic distortion for phase C current	0.00 – 99.99	float	%	4	R
3DF	40992	unbalance					
3E0	40993	Date of minimum total harmonic distortion for phase C current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3E1	40994	unbalance	Date: 1–31	word	Date		
3E2	40995	Time of minimum total harmonic distortion for phase C current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3E3	40996	unbalance	Second: 00–59	word	Second		

3E4	40997	Minimum total harmonic distortion for phase current unbalance	0.00 – 99.99	float	%	2	R
3E5	40998						
3E6	40999	Date of minimum total harmonic distortion for phase current unbalance	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
3E7	41000		Date: 1–31	word	Date		
3E8	41001	Time of minimum total harmonic distortion for phase current unbalance	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
3E9	41002		Second: 00–59	word	Second		
4. Alarm : 0400 – 04FF							
400	41025	Alarm status of over current	0: Cleared 1: Triggered	word		2	R
401	41026	Alarm times of over current	1–255	word	Times	2	R
402	41027	Alarm date of over current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
403	41028		Date: 1–31	word	Date		
404	41029	Alarm time of over current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
405	41030		Second: 00–59	word	Second		
406	41031	Alarm status of under current	0: Cleared 1: Triggered	word		2	R
407	41032	Alarm times of under current	1–255	word	Times	2	R

408	41033	Alarm date of under current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
409	41034		Date: 1–31	word	Date		
40A	41035	Alarm time of under current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
40B	41036		Second: 00–59	word	Second		
40C	41037	Alarm status of over neutral current	0: Cleared 1: Triggered	word		2	R
40D	41038	Alarm times of over neutral current	1–255	word	Times	2	R
40E	41039	Alarm date of over neutral current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
40F	41040		Date: 1–31	word	Date		
410	41041	Alarm time of over neutral current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
411	41042		Second: 00–59	word	Second		
412	41043	Alarm status of over line voltage	0: Cleared 1: Triggered	word		2	R
413	41044	Alarm times of over line voltage	1–255	word	Times	2	R
414	41045	Alarm date of over line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
415	41046		Date: 1–31	word	Date		
416	41047	Alarm time of over line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

417	41048		Second: 00–59	word	Second		
418	41049	Alarm status of under line voltage	0: Cleared 1: Triggered	word		2	R
419	41050	Alarm times of under line voltage	1–255	word	Times	2	R
41A	41051	Alarm date of under line voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
41B	41052		Date: 1–31	word	Date		
41C	41053	Alarm time of under line voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
41D	41054		Second: 00–59	word	Second		
41E	41055	Alarm status of over phase voltage	0: Cleared 1: Triggered	word		2	R
41F	41056	Alarm times of over phase voltage	1–255	word	Times	2	R
420	41057	Alarm date of over phase voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
421	41058		Date: 1–31	word	Date		
422	41059	Alarm time of over phase voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
423	41060		Second: 00–59	word	Second		
424	41061	Alarm status of under voltage	0: Cleared 1: Triggered	word		2	R
425	41062	Alarm times of under phase voltage	1–255	word	Times	2	R

426	41063	Alarm date of under phase voltage	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
427	41064		Date: 1–31	word	Date		
428	41065	Alarm time of under phase voltage	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
429	41066		Second: 00–59	word	Second		
42A	41067	Alarm status of over voltage unbalance	0: Cleared 1: Triggered	word		2	R
42B	41068	Alarm times of over voltage unbalance	1–255	word	Times	2	R
42C	41069	Alarm date of over voltage unbalance	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
42D	41070		Date: 1–31	word	Date		
42E	41071	Alarm time of over voltage unbalance	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
42F	41072		Second: 00–59	word	Second		
430	41073	Alarm status of over current unbalance	0: Cleared 1: Triggered	word		2	R
431	41074	Alarm times of over current unbalance	1–255	word	Times	2	R
432	41075	Alarm date of over current unbalance	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
433	41076		Date: 1–31	word	Date		
434	41077	Alarm time of over current unbalance	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

435	41078		Second: 00–59	word	Second		
436	41079	Alarm status of over active energy	0: Cleared 1: Triggered	word		2	R
437	41080	Alarm times of over active energy	1–255	word	Times	2	R
438	41081	Alarm date of over active energy	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
439	41082		Date: 1–31	word	Date		
43A	41083	Alarm time of over active energy	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
43B	41084		Second: 00–59	word	Second		
43C	41085	Alarm status of over reactive energy	0: Cleared 1: Triggered	word		2	R
43D	41086	Alarm times of over reactive energy	1–255	word	Times	2	R
43E	41087	Alarm date of over reactive energy	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
43F	41088		Date: 1–31	word	Date		
440	41089	Alarm time of over reactive energy	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
441	41090		Second: 00–59	word	Second		
442	41091	Alarm status of over apparent power	0: Cleared 1: Triggered	word		2	R
443	41092	Alarm times of over apparent power	1, 255	word	Times	2	R

444	41093	Alarm date of over apparent power	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
445	41094		Date: 1–31	word	Date		
446	41095	Alarm time of over apparent power	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
447	41096		Second: 00–59	word	Second		
448	41097	Alarm status of power factor (lead)	0: Cleared 1: Triggered	word		2	R
449	41098	Alarm times of power factor (lead)	1–255	word	Times	2	R
44A	41099	Alarm date of power factor (lead)	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
44B	41100		Date: 1–31	word	Date		
44C	41101	Alarm time of power factor (lead)	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
44D	41102		Second: 00–59	word	Second		
44E	41103	Alarm status of power factor (lag)	0: Cleared 1: Triggered	word		2	R
44F	41104	Alarm times of power factor (lag)	1–255	word	Times	2	R
450	41105	Alarm date of power factor (lag)	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
451	41106		Date: 1–31	word	Date		
452	41107	Alarm time of power factor (lag)	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

453	41108		Second: 00–59	word	Second		
454	41109	Alarm status of displacement power factor (lead)	0: Cleared 1: Triggered	word		2	R
455	41110	Alarm times of displacement power factor (lead)	1–255	word	Times	2	R
456	41111	Alarm date of displacement power factor (lead)	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
457	41112		Date: 1–31	word	Date		
458	41113	Alarm time of displacement power factor (lead)	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
459	41114		Second: 00–59	word	Second		
45A	41115	Alarm status of displacement power factor (lag)	0: Cleared 1: Triggered	word		2	R
45B	41116	Alarm times of displacement power factor (lag)	1–255	word	Times	2	R
45C	41117	Alarm date of displacement power factor (lag)	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
45D	41118		Date: 1–31	word	Date		
45E	41119	Alarm time of displacement power factor (lag)	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
45F	41120		Second: 00–59	word	Second		
460	41121	Alarm status of over current demand	0: Cleared 1: Triggered	word		2	R

461	41122	Alarm times of over current demand	1-255	word	Times	2	R
462	41123	Alarm date of over current demand	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
463	41124		Date: 1-31	word	Date		
464	41125	Alarm time of over current demand	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
465	41126		Second: 00-59	word	Second		
466	41127	Alarm status of over active power demand	0: Cleared 1: Triggered	word		2	R
467	41128	Alarm times of over active power demand	1-255	word	Times	2	R
468	41129	Alarm date of over active power demand	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
469	41130		Date: 1-31	word	Date		
46A	41131	Alarm time of over active power demand	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
46B	41132		Second: 00-59	word	Second		
46C	41133	Alarm status of over reactive power demand	0: Cleared 1: Triggered	word		2	R
46D	41134	Alarm times of over reactive power demand	1-255	word	Times	2	R
46E	41135	Alarm date of over reactive power demand alarm	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
46F	41136		Date: 1-31	word	Date		

470	41137	Alarm time of over reactive power demand	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
471	41138		Second: 00–59	word	Second		
472	41139	Alarm status of over apparent power demand	0: Cleared 1: Triggered	word		2	R
473	41140	Alarm times of over apparent power demand	1–255	word	Times	2	R
474	41141	Alarm date of over apparent power demand	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
475	41142		Date: 1–31	word	Date		
476	41143	Alarm time of over apparent power demand	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
477	41144		Second: 00–59	word	Second		
478	41145	Alarm status of over frequency	0: Cleared 1: Triggered	word		2	R
479	41146	Alarm times of over frequency	1, 255	word	Times	2	R
47A	41147	Alarm date of over frequency	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
47B	41148		Date: 1–31	word	Date		
47C	41149	Alarm time of over frequency	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
47D	41150		Second: 00–59	word	Second		

47E	41151	Alarm status of under frequency	0: Cleared 1: Triggered	word		2	R
47F	41152	Alarm times of under frequency	1-255	word	Times	2	R
480	41153	Alarm date of under frequency	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
481	41154		Date: 1-31	word	Date		
482	41155	Alarm time of under frequency	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
483	41156		Second: 00-59	word	Second		
484	41157	Alarm status of total harmonic distortion for over voltage	0: Cleared 1: Triggered	word		2	R
485	41158	Alarm times of total harmonic distortion for over voltage	1-255	word	Times	2	R
486	41159	Alarm date of total harmonic distortion for over voltage	Year: 00-99 Month: 1-12	byte	Year, Month	2	R
487	41160		Date: 1-31	word	Date		
488	41161	Alarm time of total harmonic distortion for over voltage	Hour: 00-23 Minute: 00-59	byte	Hour, Minute	2	R
489	41162		Second: 00-59	word	Second		
48A	41163	Alarm status of total harmonic distortion for over current	0: Cleared 1: Triggered	word		2	R
48B	41164	Alarm times of total harmonic distortion for over current	1-255	word	Times	2	R

48C	41165	Alarm date of total harmonic distortion for over current	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
48D	41166		Date: 1–31	word	Date		
48E	41167	Alarm time of total harmonic distortion for over current	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
48F	41168		Second: 00–59	word	Second		
490	41169	Alarm status of phase loss	0: Cleared 1: Triggered	word		2	R
491	41170	Alarm times of phase loss	1–255	word	Times	2	R
492	41171	Alarm date of phase loss	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
493	41172		Date: 1–31	word	Date	2	R
494	41173	Alarm time of phase loss	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
495	41174		Second: 00–59	word	Second	2	R
496	41175	Alarm status of meter reset	0: Cleared 1: Triggered	word		2	R
497	41176	Alarm times of meter reset	1–255	word	Times	2	R
498	41177	Alarm date of meter reset	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
499	41178		Date: 1–31	word	Date	2	R
49A	41179	Alarm time of meter reset	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

49B	41180		Second: 00–59	word	Second	2	R
49C	41181	Alarm status of phase rotation	0: Cleared 1: Triggered	word		2	R
49D	41182	Alarm times of phase rotation	1–255	word	Times	2	R
49E	41183	Alarm date of phase rotation	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
49F	41184		Date: 1–31	word	Date	2	R
4A0	41185	Alarm time of phase rotation	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
4A1	41186		Second: 00–59	word	Second	2	R
4A2	41187	Alarm status of over DUI	0: Cleared 1: Triggered	word		2	R
4A3	41188	Alarm times of over DUI	1–255	word	Times	2	R
4A4	41189	Alarm date of over DUI	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
4A5	41190		Date: 1–31	word	Date	2	R
4A6	41191	Alarm time of over DUI	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
4A7	41192		Second: 00–59	word	Second	2	R
4A8	41193	Alarm status of over EUI	0: Cleared 1: Triggered	word		2	R
4A9	41194	Alarm times of over EUI	1–255	word	Times	2	R

4AA	41195	Alarm date of over EUI	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
4AB	41196		Date: 1–31	word	Date	2	R
4AC	41197	Alarm time of over EUI	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
4AD	41198		Second: 00–59	word	Second	2	R
5. Advanced Settings: 0500 – 05FF							
500	41281	Floor Area	1–65536	word	m ²	2	R/W
501	41282	Data Log	Minute: 00–60 Second: 00–59 0: Disable	byte	Minute, Second	2	R/W
502	41283	Auto Recording – Energy 1	0: Disable 1: Enable	word		2	R/W
503	Reserved						
504	41285	Auto Recording – Auto Day 1	Date: 1–31	word	Date	2	R/W
505	Reserved						
506	Reserved						
507	41288	Auto Recording – Energy 2	0: Disable 1: Enable	word		2	R/W
508	Reserved						
509	41290	Auto Recording – Auto Day 2	Date: 1–31	word	Date	2	R/W
50A	Reserved						
50B	Reserved						

50C	41293	Setting group 1	0x100 – 0x1E7	word		2	R/W
50D	41294	Setting group 2	0x100 – 0x1E7	word		2	R/W
⋮	⋮	⋮	0x100 – 0x1E7	word		2	R/W
551	41362	Setting group 70	0x100 – 0x1E7	word		2	R/W
552	41363	Reset energy date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
553	41364	Reset energy date	Date: 1–31	word	Date	2	R
554	41365	Reset energy time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
555	41366	Reset energy time	Second: 00–59	word	Second	2	R
556	41367	Data log start date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
557	41368		Date: 1–31	word	Date	2	R
558	41369	Data log start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
559	41370		Second: 00–59	word	Second	2	R
55A	41371	Auto Max/Min reset interval	0: Disable 1: Day 2: Month 3: Year	word		2	R/W
55B	41372	Parameter #1 for data log	1: Phase voltage 2: Line voltage	word		2	R/W
55C	41373	Parameter #2 for data log	3: Average current				
55D	41374	Parameter #3 for data log	4: Neutral current				

55E	41375	Parameter #4 for data log	5: Power factor				
55F	41376	Parameter #5 for data log	6: Displacement power factor				
560	41377	Parameter #6 for data log	7: Total active power				
561	41378	Parameter #7 for data log	8: Total reactive power				
562	41379	Parameter #8 for data log	9: Total apparent power				
563	41380	Parameter #9 for data log	10: Positive active energy				
564	41381	Parameter #10 for data log	11: Reversed active energy				
565	41382	Parameter #11 for data log	12: Positive reactive energy				
566	41383	Parameter #12 for data log	13: Reversed reactive energy				
567	41384	Parameter #13 for data log	14: Positive apparent energy				
568	41385	Parameter #14 for data log	15: Reversed apparent energy				
569	41386	Parameter #15 for data log	16: Total harmonic distortion for voltage				
56A	41387	Parameter #16 for data log	17: Total harmonic distortion for current				
56B	41388	Parameter #17 for data log	(The following options are supported by V.1.0204 and later)				
56D	41390	Wh per hour by day	18 : Phase A voltage 19 : Phase B voltage 20 : Phase C voltage 21 : Phase AB voltage 22 : Phase BC voltage 23 : Phase CA voltage 24 : Phase A current 25 : Phase B current 26 : Phase C current	word		2	R/W
			0: Disable 1: Enable				

56E	41391	Time of Use #1	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
56F	41392	Time of Use #1 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
570	41393	Time of Use #1 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
571	41394	Time of Use #2	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
572	41395	Time of Use #2 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
573	41396	Time of Use #2 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
574	41397	Time of Use #3	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
575	41398	Time of Use #3 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
576	41399	Time of Use #3 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W

577	41400	Time of Use #4	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
578	41401	Time of Use #4 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
579	41402	Time of Use #4 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
57A	41403	Time of Use #5	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
57B	41404	Time of Use #5 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
57C	41405	Time of Use #5 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
57D	41406	Time of Use #6	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
57E	41407	Time of Use #6 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
57F	41408	Time of Use #6 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W

580	41409	Time of Use #7	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
581	41410	Time of Use #7 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
582	41411	Time of Use #7 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
583	41412	Time of Use #8	0: Sharp (P1) 1: Peak (P2) 2: Shoulder (P3) 3: Off-peak (P4)	word		2	R/W
584	41413	Time of Use #8 start time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
585	41414	Time of Use #8 stop time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R/W
586	41415	Energy saving mode status	0: Normal mode 1: Energy saving mode	word		2	R/W
587	41416	Energy saving enable	0: Disable 1: Enable	word		2	R/W
596	41431	Power display with decimal places (Supported by firmware v1.0406 and later in DPM-C530)	0 : 3 decimal places 1 : 1 decimal place 2 : 3 decimal places	word		2	R/W

597	41432	Voltage value displayed on homepage (Supported by firmware v1.0412 and later in DPM-C530)	0 : Phase voltage 1 : Line voltage	word		2	R/W
Modbus Address 0x598~0x5CB 僅適用於 DPM-C530E							
598	41433	IP mode	0 : Static 1 : DHCP	word		2	R/W
599	41434	IP address XXX(XXX.YYY.AAA. BBB) Note: When set to DHCP, the IP address cannot be written.	0 ~ 255	word		2	R/W
59A	41435	IP address YYY(XXX.YYY.AAA. BBB) Note: When set to DHCP, the IP address cannot be written.	0 ~ 255	word		2	R/W
59B	41436	IP address AAA(XXX.YYY.AAA. BBB) Note: When set to DHCP, the IP address cannot be written.	0 ~ 255	word		2	R/W
59C	41437	IP address BBB(XXX.YYY.AAA. BBB) Note: When set to DHCP, the IP address cannot be written.	0 ~ 255	word		2	R/W

59D	41438	Subnet mask XXX(XXX.YYY.AAA. BBB) Note: When set to DHCP, the subnet mask cannot be written.	0 ~ 255	word		2	R/W
59E	41439	Subnet mask YYY(XXX.YYY.AAA. BBB) Note: When set to DHCP, the subnet mask cannot be written.	0 ~ 255	word		2	R/W
59F	41440	Subnet mask AAA(XXX.YYY.AAA. BBB) Note: When set to DHCP, the subnet mask cannot be written.	0 ~ 255	word		2	R/W
5A0	41441	Subnet mask BBB(XXX.YYY.AAA. BBB) Note: When set to DHCP, the subnet mask cannot be written.	0 ~ 255	word		2	R/W
5A1	41442	Preset gateway XXX(XXX.YYY.AAA. BBB) Note: When set to DHCP, the gateway cannot be written.	0 ~ 255	word		2	R/W
5A2	41443	Preset gateway YYY(XXX.YYY.AAA. BBB) Note: When set to DHCP, the gateway cannot be written	0 ~ 255	word		2	R/W

5A3	41444	Preset gateway AAA(XXX.YYY.AAA. BBB) Note: When set to DHCP, the gateway cannot be written	0 ~ 255	word		2	R/W
5A4	41445	Preset gateway BBB(XXX.YYY.AAA. BBB) Note: When set to DHCP, the gateway cannot be written	0 ~ 255	word		2	R/W
5A5	41446	Ethernet setting	0 : Disable 2 : Setting done	word		2	R/W
5A6	41447	MAC address XX:YY(XX:YY:ZZ:AA: BB:CC)	XX : 0x00 YY : 0x18	word		2	R
5A7	41448	MAC address ZZ:AA (XX:YY:ZZ:AA:BB:CC)	ZZ : 0x23 AA : 00~FF	word		2	R
5A8	41449	MAC address BB:CC (XX:YY:ZZ:AA:BB:CC)	BB : 00~FF CC : 00~FF	word		2	R
5A9	41450	TCP connection timeout	10 ~ 65535	word		2	R/W
5AA	41451	IP filter	0 : Disable 1 : Enable				
5AB	41452	IPfilter#1 : IP start address XXX (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5AC	41453	IPfilter#1 : IP start address YYY (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5AD	41454	IPfilter#1 : IP start address AAA (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W

5AE	41455	IPfilter#1 : IP start address BBB (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5AF	41456	IP filter#1 : IP end address XXX (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B0	41457	IP filter#1 : IP end address YYY (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B1	41458	IP filter#1 : IP end address AAA (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B2	41459	IP filter#1 : IP end address BBB (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B3	41460	IPfilter#2 : IP start address XXX (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B4	41461	IPfilter#2 : IP start address YYY (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B5	41462	IPfilter#2 : IP start address AAA (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B6	41463	IPfilter#2 : IP start address BBB (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B7	41464	IPfilter#2 : IP end address XXX (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B8	41465	IPfilter#2 : IP end address YYY (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5B9	41466	IPfilter#2 : IP end address AAA (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W

5BA	41467	IPfilter#2 : IP end address BBB (XXX.YYY.AAA.BBB)	0 ~ 255	word		2	R/W
5BB	41468	IP filter setting confirm	0 : Disable 1 : Setting done	word		2	R/W
5BC	41469	Value displayed on homepage(Vavg) (Applicable only for DPM-C530E)	0 : DV(Display Value)value 1 : PV(Present Value)value	word		2	R/W
6. Parameter Group: 0600 – 06FF							
600	41537	Read data from group 1				2	R
601	41538	Read data from group 2					
⋮	⋮	⋮					
645	41546	Read data from group 70					
646	41607	P1 (active energy of	0.000 – 99999,999,999.999	float	kWh	4	R
647	41608	the sharp period)					
64A	41611	P2 (active energy of					
64B	41612	the peak period)					
64E	41615	P3 (active energy of					
64F	41616	the shoulder period)					
652	41619	P4 (active energy of					
653	41620	the off-peak period)					
656	41623	0 o'clock positive	0.000 – 99999,999,999.999	float	kWh	4	R
657	41624	active energy					
658	41625	0 o'clock reversed					
659	41626	active energy					

65A	41627	1 o'clock positive					
65B	41628	active energy					
65C	41629	1 o'clock reversed					
65D	41630	active energy					
65E	41631	2 o'clock positive					
65F	41632	active energy					
660	41633	2 o'clock reversed					
661	41634	active energy					
⋮	⋮						
6B2	41715	23 o'clock positive					
6B3	41716	active energy					
6B4	41717	23 o'clock reversed					
6B5	41718	active energy					
6B6	41719	Total time used in energy saving mode	Day: 0–65535	word	Day	2	R
6B7	41720		Hour: 00–23 Minute: 00–59	byte	Hour, Minute		
6B8	41721		Second: 00–59	word	Second		
6B9	41722	Accumulated positive	0.000 – 99999,999,999.999	float	kWh	4	R
6BA	41723	energy in energy saving mode					
6BB	41724	Total time used in non–energy saving mode	Day: 0–65535	word	Day	2	R
6BC	41725		Hour: 00–23 Minute: 00–59	byte	Hour, Minute		
6BD	41726		Second: 00–59	word	Second		
6BE	41727	Accumulated positive	0.000 – 99999,999,999.999	float	kWh	4	R
6BF	41728	energy in non–energy saving mode					

7. Harmonics: 0700 – 07FF							
(use only function code 0xFE to read the following parameters)							
0700		The 1 st harmonic for phase A voltage	0.000 – 999.999	float	%	4	R
		⋮					
0701		The 11 th harmonic for phase A voltage					
		⋮					
0702		The 21 st harmonic for phase A voltage					
		⋮					
		The 31 st harmonic for phase A voltage					
0703		The 1 st harmonic for phase B voltage	0.000 – 999.999	float	%	4	R
		⋮					
0704		The 11 th harmonic for phase B voltage					
		⋮					
0705		The 21 st harmonic for phase B voltage					
		⋮					
		The 31 st harmonic for phase B voltage					
0706		The 1 st harmonic for phase C voltage	0.000 – 999.999	float	%	4	R
		⋮					
0707		The 11 th harmonic for phase C voltage					

		⋮					
0708		The 21 st harmonic for phase C voltage					
		⋮					
		The 31 st harmonic for phase C voltage					
0709		The 1 st harmonic for phase A current	0.000 – 999.999	float	%	4	R
		⋮					
070A		The 11 th harmonic for phase A current					
		⋮					
070B		The 21 st harmonic for phase A current					
		⋮					
		The 31 st harmonic for phase A current					
070C		The 1 st harmonic for phase B current					
		⋮					
070D		The 11 th harmonic for phase B current					
		⋮					
070E		The 21 st harmonic for phase B current					
		⋮					
		The 31 st harmonic for phase B current					
070F		The 1 st harmonic for phase C current	0.000 – 999.999	float	%	4	R

		:					
0710		The 11 th harmonic for phase C current					
		:					
0711		The 21 st harmonic for phase C current					
		:					
		The 31 st harmonic for phase C current					
8. Data Log: 0800 – B6FF (use only function code 0xFE to read the following parameters)							
The following data types can be stored in Data Log.							
Date, Month, Year				byte		3	
Second, Minute, Hour				byte		3	
1. Phase voltage				float		4	
2. Line voltage				float		4	
3. Average current				float		4	
4. Neutral line current				float		4	
5. Power factor (positive: lag; negative: lead)				float		4	
6. Displacement power factor (positive: lag; negative: lead)				float		4	
7. Total active power (positive: power consumption; negative: power supply)				float		4	
8. Total reactive power (positive: lag; negative: lead)				float		4	
9. Total apparent power				float		4	
10. Positive active energy				float		4	

11. Reversed active energy				float		4	
12. Positive reactive energy				float		4	
13. Reversed reactive energy				float		4	
14. Positive apparent energy				float		4	
15. Reversed apparent energy				float		4	
16. Total harmonic distortion for voltage				float		4	
17. Total harmonic distortion for current				float		4	
0800		data log of 3 intervals					R
0801		data log of 3 intervals					R
0802		data log of 3 intervals					R
⋮		⋮					R
⋮		⋮					R
B6FF		data log of 3 intervals					R
Alarm History (use only function code 0xFE to read the following parameters)							
Alarm types							
1. Over Current				byte		1	
2. Under Current				byte		1	
3. Over Neutral Current				byte		1	
4. Over Voltage LL				byte		1	
5. Under Voltage LL				byte		1	
6. Over Voltage LN				byte		1	
7. Under Voltage LN				byte		1	
8. Over Volt Unbalance				byte		1	

9. Over AMP Unbalance	byte		1	
10. Over Active power	byte		1	
11. Over Reactive Power	byte		1	
12. Over Apparent Power	byte		1	
13. LEAD PF	byte		1	
14. Lag PF	byte		1	
15. Lead DPF	byte		1	
16. Lag DPF	byte		1	
17. Over Current Demand	byte		1	
18. Over kW Demand	byte		1	
19. Over kVAR Demand	byte		1	
20. Over kVA Demand	byte		1	
21. Over Frequency	byte		1	
22. Under Frequency	byte		1	
23. Over Voltage THD	byte		1	
24. Over Current THD	byte		1	
25. Phase Loss	byte		1	
26. Meter Reset	byte		1	
27. Phase Rotation	byte		1	
28. Over DUI	byte		1	
29. Over EUI	byte		1	

B700		Alarm History 1	1 – 29 (high byte, types) (low byte, times)	byte		2	R
B701		Alarm History 2	1 – 29 (high byte, types) (low byte, times)	byte		2	R
B702		Alarm History 3	1 – 29 (high byte, types) (low byte, times)	byte		2	R
⋮		⋮	⋮	byte		2	R
B8F3		Alarm History 500	1 – 29 (high byte, types) (low byte, times)	byte		2	R
B8F4		Alarm 01 Date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
B8F5			Date: 1–31	word	Date	2	R
B8F6		Alarm 01 Time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
B8F7			Second: 00–59	word	Second	2	R
B8F8		Alarm 02 Date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
B8F9			Date: 1–31	word	Date	2	R
B8FA		Alarm 02 Time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
B8FB			Second: 00–59	word	Second	2	R
B8FC		Alarm 03 Date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
B8FD			Date: 1–31	word	Date	2	R
B8FE		Alarm 03 Time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R

B8FF			Second: 00–59	word	Second	2	R
:		:	:	byte	Year, Month	2	R
C0C0		Alarm 500 Date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
C0C1			Date: 1–31	word	Date	2	R
C0C2		Alarm 500 Time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
C0C3			Second: 00–59	word	Second	2	R
:		:	:	byte	Year, Month	2	R
C0C0		Alarm 500 Date	Year: 00–99 Month: 1–12	byte	Year, Month	2	R
C0C1			Date: 1–31	word	Date	2	R
C0C2		Alarm 500 Time	Hour: 00–23 Minute: 00–59	byte	Hour, Minute	2	R
C0C3			Second: 00–59	word	Second	2	R

5.2 Modbus Communication

5.2.1 Supported Modbus Function Codes

Function Code	Modbus Name	Description
0x03	Read Holding Registers	Read the contents of read location
0x06	Preset Single Registers	Preset the contents of written location
0x10	Preset Multiple Registers	Preset the contents of written locations
0xFE	Read Data Log/THD/alarm Log	Read the contents of data log/THD/alarm log

When the protocol is Modbus RTU, the maximum address to be gathered with a single Modbus block read is 125 for function code 0x03, and the maximum address is 123 for function code 0x10. When the protocol is Modbus ASCII, the maximum address to be gathered with a single Modbus block read is 60 for function code 0x03, and the maximum address is 59 for function code 0x10. The function code 0xFE can be used only when the protocol is Modbus RTU.

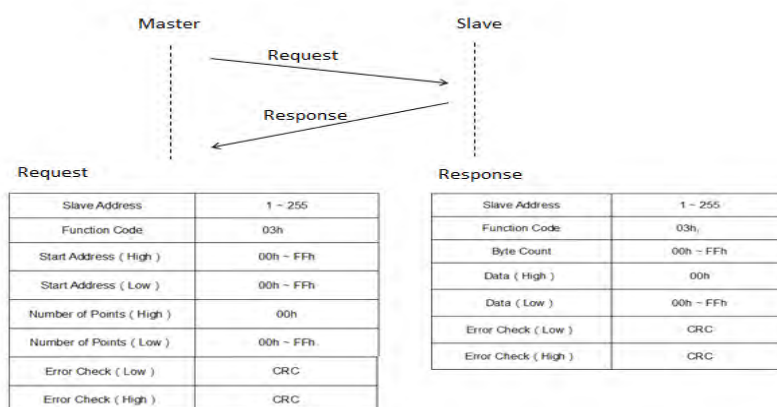
5.2.2 Modbus Communication Protocol

Modbus RTU mode is adopted with Modbus Master sending out the Request, in which the Function Code uses 0x03 to request response from Slave to correspond to values in Modbus address. In Response, Modbus Slave responds to the values of Modbus address in the Master request. The packet format of IEEE754 is used for the address of floating point numbers that corresponds to the register values found in table 5.1, using 2s complement packet format. The format are as follows:

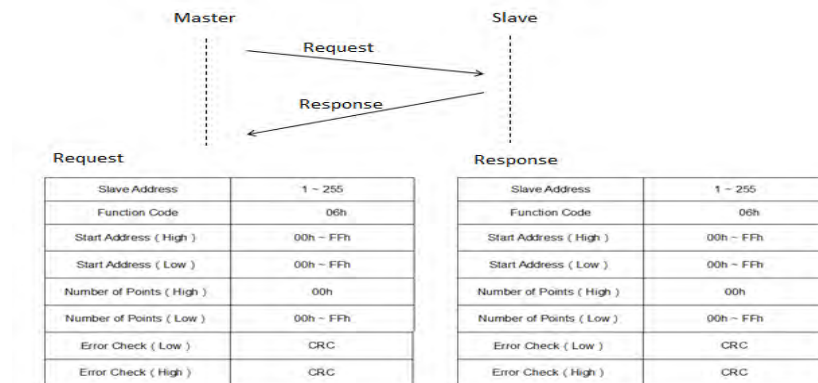
Low Word		High Word	
High Byte	Low Byte	High Byte	Low Byte

The packet formats (2's complement) for the address of integers that corresponds to the register values found in table 7.1 are shown in the example below.

Read:



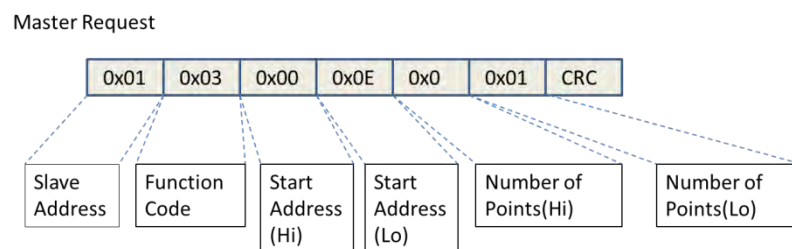
Write:



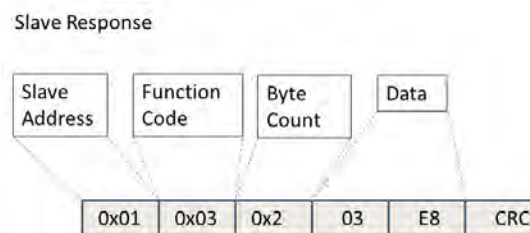
Example:

For Modbus Master, such as PLC or data collector, it uses Modbus protocol to get the value of CT setting (Register address 0x000E) on the power meter (Modbus Slave) (Slave address 0x1). The register value is 1000.

The packet format for Request sent out by Modbus Master (PLC or data collector) is as follows:

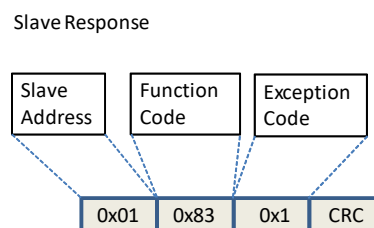


The packet format for Response responded by Modbus Slave (power meter) is as follows:



After receiving response from the power meter, Modbus Master acquires the value of currents from the primary-side current transformer (register address 0x000E), which is 1000.

Should Modbus Slave (power meter) receive an abnormal Request, the format of the abnormal packet responded is as follows.



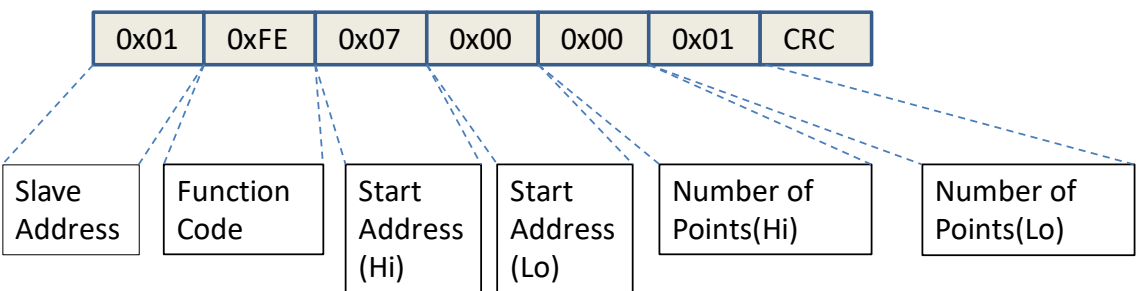
5.2.3 Packet Format for Modbus Function Code 0xFE

The function code 0xFE can be used only when the protocol is Modbus RTU. It is for reading the data of Data Log, individual harmonics from 2nd through 31st, and alarm log. The packet format of 0xFE is similar to that of Modbus RTU. The Modbus Master send out requests with function code 0xFE asking the Slave to response with corresponding values in a Modbus address. Modbus Slave then responses Master with the corresponding values in Response.

- Example 1 (Individual harmonics):**

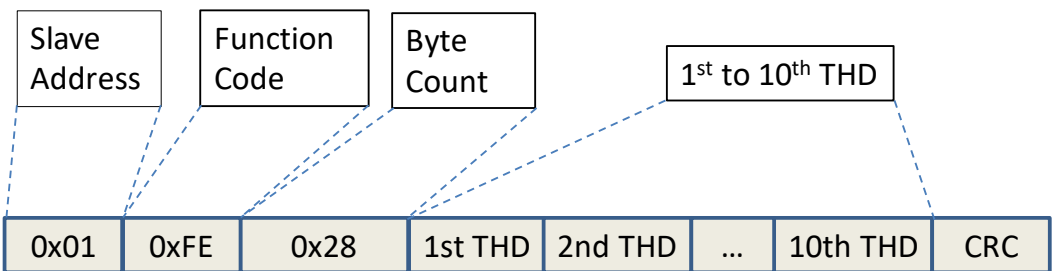
If the Modbus Master (a PLC or data collector) reads recorded data from the meter with function code 0xFE in Modbus address 0x700, the Request packet format is as below (it is the same as Modbus RTU, but the Number of Points must be 1)

Master Request



The Response packet format of the Modbus slave (Power Meter) is as below (the part before Byte Count is the same as Modbus RTU. The individual harmonics from 1st through 10th is 10 continuous harmonics data. The order is as below. The address is 0x700, while the length of data is totally 40 bytes.)

Slave Response

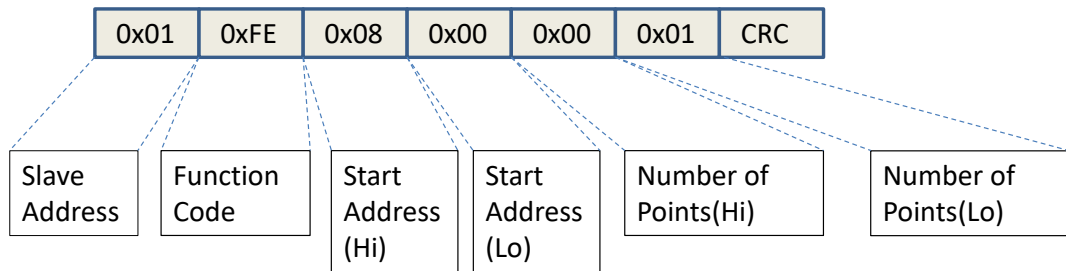


Note: The total data length of the address 0x702, 0x705, 0x708, 0x70B, 0x70E, 0x711 is 44 bytes.

- Example 2 (Data Log):**

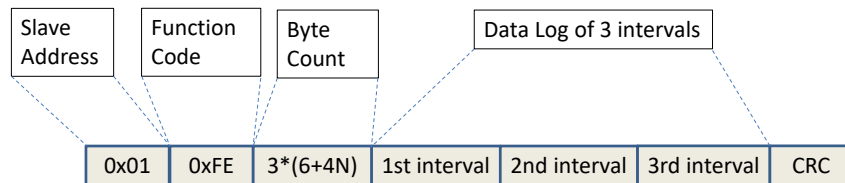
If the Modbus Master (a PLC or data collector) reads recorded data from the meter with function code 0xFE in Modbus address 0x800, the Request packet format is as below (it is the same as Modbus RTU, but the Number of Points must be 1):

Master Request



The Response packet format of the Modbus slave (Power Meter) is as below (the part before Byte Count is the same as Modbus RTU. The Data Log of 3 intervals is data of 3 continuous recording intervals. The order is as below. If N parameters are selected, the length of data is totally $3*(6+4N)$ bytes.)

Slave Response



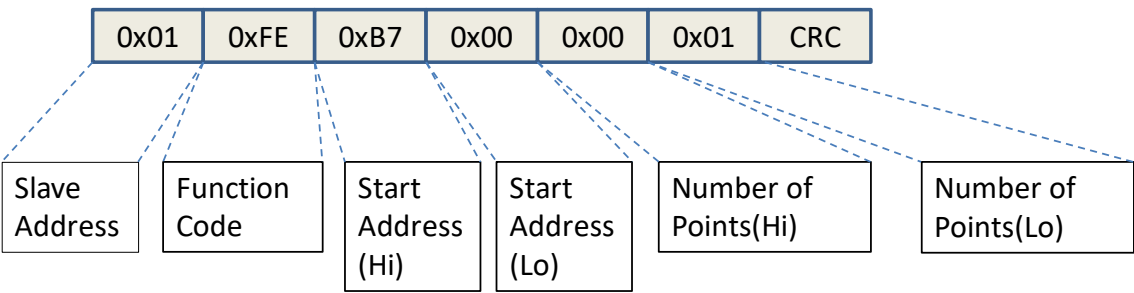
The content of one of the 3 data log intervals

Sequence	Item	Data size(byte)	Sequential Order	
1	Year	1		
2	Month	1		
3	Day	1		
4	Hour	1		
5	Minutes	1		
6	Second	1		
7	Selected Parameter 1	4	Low word	High byte
				Low byte
			High word	High byte
				Low byte
8	Selected Parameter 2	4	Low word	High byte
				Low byte
			High word	High byte
				Low byte
...
N	Selected Parameter N	4	Low word	High byte
				Low byte
			High word	High byte
				Low byte

- Example 3 (Alarm Log):**

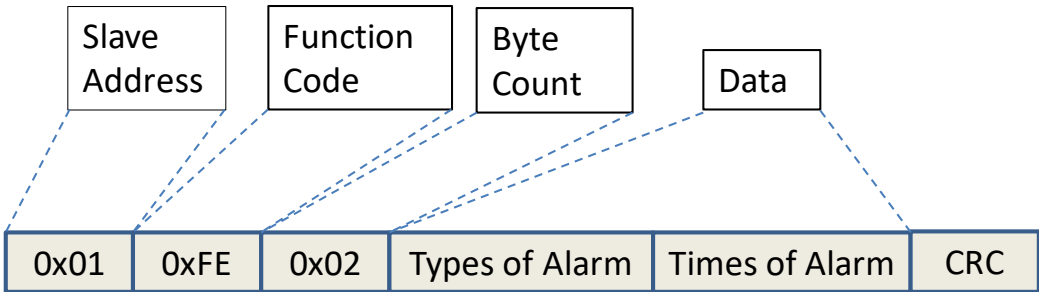
If the Modbus Master (a PLC or data collector) reads recorded data from the meter with a self-defined communication protocol in Modbus address 0xB700, the Request packet format is as below (it is the same as Modbus RTU function code 0x03, the only difference is that the function code changed to 0xFE):

Master Request



The Response packet format of the Modbus slave (Power Meter) is as below. (the part before Byte Count is the same as Modbus RTU.)

Slave Response



Chapter 6 Error Codes

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6.1 Error Codes

When an error occurs during operation, the power monitor sends an error code through Modbus. The following table lists the error codes and causes.

Error Code	Name	Description
0x01	Illegal function	Incorrect function code
0x02	Illegal data address	Incorrect data address to read or write
0x03	Illegal data value	Incorrect data format (for example, data length)
0x04	Slave device failure	Slave cannot execute the command.
0x0B	No response from Device	The device does not respond. (Applicable only for DPM-C530E)

6.2 Alarm Types

The power meter supports 29 types of alarms. You can activate the alarm in the registers 0x1F–0xDD. When an alarm is triggered, the data (such as alarm type and alarm triggered time) are stored in registers 0xB700–0xC0C3. The following table lists the details and descriptions for the alarm types.

Number	Alarm Type	Description
1	Over Current	The measured current exceeds the setting value.
2	Under Current	The measured current is below the setting value.
3	Over Neutral Current	The measured neutral current exceeds the setting value.
4	Over Voltage LL	The measured line voltage exceeds the setting value.
5	Under Voltage LL	The measured line voltage is below the setting value.
6	Over Voltage LN	The measured phase voltage exceeds the setting value.
7	Under Voltage LN	The measured phase voltage is below the setting value.
8	Over Volt Unbalance	The measured voltage unbalance exceeds the setting value.
9	Over AMP Unbalance	The measured current unbalance is below the setting value.
10	Over Active power	The measured total active power exceeds the setting value.
11	Over Reactive Power	The measured total reactive power exceeds the setting value.
12	Over Apparent Power	The measured total apparent power exceeds the setting value.
13	LEAD PF	The leading power factor is below the setting value.
14	Lag PF	The lagging power factor is below the setting value.

Number	Alarm Type	Description
15	Lead DPF	The leading power factor demand is below the setting value.
16	Lag DPF	The lagging power factor demand is below the setting value.
17	Over Current Demand	The current demand exceeds the setting value.
18	Over kW Demand	The total active power factor demand exceeds the setting value.
19	Over kVAR Demand	The total reactive power factor demand exceeds the setting value
20	Over kVA Demand	The total apparent power factor demand exceeds the setting value
21	Over Frequency	The measured frequency exceeds the setting value.
22	Under Frequency	The measured frequency is below the setting value.
23	Over Voltage THD	The total harmonic distortion for voltage exceeds the setting value.
24	Over Current THD	The total harmonic distortion for current exceeds the setting value.
25	Phase Loss	When the power is unbalanced, the voltage is below the setting value.
26	Meter Reset	The power meter is resetting.
27	Phase Rotation	The phase A and phase C are incorrectly swapped.
28	Over DUI	The Demand Use Intensity (DUI) value exceeds the setting value.
29	Over EUI	The Energy Use Intensity (EUI) value exceeds the setting value.

Memo

Chapter 7 BACnet MS/TP (Applicable only for DPM-C530)

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7.1 BACnet Introduction

BACnet is an ASHRAE, Inc.(American Society of Heating, Refrigerating and Air-Conditioning Engineer, Inc.) communication protocol for building automation and control networks. DPM's BACnet is based on version 2004. BACnet's regulations are related to several kinds of physical layer's interfaces. The physical layers built inside DPM are achieved via MS/TP interface. The BACnet of DPM supports a device type called B-ASC. B-ASC supports six types of services such as DS-RP-B、DS-RPM-B、DS-WP-B、DM-DDB-B、DM-DOB-B、DM-DCC-B.

7.2 BACnet MS/TP Support

BACnet Component	Description
Protocol Version	1
Protocol Revision	7
Standardized device profile(Annex L)	BACnet Application Controller (B-ASC)
BACnet Interoperability Building Blocks Supported (Annex K)	DS-RP-B (Data Sharing-Read Property-B)
	DS-WP-B (Data Sharing-Write Property-B)
	DS-RPM-B(Data Sharing-Read Property Multiple)
	DM-DDB-B (Device Management-Dynamic Device Binding-B)
	DM-DOB-B (Device Management-Dynamic Object Binding-B)
	DM-DCC-B (Device Management-Device Communication Control-B)
Data Link layer options	MS/TP master (Clause 9) Baud rate(s): 9600, 19200, 38400
Character Sets Supported:	ANSI X3.4 Indicating support for multiple character sets does not imply that they can all be supported simultaneously
Supported services	readProperty readPropertyMultiple writeProperty deviceCommunicationControl who-Has I-Have who-Is I-Am
Segmentation	Segmentation is not supported
Device Address Binding:	Static device binding is not supported

7.3 Object and Property

BACnet supports 2 object types: Device, Analog Value (AV). Please refer to the following table for the corresponding object type of each property.

Property ID	Property Name	Object Type	
		Device	Analog Value
11	APDU Timeout	V	
12	Application Software_Version	V	
28	Description	V	V
30	Device_Address_Binding	V	
36	Event_State		V
44	Firmware_Revision	V	
62	Max_APDU_Length_Accepted	V	
63	Max_Info_Frames	V	
64	Max_Master	V	
70	Model_Name	V	
73	Number_of_APDU_Retries	V	
75	Object_Identifier	V * 1	V
76	Object_List	V	
77	Object_Name	V * 1	V
79	Object_Type	V	V
81	Out_of_Service		V
85	Present_Value		V * 2
87	Priority_Array		V * 3
96	Protocol_Object_Types_Supported	V	
97	Protocol_Services_Supported	V	
98	Protocol_Version	V	
104	Relinquish_Default		V * 3
107	Segmentation_Supported	V	
111	Status_Flags		V
112	System_Status	V	
117	Units		V
120	Vendor_Identifier	V	
121	Vendor_Name	V	
139	Protocol_Revision	V	
155	Database_Revision	V	

***Note:** *1. The Object_Identifier and Object_Name properties of a device are featured to be writable.

*2. The Present_Value property of some AV objects is commandable.

*3. Only commandable objects support Priority_Array and Relinquish_Default.linquish_Default)

7.4 AV Objects

The AV objects are categorized as commandable and read-only case.

- Commandable case : We can use Write_Service to access the Present_Value property of commandable AV objects. Thus, the commandable AV objects are linking to the system parameters in DPM.
- Read-only case : We can use Read_Service to access the Present_Value property of read-only AV objects. Thus, these read-only AV objects are linking to the measurement parameters of DPM.

7.4.1 Commandable Analog Value Object

In DPM, we have AV_000 ~ AV_010 supporting commandable Present_Value property. For these AV_Objects, we also can use (Multi)Read_Service to access Priority_Array and Relinquish_Defalut properties.

Object No.	Object Description	Object Name	Read/Write	Range	Unit
AV000	AV_000_Power_System	AV_000_Power_System	R / W	0 : 3 ϕ 4W 1 : 3 ϕ 3W 2 : 1 ϕ 2W 3 : 1 ϕ 3W	
AV001	AV_001_Primary_CT	AV_001_Primary_CT	R / W	1 ~ 9999	A
AV002	AV_002_Secondary_CT	AV_002_Secondary_CT	R / W	0 : 1A 1 : 5A 2 : 2.5A	A
AV003	AV_003_Primary_PT	AV_003_Primary_PT	R / W	1 ~ 9999	V
AV004	AV_004_Secondary_PT	AV_004_Secondary_PT	R / W	1 ~ 9999	V
AV005	AV_005_Number_of_Transformer	AV_005_Number_of_Transformer	R / W	0 : 3CT3PT 1 : 3CT2PT 2 : 3CT0PT 3 : 2CT3PT 4 : 2CT2PT 5 : 2CT0PT 6 : 1CT3PT 7 : 1CT2PT 8 : 1CT0PT	

AV006	AV_006_Demand_Mode	AV_006_Demand_Mode	R / W	0 : block	
AV007	AV_007_Demand_Interval	AV_007_Demand_Interval	R / W	0 ~ 60	min
AV008	AV_008_Phase Rotation	AV_008_Phase Rotation	R / W	0 : ABC 1 : CBA	
AV009	AV_009_UI_Language	AV_009_UI_Language	R / W	0 : English 1 : Traditional Chinese 2: Simplify Chinese	
AV010	AV_010_Reset_Parameter	AV_010_Reset_Parameter	R / W	0x5768 : kWh	

7.4.2 Read-only Analog Value Object

In DPM, we have AV_011 ~ AV_087 with read-only Present_Value property. Therefore, AV Objects numbering from AV_000 to AV_010 do NOT have Priority_Array and Relinquish_Default properties.

Object No.	Object Description	Object Name	Read/Write	Range	Unit
AV011	AV_011_Reserved	AV_011_Reserved	R		
AV012	AV_012_Reserved	AV_012_Reserved	R		
AV013	AV_013_Reserved	AV_013_Reserved	R		
AV014	AV_014_Reserved	AV_014_Reserved	R		
AV015	AV_015_Voltage_L-N_AN	AV_015_Voltage_L-N_AN	R	0.000 ~ 99999.999	V
AV016	AV_016_Voltage_L-N_BN	AV_016_Voltage_L-N_BN	R	0.000 ~ 99999.999	V
AV017	AV_017_Voltage_L-N_CN	AV_017_Voltage_L-N_CN	R	0.000 ~ 99999.999	V
AV018	AV_018_Voltage_L-N_AVG	AV_018_Voltage_L-N_AVG	R	0.000 ~ 99999.999	V
AV019	AV_019_Voltage_L-L_AB	AV_019_Voltage_L-L_AB	R	0.000 ~ 99999.999	V
AV020	AV_020_Voltage_L-L_BC	AV_020_Voltage_L-L_BC	R	0.000 ~ 99999.999	V

AV 021	AV_021_Voltage_L-L_CA	AV_021_Voltage_L-L_CA	R	0.000 ~ 99999.999	V
AV 022	AV_022_Voltage_L-L_AVG	AV_022_Voltage_L-L_AVG	R	0.000 ~ 99999.999	V
AV 023	AV_023_Unbalance_Voltage_L-N_AN	AV_023_Unbalance_Voltage_L-N_A N	R	0.00 ~ 99.99	%
AV 024	AV_024_Unbalance_Voltage_L-N_BN	AV_024_Unbalance_Voltage_L-N_B N	R	0.00 ~ 99.99	%
AV 025	AV_025_Unbalance_Voltage_L-N_CN	AV_025_Unbalance_Voltage_L-N_C N	R	0.00 ~ 99.99	%
AV 026	AV_026_Unbalance_Voltage_L-N_AVG	AV_026_Unbalance_Voltage_L-N_A VG	R	0.00 ~ 99.99	%
AV 027	AV_027_Unbalance_Voltage_L-L_AB	AV_027_Unbalance_Voltage_L-L_A B	R	0.00 ~ 99.99	%
AV 028	AV_028_Unbalance_Voltage_L-L_BC	AV_028_Unbalance_Voltage_L-L_B C	R	0.00 ~ 99.99	%
AV 029	AV_029_Unbalance_Voltage_L-L_CA	AV_029_Unbalance_Voltage_L-L_C A	R	0.00 ~ 99.99	%
AV 030	AV_030_Unbalance_Voltage_L-L_AVG	AV_030_Unbalance_Voltage_L-L_AV G	R	0.00 ~ 99.99	%
AV 031	AV_031_Current_A	AV_031_Current_A	R	0.000 ~ 99999.999	A
AV 032	AV_032_Current_B	AV_032_Current_B	R	0.000 ~ 99999.999	A
AV 033	AV_033_Current_C	AV_033_Current_C	R	0.000 ~ 99999.999	A
AV 034	AV_034_Current_AVG	AV_034_Current_AVG	R	0.000 ~ 99999.999	A
AV 035	AV_035_Current_Neutral	AV_035_Current_Neutral	R	0.000 ~ 99999.999	A
AV 036	AV_036_Unbalance_Current_A	AV_036_Unbalance_Current_A	R	0.00 ~ 99.99	%
AV 037	AV_037_Unbalance_Current_B	AV_037_Unbalance_Current_B	R	0.00 ~ 99.99	%
AV 038	AV_038_Unbalance_Current_C	AV_038_Unbalance_Current_C	R	0.00 ~ 99.99	%
AV 039	AV_039_Unbalance_Current_AVG	AV_039_Unbalance_Current_AVG	R	0.00 ~ 99.99	%
AV 040	AV_040_Power_Factor_Total	AV_040_Power_Factor_Total	R	-1.00000 ~ 1.00000	
AV 041	AV_041_Power_Factor_A	AV_041_Power_Factor_A	R	-1.00000 ~ 1.00000	

AV 042	AV_042_Power_Factor_B	AV_042_Power_Factor_B	R	-1.00000 ~ 1.00000	
AV 043	AV_043_Power_Factor_C	AV_043_Power_Factor_C	R	-1.00000 ~ 1.00000	
AV 044	AV_044_Displacement_Power_Factor_Total	AV_044_Displacement_Power_Factor_Total	R	-1.00000 ~ 1.00000	
AV 045	AV_045_Displacement_Power_Factor_A	AV_045_Displacement_Power_Factor_A	R	-1.00000 ~ 1.00000	
AV 046	AV_046_Displacement_Power_Factor_B	AV_046_Displacement_Power_Factor_B	R	-1.00000 ~ 1.00000	
AV 047	AV_047_Displacement_Power_Factor_C	AV_047_Displacement_Power_Factor_C	R	-1.00000 ~ 1.00000	
AV 048	AV_048_Frequency	AV_048_Frequency	R	0.0000 ~ 99.9999	Hz
AV 049	AV_049_Active_Power_Total	AV_049_Active_Power_Total	R	-99999.999 ~ 99999.999	kW
AV 050	AV_050_Active_Power_A	AV_050_Active_Power_A	R	-99999.999 ~ 99999.999	kW
AV 051	AV_051_Active_Power_B	AV_051_Active_Power_B	R	-99999.999 ~ 99999.999	kW
AV 052	AV_052_Active_Power_C	AV_052_Active_Power_C	R	-99999.999 ~ 99999.999	kW
AV 053	AV_053_Reactive_Power_Total	AV_053_Reactive_Power_Total	R	-99999.999 ~ 99999.999	kVAR
AV 054	AV_054_Reactive_Power_A	AV_054_Reactive_Power_A	R	-99999.999 ~ 99999.999	kVAR
AV 055	AV_055_Reactive_Power_B	AV_055_Reactive_Power_B	R	-99999.999 ~ 99999.999	kVAR
AV 056	AV_056_Reactive_Power_C	AV_056_Reactive_Power_C	R	-99999.999 ~ 99999.999	kVAR
AV 057	AV_057_Apparent_Power_Total	AV_057_Apparent_Power_Total	R	0.000 ~ 99999.999	kVA
AV 058	AV_058_Apparent_Power_A	AV_058_Apparent_Power_A	R	0.000 ~ 99999.999	kVA
AV 059	AV_059_Apparent_Power_B	AV_059_Apparent_Power_B	R	0.000 ~ 99999.999	kVA
AV 060	AV_060_Apparent_Power_C	AV_060_Apparent_Power_C	R	0.000 ~ 99999.999	kVA
AV 061	AV_061_Active_Energy-delivered	AV_061_Active_Energy-delivered	R	0.000 ~ 4294967.295	kWh
AV 062	AV_062_Active_Energy-received	AV_062_Active_Energy-received	R	0.000 ~ 4294967.295	kWh

AV 063	AV_063_Reactive_Energy-delivered	AV_063_Reactive_Energy-delivered	R	0.000 ~ 4294967.295	kVARh _*
AV 064	AV_064Reactive_Energy-received	AV_064Reactive_Energy-received	R	0.000 ~ 4294967.295	kVARh _*
AV 065	AV_065_Apparent_Energy-delivered	AV_065_Apparent_Energy-delivered	R	0.000 ~ 4294967.295	kVAh ⁺
AV 066	AV_066_Apparent_Energy-received	AV_066_Apparent_Energy-received	R	0.000 ~ 4294967.295	kVAh ⁺
AV 067	AV_067_THD_Current_A	AV_067_THD_Current_A	R	0.000 ~ 999.999	%
AV 068	AV_068_THD_Current_B	AV_068_THD_Current_B	R	0.000 ~ 999.999	%
AV 069	AV_069_THD_Current_C	AV_069_THD_Current_C	R	0.000 ~ 999.999	%
AV 070	AV_070_THD_Voltage_L-N_AN	AV_070_THD_Voltage_L-N_AN	R	0.000 ~ 999.999	%
AV 071	AV_071_THD_Voltage_L-N_BN	AV_071_THD_Voltage_L-N_BN	R	0.000 ~ 999.999	%
AV 072	AV_072_THD_Voltage_L-N_CN	AV_072_THD_Voltage_L-N_CN	R	0.000 ~ 999.999	%
AV 073	AV_073_THD_Voltage_L-L_AB	AV_073_THD_Voltage_L-L_AB	R	0.000 ~ 999.999	%
AV 074	AV_074_THD_Voltage_L-L_BC	AV_074_THD_Voltage_L-L_BC	R	0.000 ~ 999.999	%
AV 075	AV_075_THD_Voltage_L-L_CA	AV_075_THD_Voltage_L-L_CA	R	0.000 ~ 999.999	%
AV 076	AV_076_THD_Current	AV_076_THD_Current	R	0.000 ~ 999.999	%
AV 077	AV_077_THD_Voltage	AV_077_THD_Voltage	R	0.000 ~ 999.999	%
AV 078	AV_078_Present_Demand_Current	AV_078_Present_Demand_Current	R	0.000 ~ 99999.999	A
AV 079	AV_079_Previous_Demand_Current	AV_079_Previous_Demand_Current	R	0.000 ~ 99999.999	A
AV 080	AV_080_Present_Demand_Active_Power	AV_080_Present_Demand_Active_Power	R	0.000 ~ 99999.999	kW
AV 081	AV_081_Previous_Demand_Active_Power	AV_081_Previous_Demand_Active_Power	R	0.000 ~ 99999.999	kW
AV 082	AV_082_Present_Demand_Reactive_Power	AV_082_Present_Demand_Reactive_Power	R	0.000 ~ 99999.999	kVAR
AV 083	AV_083_Previous_Demand_Reactive_Power	AV_083_Previous_Demand_Reactive_Power	R	0.000 ~ 99999.999	kVAR

AV 084	AV_084_Present_Demand_Apparent_Power	AV_084_Present_Demand_Apparent_Power	R	0.000 ~ 99999.999	kVA
AV 085	AV_085_Previous_Demand_Apparent_Power	AV_085_Previous_Demand_Apparent_Power	R	0.000 ~ 99999.999	kVA

***Note:** For the reason that KVARh and KVA are not supported in BACnet standard, kWh is use in Unit Property.

7.5 BACnet MS/TP Parameter Settings

- (1) Path: Select "Menu" → choose "0. Setup" and press "Enter" → choose "3. Communication" and press "Enter" → the following display is shown.



- **Station address:** While communicating via BACnet, MAC address is used for this parameter with the range of option 1~127, the default is set as 1.
- **Protocol:** Communication mode, which can be chosen between RTU, ASCII, and BACNET. The default is set to RTU.
- **Baud Rate:** The default setting is 9600 bps. When using BACnet, the baud rate value would change to 38400 bps automatically.
- **Data Bit:** The data length of data packet. The default is set as 8 bits, which cannot be changed in BACnet mode.
- **Parity:** Odd and even checking bit for communication. The default is set to None, which cannot be changed in BACnet mode.
- **Stop Bit:** Signal for completion of packet transmission. The default is set to 1 bit, which cannot be changed in BACnet mode.

- (2) Path: Select "Menu" → choose "0. Setup" and press "Enter" → choose "10. BACnet" and press "Enter" → the following display is shown.



- **Max Master:** The highest MS/TP master address. The default is set to 127.
- **Device ID:** The device identifier in BACnet MS/TP. The default is set to 10.

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Appendix A Accessories

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A.1 DCTMC SeriesA-2

A.2 DCTCS SeriesA-3

A.3 DCT1000 SeriesA-4

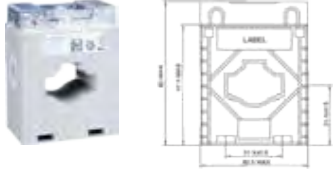
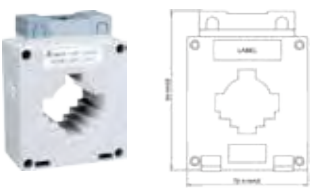
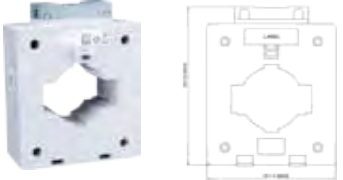
A.4 DCT2000 SeriesA-6

When measured current is higher than the rated specification for the device, use of an external current transformer (CT) is necessary.

A.1 DCTMC Series

Model Number	Measurement Accuracy	Primary Current	Secondary Current	Rated Burden (VA)	External Dimension*1 (mm)	Size of Opening*1 (mm)
DCT-MC010-5	1.0%	100A	5A	1.5	80*60*38	20*30.5
DCT-MC020-5	0.5%	200A	5A	3.75		
DCT-MC030-5	0.5%	300A	5A	5	98*74.5*43	42*42
DCT-MC040-5	0.5%	400A	5A	7.5		
DCT-MC050-5	0.5%	500A	5A	5	127*103*45	51*61
DCT-MC060-5	0.5%	600A	5A	10		



*1: See the following table for detailed information on the external dimensions and sizes of opening.

Model Number	Dimension (mm)	
DCT-MC010-5	External Dimension : 80 x 60 x 38 Size of Opening : 20 x 30.5	
DCT-MC020-5		
DCT-MC030-5	External Dimension : 98 x 74.5 x 43 Size of Opening : 42 x 42	
DCT-MC040-5		
DCT-MC050-5	External Dimension : 127 x 103 x 45 Size of Opening : 51 x 61	
DCT-MC060-5		

A.2 DCTCS

Model Type	Measurement Accuracy	Primary Current	Secondary Current	Rated Burden (VA)	External Dimension*1 (mm)	Size of Opening*1 (mm)
DCT-CS010-5	1%	100A	5A	1000	66.8*49.8*34.2	23.8*25.2
DCT-CS020-5	1%	200A	5A	1000		
DCT-CS030-5	1%	300A	5A	1000		
DCT-CS040-5	1%	400A	5A	1000	85*69*42.5	36.5*36.5
DCT-CS050-5	1%	500A	5A	1000		
DCT-CS060-5	1%	600A	5A	1000		

*1: See the following table for detailed information on the external dimensions and sizes of opening.


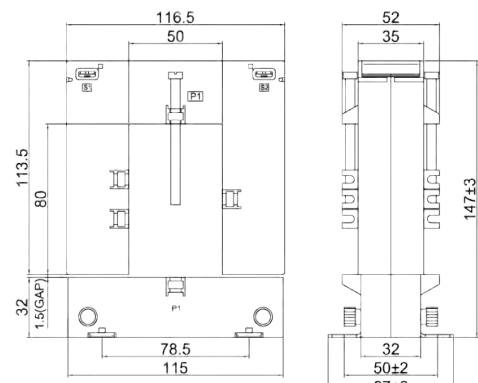


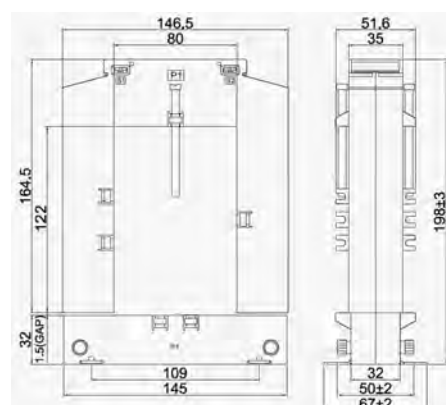
Model	Dimension (Unit: mm)	
DCT-CS010-5	External Dimension : 66.8 x 49.8 x 34.2 Size of Opening : 23.8 x 25.2	
DCT-CS020-5		
DCT-CS030-5		
DCT-CS040-5	External Dimension : 85 x 69 x 42.5 Size of Opening : 36.5 x 36.5	
DCT-CS050-5		
DCT-CS060-5		

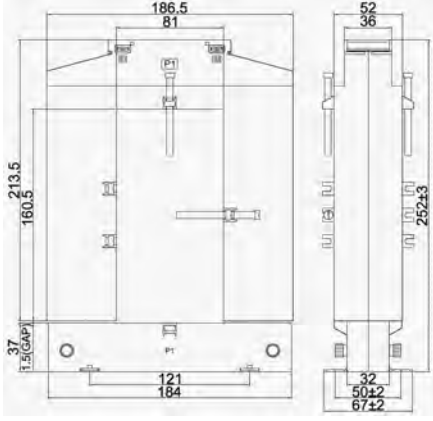

A.3 DCT1000 Series

Electromagnetic Compatibility: CE-marking, IEC61869-2.

Model Number	Measurement Accuracy	Primary Current	Secondary Current	Rated Burden (VA)	External Dimension*1 (mm)	Size of Opening*1 (mm)
DCT-S301C	1.0%	100 A	5 A	1.5	90 x 40 x 111	21 x 32
DCT-S211C	0.5%	200 A	5 A	1		
DCT-S221C	0.5%	300 A	5 A	1.5		
DCT-S231C	0.5%	400 A	5 A	2.5		
DCT-S241C	0.5%	500 A	5 A	2.5	116.5 x 52 x 147	50 x 80
DCT-S251C	0.5%	600 A	5 A	2.5		
DCT-S261C	0.5%	750 A	5 A	2.5		
DCT-S271C	0.5%	1000 A	5 A	5		
DCT-S281C	0.5%	1500 A	5 A	7.5	146.5 x 51.6 x 198	80 x 122
DCT-S291C	0.5%	2000 A	5 A	10	186.5 x 52 x 252	81 x 160.5
DCT-S2A1C	0.5%	2500 A	5 A	15		
DCT-S2B1C	0.5%	3000 A	5 A	20		

*1: See the following table for detailed information on the external dimensions and sizes of opening.

Model Number	Dimension (mm)	
DCT-S301C	External Dimension: 90 x 40 x 111	
DCT-S211C	Size of Opening: 21 x 32	
DCT-S221C		
DCT-S231C		
DCT-S241C	External Dimension: 116.5 x 52 x 147	
DCT-S251C	Size of Opening: 50 x 80	
DCT-S261C		
DCT-S271C		
DCT-S281C	External Dimension: 146.5 x 51.6 x 198 Size of Opening: 80 x 122 	

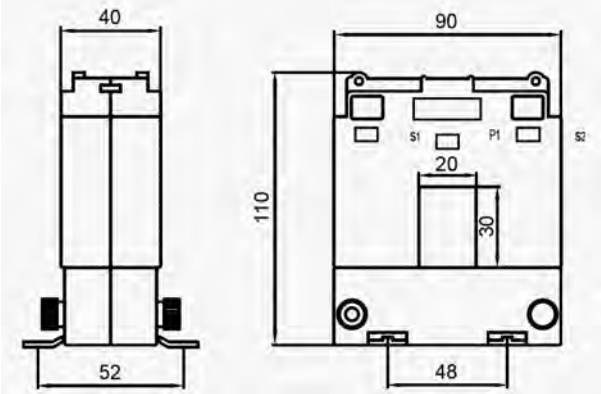
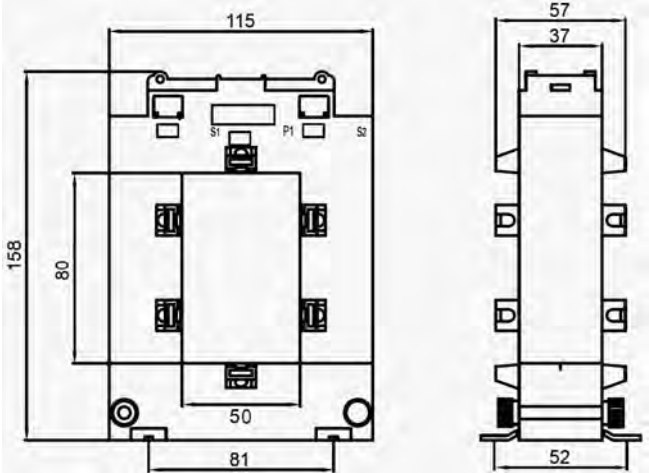
DCT-S291C	External Dimension: 186.5 x 52 x 252	
DCT-S2A1C	Size of Opening: 81 x 160.5	
DCT-S2B1C		

A.4 DCT2000 Series

Electromagnetic Compatibility: UL, UL2808.

Model Number	Measurement Accuracy	Primary Current	Secondary Current	Rated Burden (VA)	External Dimension*1 (mm)	Size of Opening*1 (mm)
DCT-S201B	1.0%	100 A	5 A	1	90 x 40 x 110	20 x 30
DCT-S211B	0.5%	200 A	5 A	1		
DCT-S221B	0.5%	300 A	5 A	1.5		
DCT-S231B	0.5%	400 A	5 A	1.5	115 x 57 x 158	50 x 80
DCT-S241B	0.5%	500 A	5 A	2.5		
DCT-S251B	0.5%	600 A	5 A	2.5		
DCT-S261B	0.5%	750 A	5 A	2.5		
DCT-S2C1B	0.5%	800 A	5 A	3.75		
DCT-S271B	0.5%	1000 A	5 A	5		

*1: See the following table for detailed information on the external dimensions and sizes of opening.

Model Number	Dimension (mm)	
DCT-S201B	External Dimension: 90 x 40 x 110 Size of Opening: 20 x 30	
DCT-S211B		
DCT-S221B		
DCT-S231B	External Dimension: 115 x 57 x 158 Size of Opening: 50 x 80	
DCT-S241B		
DCT-S251B		
DCT-S261B		
DCT-S2C1B		
DCT-S271B		

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A