

MANUAL

Model: CPM-6

DIN Rail Type
Power Meter



DCbox



1– Introduction

This manual provides operating, maintenance and installation instructions. This unit measures and displays the characteristics of single phase two wires(1p2w), three phase three wires(3p3w) and three phase four wires(3p4w) networks. The measuring parameters include voltage(V), frequency(Hz), current(A), power(kW/Kva/Kvar), import, export and total Energy(kWh/kvArh). The unit can also measure Maximum demand current and power, this is measured over preset periods of up to 60 minutes.

This unit is a 1A or 5A current transformer operated and can be configured to work with a wide range of CTs. Built-in pulse and Modbus or M-Bus outputs. Configuration is password protected.

This unit can be powered from a separate auxiliary (AC or DC) supply. Alternatively it can be powered from the monitored supply by linking the voltage reference and neutral reference in to terminals 5 and 6 (Please refer to wiring diagram).

1-1 Unit Characteristics

The Unit can measure and display:

- Voltage and THD% (total harmonic distortion) of all phases
- Line frequency
- Currents, current demand and current THD% of all phases
- Power, maximum power demand and power factor
- Active energy imported and exported
- Reactive energy imported and exported

Multi-parameter measurement	Single Tariff 1A/5A CT operated	Rs485 Port Modbus RTU	Bi-directional energy
-----------------------------	------------------------------------	--------------------------	-----------------------

1-2 Current Transformer Primary Current

The CPM-6 is CT operated. you will need to set the the correct ratio. As an example: If using 100/5A CT, you will need to insure CT2 (Secondary) is set to 5 and CT rate is 0020. You divide the primary by the secondary to get the CT rate to be entered ($100/5=20$).

1-3 RS485 Modbus RTU / M-Bus

The CPM-6 has a Rs485 port with Modbus RTU protocol. Rs485 or M-Bus provide a means of remotely monitoring and controlling the unit. Set-up screens are provided for setting up the communication port.

1-4 Pulse output

Two pulse outputs that pulse measured active and reactive energy. The Pulse 2 constant for active energy is 3200imp/kWh. (Terminals 11 & 12) The pulse width for Pulse 1 can be set from the set-up menu (Terminals 9 & 10).

2– Start Up Screens

	The first screen lights up all display segments and can be used as a display check.
	Software version information
	The interface performs a self-test and indicates the result if the test passes.

*After a short delay, the screen will display active energy measurements.

3– Measurements

The buttons operate as follows:

	Selects the Voltage and Current display screens. In Set-up Mode, this is the “Left” or “Back” button.
	Select the Frequency and Power factor display screens. In Set-up Mode, this is the “Up” button.
	Select the Power display screens. In Set-up Mode, this is the “Down” button.
	Select the Energy display screens. In Set-up mode, this is the “Enter” or “Right” button.

3-1 Voltage and Current

Each successive press of the button  selects a new parameter:

L¹ 0000.0 V L² 0000.0 L³ 0000.0	Phase to neutral voltages.
L¹ 0.0000 L² 0.0000 L³ 0.0000 A	Current on each phase.
L¹ 0000.0 V %THD L² 0000.0 L³ 0000.0	Phase to neutral voltage THD%.
L¹ 0000.0 I%THD L² 0000.0 L³ 0000.0	Current THD% for each phase.

3-2 Frequency / Power Factor / Demand

Each successive press of the button  selects a new range:

Σ 00.00 Hz 0.999 PF	Frequency and Power Factor (total).
L¹ 0.9999 L² 0.9999 L³ 0.9999 PF	Power Factor of each phase.
MD 0.0000 kW Σ	Maximum Power Demand.
MD 0.0000 A L¹ 0.0000 L² 0.0000 L³ 0.0000	Maximum Current Demand.

3-3 Power

Each successive press of the button  selects a new range:

L¹ 0.000 kW L² 0.000 L³ 0.000	Instantaneous Active Power in kW.
L¹ 0.000 kVar L² 0.000 L³ 0.000	Instantaneous Reactive Power in kVar.
L¹ 0.000 kVA L² 0.000 L³ 0.000	Instantaneous Volt-Amps in KVA.
Σ 0.000 kW 0.000 kVar 0.000 kVA	Total kW, kVarh, kVA.

3-4 Energy Measurements

Each successive press of the button  selects a new range:

IMPORT 0000 kWh 0.314	Import active energy in kWh.
EXPORT 0000 kWh 000.0	Export active energy in kWh.
IMPORT 0000 kVarh 000.0	Import reactive energy in kVarh.
EXPORT 0000 kVarh 000.0	Export reactive energy in kVarh.

	Total active energy in kWh.
	Total reactive energy in kVAh.
	T1 active energy in kWh
	T2 active energy in kWh
	T1 reactive energy in kVAh
	T2 reactive energy in kVAh

4- Set Up

To enter set-up mode, press the button for 3 seconds, until the password screen appears.

Chapter 4-Set up

	Setting up is password-protected so you must enter the correct password (default '1000') before processing.
	If an incorrect password is entered, the display will show: PASS Err

To exit setting-up mode, press repeatedly until the measurement screen is restored.

4-1 Set-up Entry Methods

Some menu items, such as password and CT, require a four-digit number entry while others, such as supply system, require selection from a number of menu options.

4-1.1 Menu Option Selection

1. Use the  and  buttons to scroll through the different options of the set up menu.
2. Press  to confirm your selection
3. If an item flashes, then it can be adjusted by the  and  buttons.
4. Having selected an option from the current layer, press  to confirm your selection. The SET indicator will appear.
5. Having completed a parameter setting, press  to return to a higher menu level. The SET indicator will be removed and you will be able to use the  and  buttons for further menu selection.
6. On completion of all setting-up, press  repeatedly until the measurement screen is restored.

4-1.2 Number Entry Procedure

When Setting up the unit, some screens require the entering of a number. In particular, on entry to the setting up section, a password must be entered. Digits are set individually, from left to right. The procedure is as follows:

1. The current digit to be set flashes and is set using the  and  buttons
2. Press  to confirm each digit setting. The SET indicator appears after the last digit has been set.
3. After setting the last digit, press  to exit the number setting routine. The SET indicator will be removed.

4-2 Change Password

	Use the MDI/PPHIZ and P buttons to choose the change password option.
	Press the E button to enter the change password routine. The new password screen will appear with the first digit flashing.
	Use MDI/PPHIZ and P to set the first digit and press E to confirm your selection. The next digit will flash.
	Repeat the procedure for the remaining three digits.
	After setting the last digit, SET will show.

Press **V/A EDC** to exit the number setting routine and return to the Set-up menu. SET will be removed.

4-3 DIT Demand Integration Time

This sets the period in minutes over which the current and power readings are integrated for maximum demand measurement. The options are: off, 5, 10, 15, 30, 60 minutes.

	From the set-up menu, use MDI/PPHIZ and P buttons to select the DIT option. The screen will show the currently selected integration time.
	Press E to enter the selection routine. The current time interval will flash.
	Use MDI/PPHIZ and P buttons to select the time required.
	Press E to confirm the selection. SET indicator will appear.

Press **V/A EDC** to exit the DIT selection routine and return to the menu.

Warnings

Important Safety Information is contained in the Maintenance section. Familiarize yourself with this information before attempting installation or other procedures. Symbols used in this document:



Risk of Danger: These instructions contain important safety information. Read them before starting installation or servicing of the equipment.



Caution: Risk of Electric Shock

4-4 Supply System

The unit has a default setting of 3Phase 4wire (3P4).

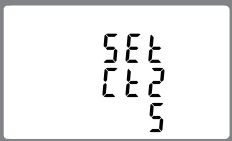
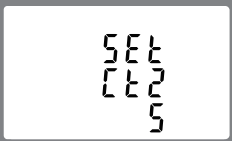
Use this section to set the type of electrical system.

	From the set-up menu, use and buttons to select the system option. The screen will show the currently selected power supply.
	Press to enter the selection routine. The current selection will flash.
	Use and buttons to select the required system option: 1P2(W), 3P3(W), 3P4(W).
	Press to confirm the selection. SET indicator will appear.

Press to exit the system selection routine and return to the menu. SET will disappear and you will be returned to the main set-up Menu.

4-5 CT

The CT option sets the secondary current (CT2 1A or 5A) of the current transformer (CT) that wires to the meter.

	From the set-up menu, use MID/PRG and P buttons to select the CT option.
	Secondary CT setting Press E to enter the CT secondary current selection routine.:5A/1A
	Set CT Ratio value Press E to enter the CT Ratio setting screen. The range is from 0001 to 9999.

For example, if using a 100/5A current transformer you will enter 0020, as you need to divide the primary by the secondary to get the ratio (CT rate).

*** Please note for the MID approved version device, you will only have one opportunity to set the ratio.**

4-6 PT

The PT option sets the secondary voltage (PT2 100 to 500V) of the voltage transformer (PT) that may be connected to the meter.

	Use MID/PRG and P buttons to select the PT option. The screen will show the voltage PT secondary voltage value. The default value is 400V.
	Secondary PT setting Press E to enter the PT secondary voltage selection routine. The range is from 100 to 500V.
	Set PT ratios value Press E to enter the PT ratio screen. The range is from 0001 to 9999.

For example, if set the ratio to be 100, it means the primary voltage equals secondary voltage x100.

4-7 Pulse Output

This option allows you to configure the pulse output. The output can be set to provide a pulse for a defined amount of energy active or reactive. Use this section to set up the relay pulse output—Units: kWh, kVArh

	From the set-up menu, use and buttons to select the Pulse output option.
	Press to enter the selection routine. The unit symbol will flash.
	Use and buttons to choose kWh or kVArh.

On completion of the entry procedure, press to confirm the setting and press to return to the main set up menu.

4-7.1 Pulse rate

Use this to set the energy represented by each pulse. Rate can be set to 1 pulse per 0.01kWh/0.1kWh/1kWh/10kWh/100kWh.



(It shows 1 impulse = 10kWh/kVArh)

	From the set-up menu, use and buttons to select the Pulse Rate option.
	Press to enter the selection routine. The current setting will flash. 0.01/0.1/1/10/100kWh/kVArh per pulse.

Use and buttons to choose pulse rate. On completion of the entry procedure, press to confirm the setting and press to return to the main set up menu.

4-7.2 Pulse Duration

The energy monitored can be active or reactive and the pulse width can be selected as 200, 100 or 60ms.



(It shows pulse width of 200ms)

	From the set-up menu, use MDI / PF12Z and P buttons to select the Pulse width option.
	Press E button to enter the selection routine. The current setting will flash.

Use **MDI / PF12Z** and **P** buttons to choose pulse width. On completion of the entry procedure press **E** to confirm the setting and press **W/A ESC** to return to the main set up menu.

4-8 Communication

There is a RS485 port can be used for communication using Modbus RTU protocol. For Modbus RTU, parameters are selected from Front panel.

4-8.1 RS485 Address



(The range is from 001 to 247)

	From the set-up menu, use MDI / PF12Z and P buttons to select the address ID.
	Press E button to enter the selection routine. The current setting will be flashing.
	Use MDI / PF12Z and P buttons to choose Modbus address (001 to 247).

On completion of the entry procedure, press **E** button to confirm the setting and press **W/A ESC** button to return the main set-up menu.

4-8.2 M-Bus Address

	Primary address: 001 to 250 Use and buttons to select the address value.
	Press to enter the selection routine. The current setting will flash.
	Secondary address: 00 00 00 01 to 99 99 99 99

On completion of the entry procedure, press to confirm the setting and press to return to the main set up menu.

4-8.3 Baud Rate

	From the set-up menu, use and buttons to select the Baud Rate option.
	Press to enter the selection routine. The current setting will flash.
	Use and buttons to choose Baud rate 2.4k, 4.8k, 9.6k, 19.2k, 38.4k

On completion of the entry procedure, press to confirm the setting and press to return to the main set up menu.

4-8.4 Parity

	From the set-up menu, use  and  buttons to select the parity option.
	Press  to enter the selection routine. The current setting will flash.
	Use  and  buttons to choose parity (EVEN / ODD / NONE (default)).

On completion of the entry procedure, press  to confirm the setting and press  to return to the main set up menu.

4-8.5 Stop bits

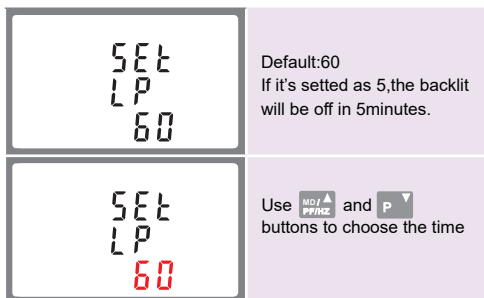
	From the set-up menu, use  and  buttons to select the stop bit option.
	Press  to enter the selection routine. The current setting will flash.
	Use  and  buttons to choose stop bit (2 or 1) Note: Default is 1, and only when the parity is NONE that the stop bit can be changed to 2.

On completion of the entry procedure, press  to confirm the setting and press  to return to the main set up menu.

4-9 Backlit set-up

The meter provides a function to set the blue backlit lasting time(0/5/10/30/60/120 minutes).

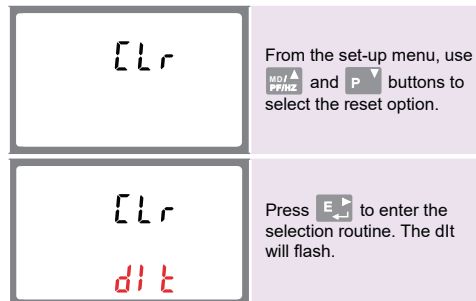
Option 0 means the backlit always on here.



Press to confirm the setting and press to return to the main set up menu.

4-10 CLR

The meter provides a function to reset the maximum demand value of current and power.



Press to confirm the setting and press to return to the main set up menu.

5– Specifications

5–1 Measured Parameters

The unit can monitor and display the following parameters of a single phase two wire(1p2w), three phase three wire(3p3w) or three phase four wire(3p4w) system.

5–1.1 Voltage and Current

- Phase to neutral voltages 100 to 289V a.c. (not for 3p3w supplies).
- Voltages between phases 173 to 500V a.c. (3p supplies only).
- Percentage total voltage harmonic distortion (THD%) for each phase to N (not for 3p3w supplies).
- Percentage voltage THD% between phases (three phase supplies only).
- Current THD% for each phase.

5–1.2 Power factor / Frequency / Max. Demand

- Frequency in Hz
- Instantaneous power:
- Power 0 to 3600 MW
- Reactive power 0 to 3600 MVAR
- Volt-amps 0 to 3600 MVA
- Maximum demanded power since last Demand reset
- Power factor
- Maximum neutral demand current, since the last Demand reset (for three phase supplies only)

5–1.3 Energy Measurements

- Import/Export active energy 0 to 9999999.9 kWh
- Import/Export reactive energy 0 to 9999999.9 kVArh
- Total active energy 0 to 9999999.9 kWh
- Total reactive energy 0 to 9999999.9 kVArh

5–2 Measured Inputs

Voltage inputs through 4–way fixed connector with 2.5mm² stranded wire capacity.single phase two wire(1p2w), three phase three wire(3p3w) or three phase four wire(3p4w) unbalanced. Line frequency measured from L1 voltage or L3 voltage.

Three current inputs (six physical terminals) with 2.5mm² stranded wire capacity for connection of external CTs. Nominal rated input current 5A or 1A a.c. Rms.

5–3 Accuracy

- Voltage 0.5% of range maximum
- Current 0.5% of nominal
- Frequency 0.2% of mid–frequency
- Power factor 1% of unity (0.01)
- Active power (W) ±1% of range maximum
- Reactive power (VAr) ±1% of range maximum
- Apparent power (VA) ±1% of range maximum
- Active energy (Wh) Class 1 IEC 62053–21
- Reactive energy (VArh) ±1% of range maximum
- Total harmonic distortion 1% up to 31st harmonic
- Response time to step input 1s, typical, to >99% of final reading, at 50 Hz.

5-4 Auxiliary Supply

Two-way fixed connector with 2·5mm² stranded wire capacity.
85 to 275V a.c. 50/60Hz ±10% or 120V to 380V d.c. ±20%.
Consumption < 10W.

5-5 Interfaces for External Monitoring

Three interfaces are provided:

- RS485 communication channel that can be programmed for Modbus RTU protocol
- Relay output indicating real-time measured energy. (configurable)
- Pulse output 3200imp/kWh (not configurable)

The Modbus configuration (baud rate etc.) and the pulse relay output assignments (kW/kVA_{rh}, import/export etc.) are configured through the set-up screens.

5-5.1 Pulse Output

The pulse output can be set to generate pulses to represent kWh or kVA_{rh}.

Rate can be set to generate 1 pulse per:

0.01 = 10 Wh/VA_{rh}

0.1 = 100 Wh/VA_{rh}

1 = 1 kWh/kVA_{rh}

10 = 10 kWh/kVA_{rh}

100 = 100 kWh/kVA_{rh}

1000 = 1000 kWh/kVA_{rh}

Pulse width 200/100/60 ms.

Relay Rating 240V ac 50mA

5-5.2 RS485 Output for Modbus RTU

For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu:

Baud rate 2400, 4800, 9600, 19200, 38400

Parity none (default) / odd / even

Stop bits 1 or 2

RS485 network address nnn – 3-digit number, 1 to 247

Modbus Word order Hi/Lo byte order is set automatically to normal or reverse. It cannot be configured from the set-up menu.

5-6 Reference Conditions of Influence Quantities

Influence Quantities are variables that affect measurement errors to a minor degree. Accuracy is verified under nominal value (within the specified tolerance) of these conditions.

- | | |
|-------------------------------------|---|
| • Ambient temperature | 23°C ±1°C |
| • Input frequency | 50 or 60Hz ±2% |
| • Input waveform | Sinusoidal
(distortion factor < 0·005) |
| • Auxiliary supply voltage | Nominal ±1% |
| • Auxiliary supply frequency | Nominal ±1% |
| • Auxiliary supply waveform (if AC) | Sinusoidal
(distortion factor < 0·05) |
| • Magnetic field of external origin | Terrestrial flux |

5-7 Environment

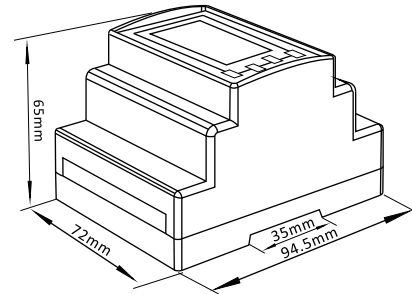
- Operating temperature -25°C to +55°C*
- Storage temperature -40°C to +70°C*
- Relative humidity 0 to 95%, noncondensing
- Altitude Up to 3000m
- Warm up time 1 minute
- Vibration 10Hz to 50Hz, IEC 60068-2-6, 2g
30g in 3 planes
- Shock

* Maximum operating and storage temperatures are in the context of typical daily and seasonal variation.

5-8 Mechanics

- DIN rail dimensions 72 x 94.5 mm (WxH)
per DIN 43880
- Mounting DIN rail (DIN 43880)
- Sealing Ip51 (indoor)
- Material Self-extinguishing
UL94 V 0

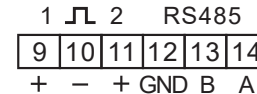
6-1 Dimensions



Chapter 6-Overview

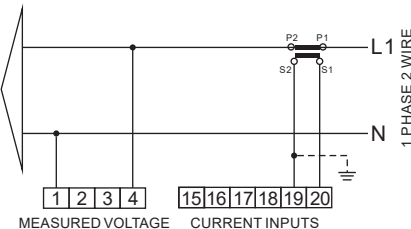
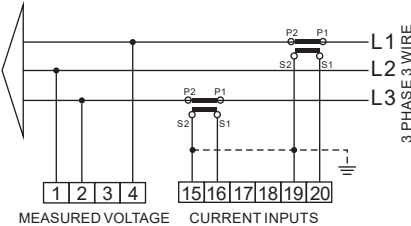
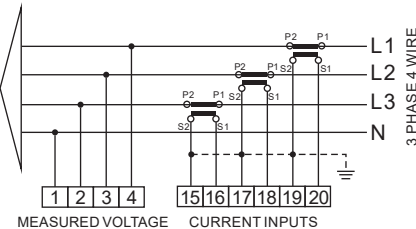
6-2 Definitions of terminals

AUXILIARY
SUPPLY



6-3 Wiring Connection

Current and Voltage inputs



INPUT REGISTERS

Address (Register)	Input Register Parameter				Modbus Protocol Start Address Hex		3 0	3 0	1 0
	Description	Length (bytes)	Data Format	Units	Hi Byte	Lo Byte	4 W	3 W	2 W
30001	Phase 1 line to neutral volts.	4	Float	V	00	00	√	X	√
30003	Phase 2 line to neutral volts.	4	Float	V	00	02	√	X	X
30005	Phase 3 line to neutral volts.	4	Float	V	00	04	√	X	X
30007	Phase 1 current.	4	Float	A	00	06	√	√	√
30009	Phase 2 current.	4	Float	A	00	08	√	√	X
30011	Phase 3 current.	4	Float	A	00	0A	√	√	X
30013	Phase 1 active power.	4	Float	W	00	0C	√	X	√
30015	Phase 2 active power.	4	Float	W	00	0E	√	X	X
30017	Phase 3 active power.	4	Float	W	00	10	√	X	X
30019	Phase 1 apparent power.	4	Float	VA	00	12	√	X	√
30021	Phase 2 apparent power.	4	Float	VA	00	14	√	X	X
30023	Phase 3 apparent power.	4	Float	VA	00	16	√	X	X
30025	Phase 1 reactive power.	4	Float	VAr	00	18	√	X	√
30027	Phase 2 reactive power.	4	Float	VAr	00	1A	√	X	X
30029	Phase 3 reactive power.	4	Float	VAr	00	1C	√	X	X
30031	Phase 1 power factor (1).	4	Float	None	00	1E	√	X	√
30033	Phase 2 power factor (1).	4	Float	None	00	20	√	X	X
30035	Phase 3 power factor (1).	4	Float	None	00	22	√	X	X
30037	Phase 1 phase angle.	4	Float	Degrees	00	24	√	X	√

30039	Phase 2 phase angle.	4	Float	Degrees	00	26	√	X	X
30041	Phase 3 phase angle.	4	Float	Degrees	00	28	√	X	X
30043	Average line to neutral volts.	4	Float	V	00	2A	√	X	X
30047	Average line current.	4	Float	A	00	2E	√	√	√
30049	Sum of line currents.	4	Float	A	00	30	√	√	√
30053	Total system power.	4	Float	W	00	34	√	√	√
30057	Total system volt amps.	4	Float	VA	00	38	√	√	√
30061	Total system VAr.	4	Float	VAr	00	3C	√	√	√
30063	Total system power factor (1).	4	Float	None	00	3E	√	√	√
30067	Total system phase angle.	4	Float	Degrees	00	42	√	√	√
30071	Frequency of supply voltages.	4	Float	Hz	00	46	√	√	√
30073	Total Import kWh	4	Float	kWh	00	48	√	√	√
30075	Total Export kWh.	4	Float	kWH	00	4A	√	√	√
30077	Total Import kVArh .	4	Float	kVArh	00	4C	√	√	√
30079	Total Export kVArh .	4	Float	kVArh	00	4E	√	√	√
30081	Total VAh	4	Float	kVAh	00	50	√	√	√
30083	Ah	4	Float	Ah	00	52	√	√	√
30085	Total system power demand (2) .	4	Float	W	00	54	√	√	√
30087	Maximum total system power demand (2).	4	Float	W	00	56	√	√	√
30101	Total system VA demand.	4	Float	VA	00	64	√	√	√
30103	Maximum total system VA demand.	4	Float	VA	00	66	√	√	√
30105	Neutral current demand.	4	Float	Amps	00	68	√	X	X
30107	Maximum neutral current demand.	4	Float	Amps	00	6A	√	X	X
30109	Total system reactive power demand. (2)	4	Float	VAr	00	6C	√	X	√
30111	Maximum total system reactive power demand(2)	4	Float	VAr	00	6E	√	X	√

30201	Line 1 to Line 2 volts.	4	Float	V	00	C8	√	√	X
30203	Line 2 to Line 3 volts.	4	Float	V	00	CA	√	√	X
30205	Line 3 to Line 1 volts.	4	Float	V	00	CC	√	√	X
30207	Average line to line volts.	4	Float	V	00	CE	√	√	X
30225	Neutral current.	4	Float	A	00	E0	√	X	X
30235	Phase 1 L/N volts THD	4	Float	%	00	EA	√	X	√
30237	Phase 2 L/N volts THD	4	Float	%	00	EC	√	X	X
30239	Phase 3 L/N volts THD	4	Float	%	00	EE	√	X	X
30241	Phase 1 Current THD	4	Float	%	00	F0	√	√	√
30243	Phase 2 Current THD	4	Float	%	00	F2	√	√	X
30245	Phase 3 Current THD	4	Float	%	00	F4	√	√	X
30249	Average line to neutral volts THD.	4	Float	%	00	F8	√	X	√
30251	Average line current THD.	4	Float	%	00	FA	√	√	√
30255	Total system power factor (1).	4	Float	Degrees	00	FE	√	√	√
30259	Phase 1 current demand.	4	Float	A	01	02	√	√	√
30261	Phase 2 current demand.	4	Float	A	01	04	√	√	X
30263	Phase 3 current demand.	4	Float	A	01	06	√	√	X
30265	Maximum phase 1 current demand.	4	Float	A	01	08	√	√	√
30267	Maximum phase 2 current demand.	4	Float	A	01	0A	√	√	X
30269	Maximum phase 3 current demand.	4	Float	A	01	0C	√	√	X
30335	Line 1 to line 2 volts THD.	4	Float	%	01	4E	√	√	X
30337	Line 2 to line 3 volts THD.	4	Float	%	01	50	√	√	X
30339	Line 3 to line 1 volts THD.	4	Float	%	01	52	√	√	X
30341	Average line to line volts THD.	4	Float	%	01	54	√	√	X
30343	Total kWh (3)	4	Float	kWh	01	56	√	√	√

30345	Total kVArh (3)	4	Float	kVArh	01	58	√	√	√
30347	L1 import kWh	4	Float	kWh	01	5A	√	√	√
30349	L2 import kWh	4	Float	kWh	01	5C	√	√	X
30351	L3 import kWh	4	Float	kWh	01	5E	√	√	X
30353	L1 export kWh	4	Float	kWh	01	60	√	√	√
30355	L2 export kWh	4	Float	kWh	01	62	√	√	X
30357	L3 export kWh	4	Float	kWh	01	64	√	√	X
30359	L1 total kWh	4	Float	kWh	01	66	√	√	√
30361	L2 total kWh	4	Float	kWh	01	68	√	√	X
30363	L3 total kWh	4	Float	kWh	01	6A	√	√	X
30365	L1 import kVArh	4	Float	kVArh	01	6C	√	√	√
30367	L2 import kVArh	4	Float	kVArh	01	6E	√	√	X
30369	L3 import kVArh	4	Float	kVArh	01	70	√	√	X
30371	L1 export kVArh	4	Float	kVArh	01	72	√	√	√
30373	L2 export kVArh	4	Float	kVArh	01	74	√	√	X
30375	L3 export kVArh	4	Float	kVArh	01	76	√	√	X
30377	L1 total kVArh	4	Float	kVArh	01	78	√	√	√
30379	L2 total kVArh	4	Float	kVArh	01	7A	√	√	X
30381	L3 total kVArh	4	Float	kVArh	01	7C	√	√	X
30385	resettable total active energy	4	Float	kWh	01	80	√	√	√
30387	resettable total reactive energy	4	Float	kVArh	01	82	√	√	√
30389	resettable import active energy	4	Float	kWh	01	84	√	√	√
30391	resettable export active energy	4	Float	kWh	01	86	√	√	√
30393	resettable import reactive energy	4	Float	kVArh	01	88	√	√	√
30395	resettable export reactive energy	4	Float	kVArh	01	8A	√	√	√

■ HOLDING REGISTERS

Address Register	Parameter Number	Parameter	Modbus Protocol Start Address Hex		Valid range	Mode
			High Byte	Low Byte		
40001	1	Demand Time	00	00	Read minutes into first demand calculation. When the demand time reaches the demand Period then the demand values are valid. Length : 4 byte Data Format : Float	ro
40003	2	Demand Period	00	02	Write demand period: 0, 5, 8, 10, 15, 20, 30 or 60 minutes, default 60. Setting the period to 0 will cause the demand to show the current parameter value, and demand max to show the maximum parameter value since last demand reset. Length : 4 byte Data Format : Float	r/w
40011	6	System Type	00	0A	Write system type: 3p4w = 3, 3p3w = 2 & 1p2w= 1 Requires password, see parameter 13 Length : 4 byte Data Format : Float	r/w

40013	7	Pulse output 1 Width	00	OC	Write relay on period in milliseconds: 60, 100 or 200, default 200. Length : 4 byte Data Format : Float	r/w
40015	8	Password Lock	00	OE	Read password lock status: 0 = locked. 1 = unlocked. Length : 4 byte Data Format : Float	ro
40019	10	Parity Stop	00	12	Write the parity/stop bits for MODBUS Protocol, where: 0 = One stop bit and no parity, default. 1 = One stop bit and even parity. 2 = One stop bit and odd parity. 3 = Two stop bits and no parity. Length : 4 byte Data Format : Float	r/w
40021	11	Modbus Address	00	14	Write the Modbus Address address: 1 to 247 for MODBUS Protocol, default 1. Note, both the MODBUS node addresses can be changed via the display setup menus. Length : 4 byte Data Format : Float	r/w
40023	12	Pulse 1 Divisor	00	16	Write pulse divisor index: n = 1 to 6 1--0.01kwh/imp 2--0.1kwh/imp 3--1kwh/imp 4-10kwh/imp 5-100kwh/imp 6-1000kwh/imp Length : 4 byte Data Format : Float	r/w
40025	13	Password	00	18	Write password for access to protected registers. Default password is 1000. Length : 4 byte Data Format : Float	r/w

40029	15	Baud Rate	00	1C	Write the baud rate for MODBUS Protocol, where: 0 = 2400 baud. 1 = 4800 baud. 2 = 9600 baud, default. 3 = 19200 baud. 4 = 38400 baud. Length : 4 byte Data Format : Float	r/w
40063	32	CT ratio	00	3E	CT Ratio range:1~2000 CT Ratio= primary current /secondary current Length : 4 byte Data Format : Float Requires password, see parameter 13 (Non MID)	r/w
40065	33	PT ratio	00	40	PT Ratio range:1~2000 PT ratio= primary voltage /secondary voltage Length : 4 byte Data Format : Float Requires password, see parameter 13 (Non MID)	r/w
40087	44	Pulse 1 Energy Type	00	56	Write MODBUS Protocol input parameter for pulse out 1: 37 = total kwh or 39 = total kVarh, default 39. Length : 4 byte Data Format : Float	r/w
461457	30729	Reset	F0	10	00 00 : reset the Maximum demand 00 03: reset the resettable energy Length : 2 byte Data Format:Hex	wo

www.dcbox.com.tw



Song Yih Technology Co., Ltd.

TEL +886-2-8200-4455 **FAX** +886-2-8200-4427

For Sales & Marketing ✉ ken@dcbox.com.tw

For Technical Support ✉ fae@dcbox.com.tw

4F-2, No.492, Sec.1, Wanshou Road,
Guishan District, Taoyuan City, Taiwan, 33350.