ENGLISH

THREE-PHASE MULTIFUNCTION ENERGY METER with Wi-Fi connection

4 DIN modules

App: Perry Smart

Available on the App Store

Get it on Google play

The digital energy meter 1SDSD10CET4WIFI measures energy consumption in three-phase systems. When a Wi-Fi network is available, it can be connected to the Internet and monitored via the **Perry Smart** App installed on a smartphone or tablet.This useful feature allows users to view energy consumption remotely, through an interface that is easy to understand.
Multifunction measurement of the following parameters: voltage, current, active power, reactive power, apparent power, and power factor.

EU SIMPLIFIED CONFORMITY DECLARATION
The manufacturer declares that the type of radio equipment listed below complies with Directive 2014/53/EU (RED).The full text of the EU Declaration of Conformity is available at the following Internet address:

Manufacturer, Fabricat, Fabrikant, Fabbricante, Fabricante:
PERRY ELECTRIC S.r.l.
Via MILANESE, 11 - 22070 VENIANO (Como)
ITALY - www.perry.it
Tel. +39-031-8944.1
http://www.perry.it/it/dichiarazioni

Type, Typen, Tipo:	*Series, Serie:*
1SDSD10CET4WIFI	V001

CE

COMPLETE MANUAL for installation, commissioning, and use

PERRY ELECTRIC Srl
Via Milanese, 11
22070 VENIANO (Como) ITALY

www.perry.it

INDEX

⚠ SAFETY INSTRUCTIONS!

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

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

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

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

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

• Use for the intended purpose

The equipment (device, module) may only be used for the application specified in the catalogue and the user manual.

• Proper handling

The prerequisites for perfect, reliable operation of the product are proper transport, proper storage, installation and assembly, as well as proper operation and maintenance. When operating electrical equipment, certain parts of this equipment automatically carry dangerous voltages. Improper handling can therefore result in serious injuries or material damage.

- Use only insulating tools.
- Make sure that the 230V mains power supply is disconnected before proceeding with installation or maintenance.
- Place the meter only in dry surroundings.
- Do not mount the meter in an explosive area or expose the meter to dust, mildew and insects.
- Make sure the used wires are suitable for the maximum current of this meter.
- Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- Do not touch the meter connecting clamps directly with your bare hands, with metal, blank wire or other material as you may get an electrical shock.
- Make sure the protection cover is placed after installation.
- Installation, maintenance and reparation should only be done by qualified personnel.
- Never break the seals and open the front cover as this might inô€€,uence the functionality of the meter, and will avoid any warranty.
- Do not drop, or allow physical impact to the meter as there are high precision components inside that may break.

Radio frequency waves emitted by the wireless programmable thermostat are not a risk to human or animal health.

**Important: the manufacturer shall not, under any circumstances, be liable if the products fail to operate due to the interruption of the internet network or unavailability of these resources:
Cloud,Server,Portal.**

Important: internet access costs are charged to users according to the rates of their mobile phone provider.

Important: the manufacturer reserves the right to introduce any technical and/or constructive changes deemed necessary, with no prior notice.

1 - OVERVIEW

1.1 - Introduction

The 1SDSD10CET4WIFI is a multifunction three-phase energy meter for DIN rail installation that supports wireless Wi-Fi communication. The **PERRY SMART** platform allows remote access. This product supports the measurement and analysis of a wide range of electrical parameters, such as voltage, current, four-quadrant power, power factor, harmonic distortion, and more.

In addition, the device measures several electrical energy parameters, including bidirectional active energy, reactive energy, and provides daily and monthly electricity consumption statistics. The product supports the analysis and measurement of electrical power parameters in 1P2W and 3P4W network configurations.

It is suitable for power management of photovoltaic inverters, statistical analysis of new energy consumption, and real-time power monitoring.

This product is equipped with an RS485 or MBUS communication interface, a large LCD display, and touch-type buttons. It also features a configurable password protection function, ensuring the security of product data.

1.2 - Features

- Supports external current transformers (CTs) with 5A/1A output. The device also includes a reverse CT connection correction function.
- Through the **PERRY SMART** App, the meter can automatically connect to the Internet, allowing users to collect data remotely.
- DIN rail mounting, standard 4-module width.
- Touch key design improves operability and reduces the failure rate.
- Multifunction parameter measurement, providing voltage, current, active power, reactive power, apparent power, power factor, etc.
- Provides harmonic distortion data for both voltage and current.
- Offers a variety of statistical data and local storage functions, such as bidirectional power and demand. Provides monthly electricity consumption statistics for the last 12 months and daily consumption statistics for the last 31 days.
- Supports RS485 communication, with transmission speed up to 38400 bps, compatible with Modbus RTU protocol.
- Supports 2.4 GHz Wi-Fi wireless communication.
- Equipped with a pulse output, with configurable parameters.
- LCD display update time: 1 second, supports manual or automatic scrolling display (configurable).

1.3 - Parameters

1. The Unit can measure and display	
Instantaneous RMS Values	
Current	Per phase, neutral
Voltage	L-L, L-N
Frequency	50/60 Hz
Active power, reactive, apparent, power factor	Total and per phase
Energy Values (include: import, export, import + export)	
Energy Value	From 0 to 99.999.999 kWh (number of digits on the display LCD: 6+2 -> 7+1 -> 8+0)
Maximum Demand Values (MD)	
Max.Demand of current	Per phase
Max.Demand of active, reactive and apparent power	Total

2. The Unit can settable	
Communication	Modbus address, baud rate, parity bit, stop bit
Current transformer (CT)	Output: 1A o 5A Input: from 1A to 9999A
System configuration	User password (HMI), Power system type
Demand	Demand interval period, Slide time
Pulse output	Pulse output type, Pulse output width, Pulse output rate
Time class	Automatic scroll display time, Backlit time, System time (RTC), Tariff time

2 - TECHNICAL PARAMETERS SPECIFICATION

2.1 - Specification

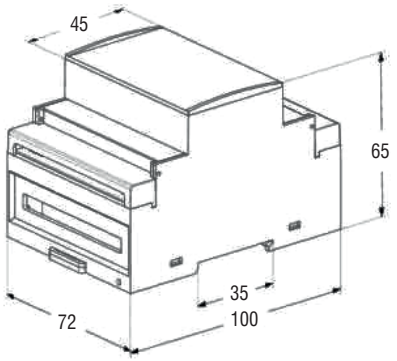
Electrical Characteristics		
Type of measurement		RMS including harmonics on AC system, support 1P2W, 3P3W
Measurement accuracy	Voltage, Current	Class 1 according IEC 61557-12
	Active and apparent power	Class 1 according IEC 61557-12
	Reactive power	Class 2 according IEC 61557-12
	Active energy	Class 1, according IEC 62053-21, IEC 61557-12
	Reactive energy	Class 2, according IEC 62053-23, IEC 61557-12
	Power factor	Class 1, according IEC 61557-12
	Frequency	Class 0.2, according IEC 61557-12
	Harmonic distortion	Class 2, according IEC 61557-12
Data update rate		1 second
Input-Voltage	Rate voltage (Un)	230 V c.a. (L-N) / 400 c.a. (L-L)
	Direct connection	From 30 to 300 V c.a. (L-N), da 30 a 500 V c.a. (L-L)
	Impedance	1MΩ
	Frequency range	50/60 Hz
	Overload capacity	2*Un for 1 second
Input-Current	CT2 (Secondary)	1A or 5A
	CT1 (Primary)	from 1 to 9999A
	Measured range	from 0,003 to 6A, basic current (Ib) is 5A
	Impedance	<0,01 ohm
	Overload capacity	120A per 0,5 seconds
Auxiliary power supply	Operating range	80 ~ 250 V c.a.
	Frequency	50/60 Hz
	Power consumption	<4VA/1,5W
Pulse output	Interface type	Open collector optocoupler
	Pulse constant	Per pulse equal 0,001/0,01/0,1/1/10/100 kWh/kvarh (Configurable)
	Pulse width	60/100/200 milliseconds (Configurable), default 100 milliseconds
	Pulse output type	Import/export/total active/reactive energy

	Class	Class A, in according IEC 62053-31
	Input voltage	5 ÷ 27 Vcc
	Input current	MAX 27 mA
Pulse indicator light on the panel		The pulse constant is 5000/CTR [imp/kWh],which represents the total active energy. CTR is the Current Transformer Ratio of the current transformer. Example: for a CT 50/5, CTR = 10, so the pulse constant is5000/10 = 500 [imp/kWh].
Real-time clock accuracy		0,5 s/d
Mechanical Characteristics		
IP Degree of Protection (IEC 60529)		Designed to IP51 front display, IP30 meter body
Dimensions (W x H x D)		72 x 100 x 65 mm
Mounting Position		DIN Rail mounting 4 modules
Material of meter case		UL 94 V-0
Environmental Characteristics		
Operating Temperature		From -25 to +55℃
Storage Temperature		From -40 to +80℃
Humidity		< 90%, not condensation
Pollution Degree		2
Altitude		Up to 2000 m
Vibration		From 10 Hz to 150 Hz, IEC 60068-2-6
Electromagnetic Characteristics		
Electrostatic Discharge		Level 4, according IEC 61000-4-2(*)
Immunity to Radiated Fields		Level 3, according IEC 61000-4-3(*)
Immunity to Electrical Fast Transients		Level 4, according IEC 61000-4-4(*)
Immunity to Surges		Level 4, according IEC 61000-4-5(*)
Immunity to Conducted Disturbances		Level 3, according IEC 61000-4-6(*)
Immunity to Magnetic Fields		IEC 61000-4-8 (*)
Immunity to Voltage Dips		IEC 61000-4-11 (*)
Radiated Emissions		Class B, according EN 55011
Conducted Emissions		Class B, according EN 55011
Harmonics		IEC 61000-3-2 (*)
(1): The experimental test is carried out according to the grade requirements of industrial grade products in IEC61326-1		
Safety		
Measurement Category		CAT III, according IEC 61010-1
Overvoltage Category		CAT III, according IEC 61010-1
Insulation		AC Voltage Test: 4 KV for 1 minut
		Impulse Voltage Test: 6 kV - 1,2/50μS waveform
Protective Class		II, according IEC61010-1

Communications	
Interfaces standard and protocols	RS485 2 wires, Modbus RTU
Buad rate	From 1200 to 384000 bps, default 9600 bps
Parity bit	None, Even, Odd, default is None
Stop bit	1 or 2, default 1
Response time	<100 ms
Transmission mode	half-duplex
Transmission distance	Up to 1000m

2.2 - Device dimensions

(mm)



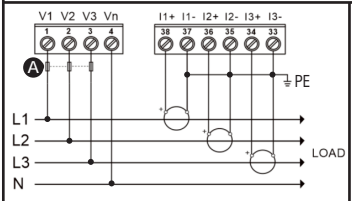
4 DIN Mod.

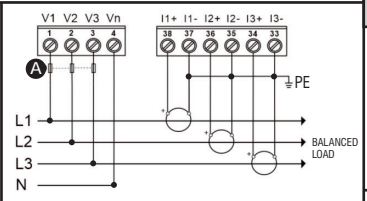
2.3 - Wiring Diagrams

Wire size: from 1.00 to 2.5 mm², with a tightening torque of 0.5 Nm.

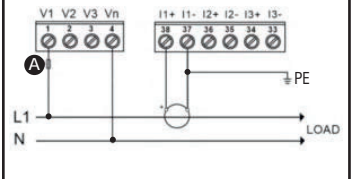
Measurement input wiring

3P4W (3CT)

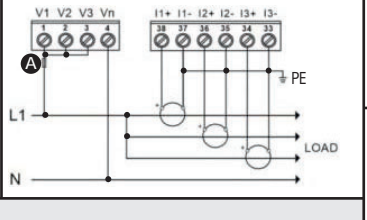




1P2W (L+N, 1CT)



1P2W (L+N, 3CT)

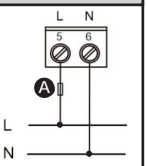


WARNING
The meter must always be protected by fuses on the voltage input terminals.

Ⓐ : Fusibile 500 mA 500V gG

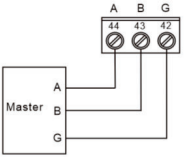
Auxiliary power wiring

AC Power

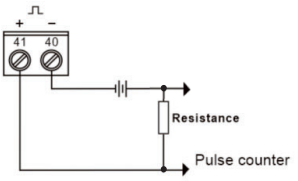


80-250 Vac

Single meter wiring



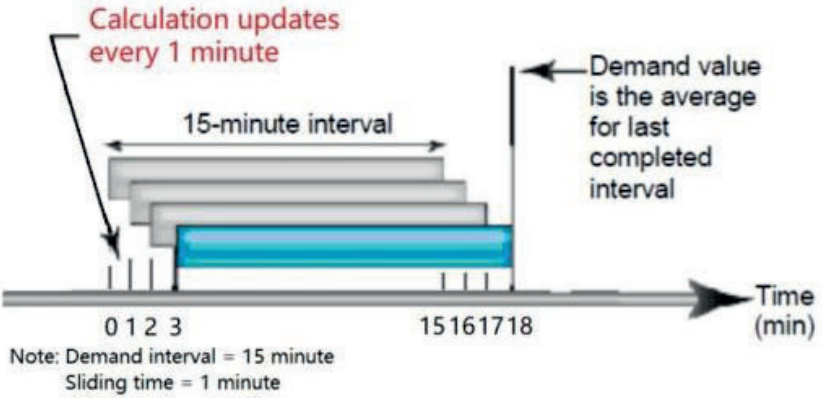
Pulse output terminal wiring



3 - GENERAL FUNCTION DESCRIPTION

3.1 - Metodo di calcolo della massima domanda (MD)

The block intervals are sliding, the power meter calculates and update the demand at the sliding speed.



As shown in the figure, the first demand calculation is performed at the 15th minute, using data from the 0th to the 15th minute.At the 16th minute, the second demand calculation is carried out, using data from the 1st to the 16th minute.At the 17th minute, the third demand calculation is performed, using data from the 2nd to the 17th minute.

3.2 - Definition of monthly freeze and daily freeze

Monthly Freeze: monthly electricity consumption calculated on a specific day of the month.
Daily Freeze: daily electricity consumption calculated at a specific hour of the day.

The **1SDSD10CET4WIFI** meter provides statistical functions for both monthly and daily electricity consumption. Regarding the monthly and daily freeze functions, the settings can be freely configured via the PERRY SMART app. The meter can monitor the current date and time in real time; when the preset monthly freeze date is reached, the meter will automatically record the monthly electricity consumption. Similarly, when the preset daily freeze time is reached, the meter will automatically record the daily electricity consumption.Below are the detailed rules for the consumption calculation.

3.3 - Monthly Freeze Rules

The monthly freeze can be set by entering a desired date. When the time reaches 00:00 on the selected date, the meter records the electricity consumption for the month. Setting the monthly freeze date: if the monthly freeze date is set before the 15th of the month (including the 15th), the recorded energy represents the electricity consumption of the previous month. If the monthly freeze date is set after the 15th, the recorded energy will correspond to the electricity consumption of the current month.

Example 1: If the monthly freeze date is set to the 5th, assuming it is 20:00 on July 4th, when the time reaches 00:00 on July 5th, the meter will perform the monthly electricity consumption calculation for June (from 00:00 on June 5th to 00:00 on July 5th).In accordance with the above counting rules, the meter's electricity consumption reading for July before 00:00 on July 5th will show 0, because the energy consumed from the 1st to the 5th is counted toward the previous month: June.
Example 2: If the monthly freeze date is set to the 27th, assuming it is 20:00 on July 26th, when the time reaches 00:00 on July 27th, the meter will perform the monthly electricity consumption calculation for July (from 00:00 on June 27th to 00:00 on July 27th).

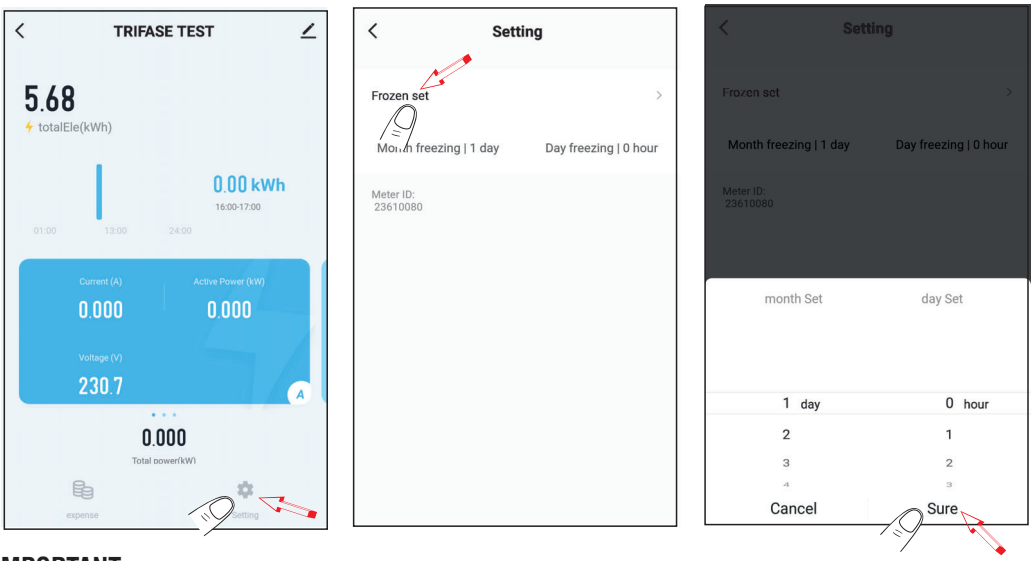
3.4 - Daily Freeze Rules

The daily freeze is set by the hour value. When the time reaches the desired preset hour, the meter records the electricity currently used and saves it as the consumption for the previous day.
Example 1: If the daily freeze time is set to 03:00, assuming the current time is 02:00 on July 5th, when the time reaches 03:00 on July 5th, the meter will perform the daily electricity consumption calculation for July 4th (from 03:00 on July 4th to 03:00 on July 5th).
Example 2: If the daily freeze time is set to 20:00, assuming the current time is 02:00 on July 5th, when the time reaches 20:00 on July 5th, the meter will perform the daily electricity consumption calculation for July 4th (from 20:00 on July 4th to 20:00 on July 5th).
In accordance with the above counting rules: if a query is made for the meter's electricity consumption on July 5th in the period from 20:00 on July 4th to 19:59 on July 5th, the meter will show 0, because the daily freeze counting point has not yet been reached.If a query is made for the meter's electricity consumption on July 5th in the period from 20:00 on July 5th to 19:59 on July 6th, the current accumulated electricity consumption value will be displayed.

3.5 - Setting the Monthly Freeze Date and the Daily Freeze Time

Open the PERRY SMART APP, search for the meter to be configured, click to enter the meter interface, click the setting button at the bottom right corner of the screen to access the setting interface, click "Set Freeze" in the setting interface, select the date for Monthly Freeze and the time for Daily Freeze, then click the confirm button (OK) to apply the settings.

Example: Setting the Monthly Freeze date and Daily Freeze time



IMPORTANT:

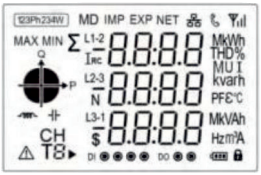
1. The meter's default **Monthly Freeze** date is day 1 and the Daily Freeze time is 0 (00:00).

2. After resetting the counting date and time, the meter automatically resets the monthly and daily consumption data and starts accumulating again.

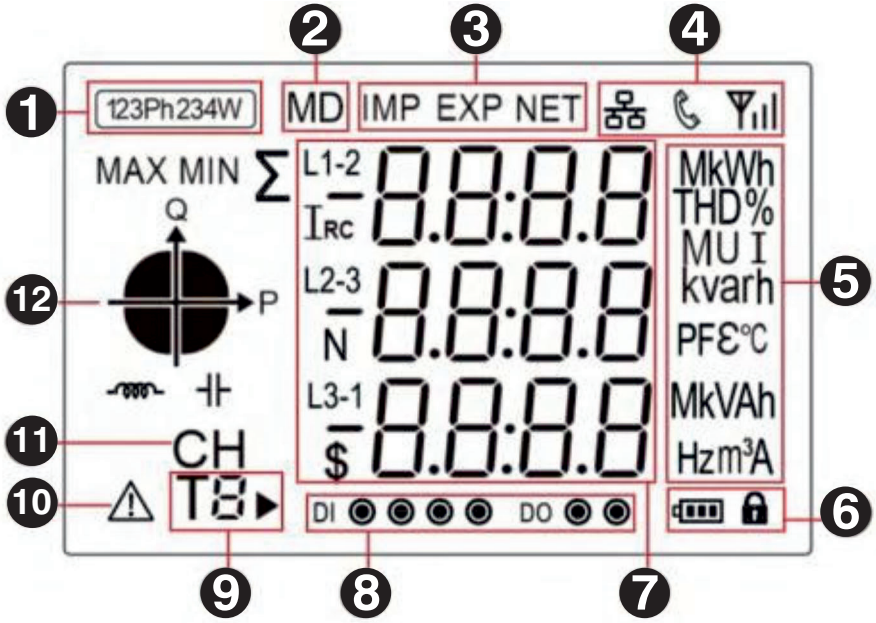
4 - OPERATION

4.1 - Instructions for Meter Commissioning

After the Perry 1SDSD10CET4WIFI energy meter has been correctly wired, it will enter the self-test process. The following shows the sequence of the LCD screen display:

First Screen Display	Full-Screen Character Display	
Second Screen Display	Display of Installed Software Version	
Third Screen Display	Display of Self-Test Result	

4.2 - Description of the LCD Display Area



1: Electric Network Type Icon
2: Maximum Demand Icon
3: Energy Import and Export Icon
4: Meter Status Icon
5: Data Unit Icon
6: Battery and Lock Status Icon, displays the battery status and indicates that the device is locked
7: Measured Values
8: Digital I/O Status Icon
9: Multi-Tariff Icon, indicates the tariff segment to which the current energy is assigned
10: Warning Status Icon
11: Multi-Channel Measurement Icon
12: Load Characteristic Icon

4.3 - Network Configuration Operation

NOTE: During network configuration, it is recommended to enable the Bluetooth on your mobile phone to improve the configuration smoothness.

Step 1: After completing the wiring according to the meter's electrical diagram, turn on the meter.

Step 2: Connect the phone's WIFI to the router to which the meter will be connected (ensure that the router generates a 2.4 GHz network, otherwise the network configuration will be interrupted).

App:
Perry Smart

Available on the App Store

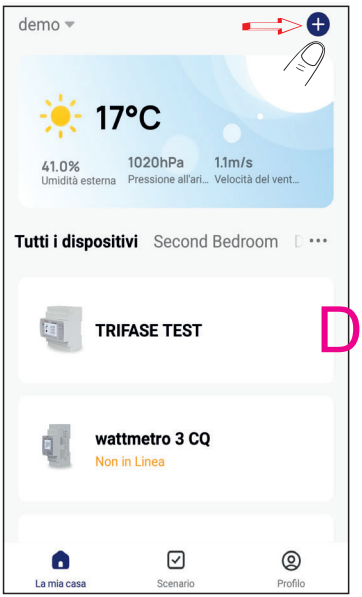
Get it on Google play

IMPORTANT! For the operating modes of the Wi-Fi control system, also refer to the specific APP manual by visiting the Perry website on the product page for 1SDSD10CET4WIFI.

Step 3: Download and open the Perry Smart APP, click the + button, then "Add Device". At this point, click ①"Add" in the 'searching for devices' section or add the device manually by clicking ②"**Energy Meter – THREE-PHASE**"(see image below)

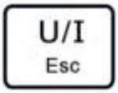
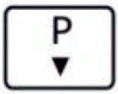
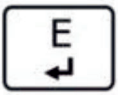
Step 4: Check if the required WIFI network name and password belong to the target router that should be connected. After confirming the information, click the "Next" button. The energy meter is now ready for use.

Example:



Da vedere

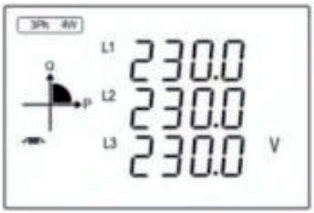
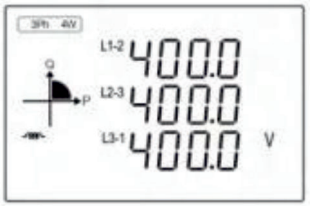
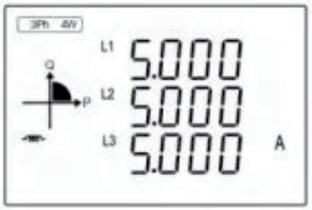
4.4 - Button Description

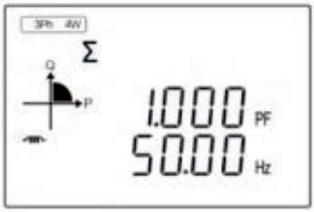
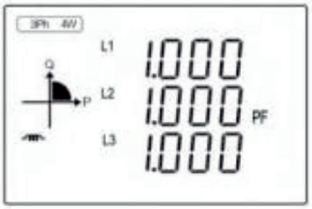
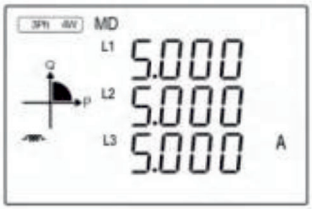
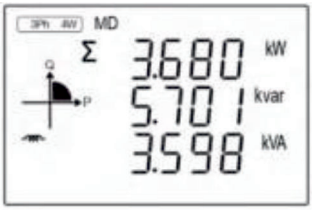
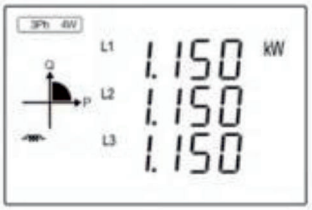
Button	Definition	Click (brief press)	Press 3 seconds
	**Button 1:** Esc Key	1. On the main screen: displays the voltage and current parameter pages. 2. On the setting screen or sub-screen: exit or return to the previous screen.	From the main screen: access the sub-screen.
	**Button 2:** Up Key	1. On the main screen: displays parameter pages such as power factor and frequency. 2. On the setting screen or sub-screen: scroll up to view the page or the increasing number.	No function.
	**Button 3:** Down Key	1. On the main screen: displays parameter pages such as power. 2. On the setting screen or sub-screen: scroll down to view the page or the decreasing number.	No function.
	**Button 4:** Enter Key	1. On the main screen: displays energy parameter pages and the system time. 2. On the setting screen: move the setting cursor one position to the right.	1. On the main display screen: access the setting mode. 2. On the setting screen: enter the setting status or perform the confirmation operation.

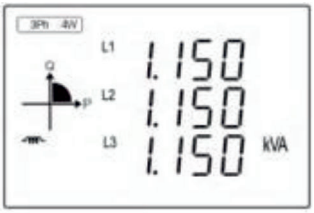
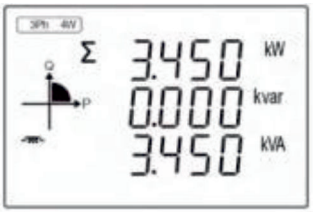
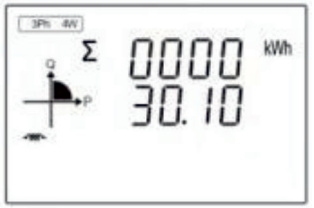
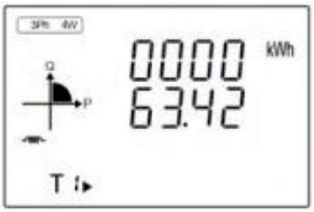
4.5 - Display Screen Description

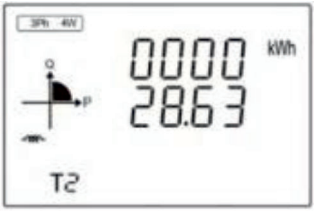
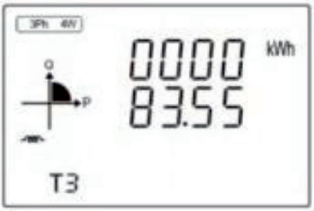
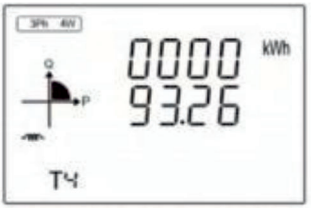
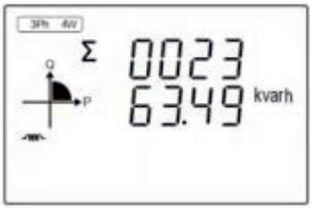
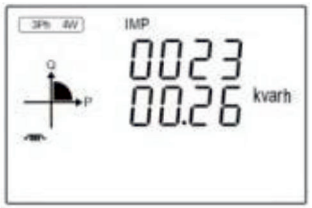
4.5.1 - Main Display Screen

After turning on the meter and completing the self-test process, the main screen is displayed. The electrical measurement parameters, meter information, and other product data are shown.The user can scroll through the display pages by pressing Buttons 1 to 4.

LCD Display	Description
Screens Displayed by Pressing Button 1 U/I	
	Phase Voltages Display L1-N, L2-N and L3-N. Example: L1-N Voltage = 230,0 V L2-N Voltage = 230,0 V L3-N Voltage = 230,0 V
	Line-to-Line Voltages Display L1-L2, L2-L3 and L3-L1. Example: L1-2 Voltage = 400,0 V L2-3 Voltage = 400,0 V L3-1 Voltage= 400,0 V NOTE: In 1P2W mode, this screen is not displayed
	Phase Currents Display L1, L2 and L3. Example: L1 Current = 5,000 A L2 Current = 5,000 A L3 Current = 5,000 A
	Three-Phase Voltage Harmonic Distortion Percentage Display L1, L2 and L3. Example: L1 THD Voltage = 3,06% L2 THD Voltage = 2,78% L3 THD Voltage = 4,35%
	Three-Phase Current Harmonic Distortion Percentage Display L1, L2 and L3. Example: L1 THD Current = 3,56% L2 THD Current = 2,45% L3 THD Current = 1,87%

Screens Displayed by Pressing Button 2 PF/Hz	
	System Power Factor and Frequency Display Example: Total Power Factor = 1.000 Frequency = 50.00Hz
	Phase Power Factor Display L1, L2, and L3 Example:Power Factor L1 = 1.000 Power Factor L2 = 1.000 Power Factor L3 = 1.000
	Phase Currents Display L1, L2, and L3 (MAX DEMAND) Example: Max. Current Demand L1 = 5.000A Max. Current Demand L2 = 5.000A Max. Current Demand L3 = 5.000A
	Total System Active, Reactive, and Apparent Power Display (MAX DEMAND) Example: Max. Total Active Power Demand = 3.680 kW Max. Total Reactive Power Demand = 5.701 kvar Max. Total Apparent Power Demand = 3.598 kVA
Screens Displayed by Pressing Button 3 P	
	Three-Phase Active Power Display L1, L2, and L3 Example: Active Power L1 = 1.150 kW Active Power L2 = 1.150 kW Active Power L3 = 1.150 kW
	Three-Phase Reactive Power Display L1, L2, and L3 Example: Reactive Power L1 = 0 kvar Reactive Power L2 = 0 kvar Reactive Power L3 = 0 kvar

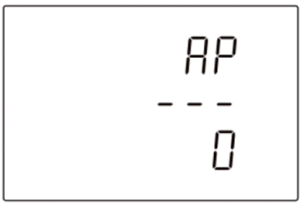
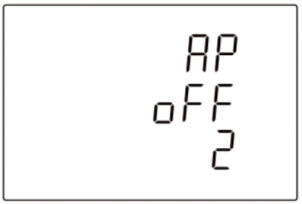
	Three-Phase Apparent Power Display L1, L2, and L3 Example: Apparent Power L1 = 1.150 kVA Apparent Power L2 = 1.150 kVA Apparent Power L3 = 1.150 kVA
	Total System Active, Reactive, and Apparent Power Display Example: Total Active Power = 3.450 kW Total Reactive Power = 0 kvar Total Apparent Power = 3.450 kVA
Screens Displayed by Pressing Button 4 E	
	Total Active Energy Example: Total Active Energy = 30.10 kWh
	Imported Active Energy Example: Imported Active Energy = 15.05 kWh
	Exported Active Energy Example: Exported Active Energy = 15.05 kWh
	Active Energy in Tariff 1 Example: Tariff 1 Active Energy = 63.42 kWh **Note: Optional function available only for multi-tariff meters.**

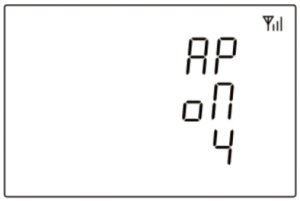
	Active Energy in Tariff 2 Example: Tariff 2 Active Energy = 28.63 kWh **Note: Optional function available only for multi-tariff meters.**
	Active Energy in Tariff 3 Example: Tariff 3 Active Energy = 83.55 kWh **Note: Optional function available only for multi-tariff meters.**
	Active Energy in Tariff 4 Example: Tariff 4 Active Energy = 93.26 kWh **Note: Optional function available only for multi-tariff meters.**
	Total Reactive Energy Example: Total Reactive Energy = 2363.49 kvarh
	Imported Reactive Energy Example: Imported Reactive Energy = 2300.26 kvarh
	Exported Reactive Energy Example: Exported Reactive Energy = 63.23 kvarh

	Real-Time System Current Date Display Example: Current date = June 4, 2021
	Real-Time System Current Time Display Example: Current time = 14:32:38
Description of the Load Type Icon: Inductive Load Detected, Capacitive Load Detected.	

4.5.2 - Secondary Display Screen

From the main screen, press Button 1 for 3 seconds to access the secondary screen. At this point, click Button 2 or Button 3 to scroll through the pages.Clicking Button 1 will return to the main screen.If no button is pressed for more than 1 minute, the instrument will automatically return to the main screen.

LCD Display	Description
1. WIFI Status Indicator Interface	
	Indicates that the current WIFI is in AP config state.
	Indicates that the current WIFI is configured but not connected to the route.
	Indicates that the current WIFI is configured and connected to the router, but not connected to the cloud.



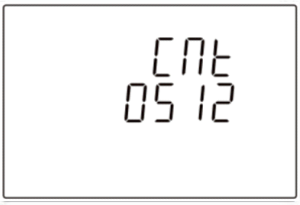
WIFI connects to a router and connects to the cloud.

NOTE: On this screen, if Button 4 is pressed for 3 seconds, the WIFI connection will be reset, and the instrument will re-enter network configuration mode.

2. WIFI Signal Strength Indicator Interface

WIFI signal strength indicator.

3. The number of reported messages on that day



As indicated in the left figure, the number of messages reported that day so far is 512.

4. The interval time for automatically reporting messages

As indicated in the left figure, the current interval for automatically reporting messages is 5 minutes.

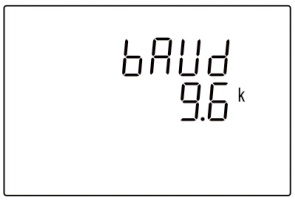
5. The remaining time until the next automatic messages report

As indicated in the left figure, the time until the next automatic message reporting is 2 minutes..

6. Modbus address

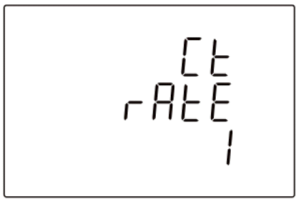
Example: The modbus address is 1.

7. Baud rate



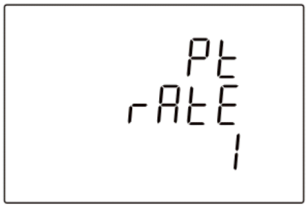
Example: The baud rate is 9600bps.

8. Ratio of current transformer (CT)



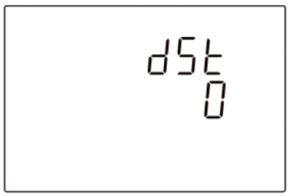
Example: The ratio of current transformer (CT) is 1.

9. Ratio of voltage transformer (PT)



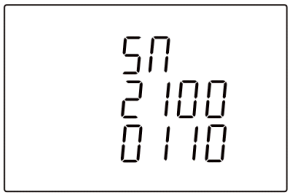
Example: The ratio of voltage transformer (PT) is 1.

10. Daylight saving time function indicator screen



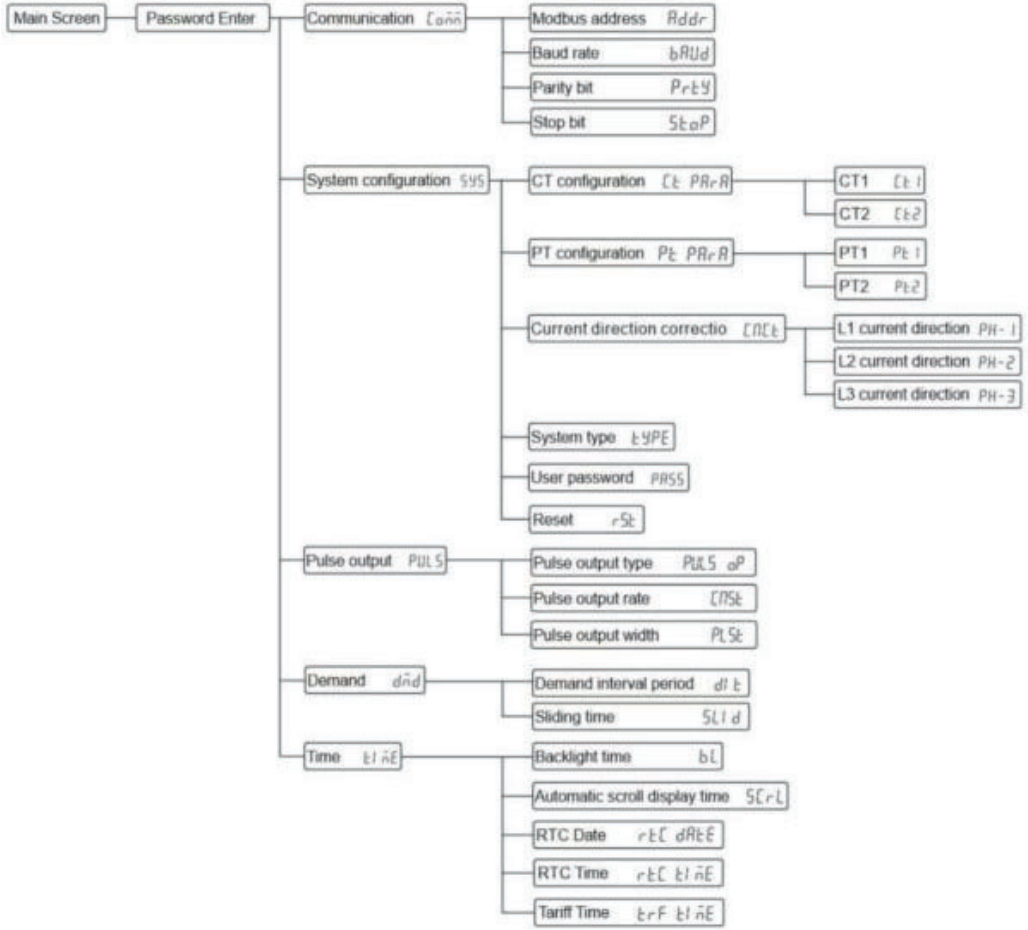
As indicated in the left figure, the daylight saving time function is turned off.

Note: This meter does not support daylight saving time function.

11. 11. The serial number of meter	
	Example: The serial number is 21000110.
12. Software version number	
	Example: The software version number is 13 21.00.

4.6 - Settings

The logical diagram of the parameter setting menu is as follows:



Access to the "Parameter Setting Menu" screen:

Step 1: On the main display screen, press **button 4** for **3 seconds** to enter the user password input mode.

Note: *The user password input screen is shown in the figure on the right.*

Step 2: Enter the correct user password (**buttons 2** and **3** to set, **button 4** to move). Once the password is entered, press **button 4** for **3 seconds** to confirm.

Example: Entering a password:
A: Press **button 2** or **3** to increase or decrease the flashing number.
B: Press button 4 to move to the flashing position on the right.
C: After entering the desired password, press **button 4** for 3 seconds to confirm.
If the password is saved correctly, the power meter will enter the "Parameter Setting Menu" screen.
Note: On the user password input screen, you can press **button 1** to return to the main display screen.
If no button is pressed for more than 1 minute on this screen, the power meter will automatically return to the main display screen

4.6.1 - Communication Parameter Settings

Communication parameters include the Modbus address, baud rate, parity bit, and stop bit. Below is the procedure to modify these values:

1. Press **Button 4** for 3 seconds to enter the setting screen. Enter the password (PSW) and confirm by pressing **Button 4** for 3 seconds to display the communication parameter screen. Press **Button 4** for 3 seconds again to access the communication setting pages.

2. Modbus Communication Address Setting

Modbus Address Setting Range:
from 001 to 247, default is 001.

Press **Button 4** for 3 seconds to enter the modification mode. The 1st digit will start blinking.
To return to the previous menu, press **Button 1**.

Click **Button 2** or **Button 3** to change the number. To confirm the digit, press **Button 4**, then set the 2nd digit. Repeat for all three digits.
Press **Button 4** for 3 seconds to confirm the entire setting.
The device will save the value and exit the setting mode.

Now press **Button 3** to view the next screen:

3. Transmission Speed Setting

The transmission speed can be set to: 1200, 2400, 4800, 9600, 19200, 38400 bps, with the default setting being 9600 bps.
Press **Button 4** for 3 seconds to enter the modification mode. The entire digit will start blinking.

To return to the previous menu, **press Button 1**.

Click **Button 2** or **Button 3** to change the transmission speed.
Press **Button 4** for 3 seconds to confirm the setting. The device will save the value and exit the setting mode.

Now press **Button 3** to view the next screen.

4. Parity Bit Setting

The parity bit can be set to:
None, Even, Odd, with the default value being None.

Press **Button 4** for 3 seconds to enter the edit mode.
The current value will start blinking.

To return to the previous menu, press **Button 1**.

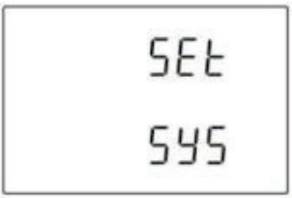
Click **Button 2** or **Button 3** to change the parity bit.
To confirm the selection, press **Button 4** for 3 seconds. The device will save the configured value and exit the setting mode.

Now press **Button 3** to view the next screen.

5. Stop Bit Setting	
	The stop bit can be set to 1 or 2, the default setting is 1. Press **button 4** for 3 seconds to enter the edit mode. The digit will start blinking. If you want to return to the previous menu, click **button 1**. Note: The stop bit can be set to 2 only if the parity bit is set to None.
	Click **button 2** or **button 3** to change the stop bit. To confirm the digit, press **button 4** for 3 seconds. The device will save the set digit and exit the setting mode. If you want to return to the previous menu, click **button 1**.

4.6.2 - Setting the CT (current transformer) parameters

CT parameters include the primary side value (CT1) and the secondary side value (CT2) of the current transformer.
The following procedure lists how to modify these values:

1. Press **button 4** for 3 seconds to enter the settings screen. Enter the password and confirm by pressing **button 4** for 3 seconds. Press **button 3** once to display the following screen, then press **button 4** for 3 seconds again.	
Press **button 4** for 3 seconds to enter the CT parameter settings screen.	

2.1. CT1 Setting	
	CT1 setting range: from 1 to 9999 A, default setting is 5 A. Press **button 4** for 3 seconds to enter edit mode. The 1st digit will start blinking. If you want to return to the previous menu, press **button 1**.
	Press **button 2** or **3** to change the displayed number. To confirm the number, press **button 4**, then set the 2nd digit. Repeat this process for all 4 digits. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the value and exit the setting mode. Now press **button 3** to view the next screen.
2.2. Ct2 Setting	
	CT2 can be set to either 1A or 5A, default setting is 5A. Press **button 4** for 3 seconds to enter edit mode. If you want to return to the previous menu, press **button 1**.
	The digit will start blinking. Press **button 2** or **3** to change the displayed number. Press **button 4** for 3 seconds to confirm the setting. The device will save the value and exit the setting mode.

4.6.3 - System Parameter Settings

System parameters include: correction of the system's current direction, type ofsystem, user password, reset of the maximum demand or historical electricityconsumption log.

1. Press **button 4** for 3 seconds to access the settings screen. Enter the PSW and confirm by pressing **button 4** for 3 seconds. Press **button 3** once to display the following screen and then press **button 4** again for 3 seconds.

2. Setting the System Current Direction Correction

Press **button 3** twice, then press **button 4** again for 3 seconds to access the system parametersettings screen.

To return to the previous menu, press **button 1**.

2.1. Setting the L1 Current Direction Correction

You can set the L1 current direction correction: forward (frd) or reverse (rev), the default setting is forward.

Press **button 4** for 3 seconds to enter edit mode.

The text will start blinking.

To return to the previous menu, press **button 1**.

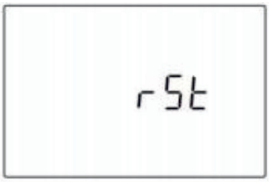
Press **button 2** or **3** to change the text.
Press **button 4** for 3 seconds to confirm the entire setting.
The device will save the text and exit the setting mode.

Now press **button 3** to display the next screen:

2.2. 2.2. Setting the L2 Current Direction Correction	
	You can set the L2 current direction correction: forward (frd) or reverse (rev), the default setting is forward. Press **button 4** for 3 seconds to enter edit mode. The text will start blinking. To return to the previous menu, press **button 1**.
	Press **button 2** or **3** to change the text. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the text and exit the setting mode. Now press **button 3** to display the next screen:
2.3. Setting the L3 Current Direction Correction	
	You can set the L3 current direction correction: forward (frd) or reverse (rev), the default setting is forward. Press **button 4** for 3 seconds to enter edit mode. The text will start blinking. To return to the previous menu, press **button 1**.
	Press **button 2** or 3 to change the text. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the text and exit the setting mode. Now press button 1 and then **button 3** to display the next screen:

3. Set the System Type	
	The system type supported by the power meter includes the types: 1P2W and 3P4W, the default setting is 3P4W. NOTE: the menu also offers other system types such as 2P3W and 3P3W. These optional functions are supported only by multi-tariff meters. Press **button 4** for 3 seconds to enter edit mode. The text will start blinking. To return to the previous menu, press **button 1**.
	Press **button 2** or **3** to change the text. NOTE: choose 3P4 (three-phase) or 1P2 (single-phase). Press **button 4** for 3 seconds to confirm the entire setting. The device will save the text and exit the setting mode. Now press **button 3** to display the next screen:
4. User Password Setting	
	User password setting range: from 0000 to 9999, the default setting is 0000. Press **button 4** for 3 seconds to enter edit mode. The 1st digit will start blinking. To return to the previous menu, press **button 1**.
	Press **button 2** or **3** to change the set number. To confirm the number, press **button 4**, now set the 2nd digit. Repeat the operation for all 4 digits. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the value and exit the setting mode. Now press **button 3** to display the next screen:

5. Reset the Maximum Demand or Historical Electricity Consumption Log



You can delete values stored in the device:
the maximum demandthe historical electricity consumption.

Press **button 4** for 3 seconds to access the reset.
The text will start blinking.

To return to the previous menu, press **button 1**.

Press **button 2** or button 3 to change the text.
Press **button 4** for 3 seconds to confirm the deletion.

The device will erase the corresponding data and exit the setting mode.

Note:

LEG → Historical monthly and historical daily consumption of energy.
(this option is supported only for the Mulit-tariff meter)

dnd → Max demand

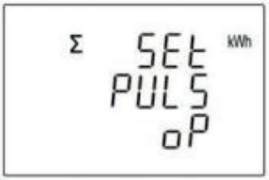
ndL → Monthly and daily maximum demand records of total active power.
(this option is supported only for the Mulit-tariff meter)

4.6.4 - Pulse Output Parameter Setting

The pulse output setting parameters include: the type of energy representedby the pulse output, the pulse output rate, and the pulse output width.

1. Press **button 4** for 3 seconds to access the setting screen. Enter the PSW and confirm by pressing **button 4** for 3 seconds. Press **button 3** twice to display the following screen and press **button 4** for 3 seconds again.

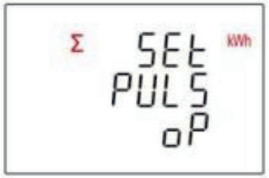
2. Setting the type of energy represented by the pulse output



Options that can be set: total active energy, imported active energy, exported active energy, total reactive energy, imported reactive energy, exported reactive energy, the default setting is total active energy.

Press **button 4** for 3 seconds to enter edit mode.
The text will start blinking.To return to the previous menu, press **button 1**.

Press **button 2** or **3** to change the text.



Press **button 4** for 3 seconds to confirm the entire setting. The device will save the text and exit the setting mode.

List of pulse output type

Character	Pulse output type	Character	Pulse output type	Character	Pulse output type
Σ kWh	Total active energy	IMP kWh	Import active energy	EXP kWh	Export active energy
Σ kvarh	Total reactive energy	IMP kvarh	Import reactive energy	EXP kvarh	Export reactive energy

Now press **button 3** to display the next screen:

3. Pulse Output Constant Setting

The pulse output constant can be set to: 0.001, 0.01, 0.1, 1, 10, 100, the default setting is 0.01 [kWh/pulse].

Press **button 4** for 3 seconds to enter edit mode. The value will start blinking. To return to the previous menu, press **button 1**.

Note: This value represents the pulse output rate: it defines how many kWh/kvarh each pulse represents.

Press **button 2** or **3** to change the value.

Press **button 4** for 3 seconds to confirm the entire setting. The device will save the value and exit the setting mode.

Now press **button 3** to display the next screen:

4. Pulse Output Width Setting

The pulse output width represents the actual duration of the pulse output.
Settable options: 60, 100, 200, the unit is ms, the default value is 100 ms.

Press **button 4** for 3 seconds to enter edit mode. The value will start blinking.

To return to the previous menu, press **button 1**.

Click the **button 2** or **3** to adjust the value.
Press **button 4** for 3 seconds to confirm the entire setting.

The device will save the value and exit the setting mode.

4.6.5 - Set the demand parameters

The demand parameters include the demand interval period and the scrolling time.

1. Press **button 4** for 3 seconds to access the settings screen. Enter the PSW and confirm by pressing **button 4** for 3 seconds. Press button 3 three times to display the following screen, then press **button 4** for 3 seconds again.

2. Setting the demand interval period

IThe demand interval period can be set from 0 to 60 minutes, with the default setting being 60 minutes.

Press **button 4** for 3 seconds to enter the editing mode.

The first digit will start flashing.If you wish to return to the previous menu, press **button 1**.

Note: If the demand interval period is set to 0 minutes, the demand will be updated every second.

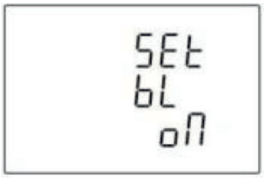
	Press **button 2** or **3** to modify the set number. To confirm the number, press button 4, then set the second digit. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the value and exit the setting mode. Now, press **button 3** to display the next screen:
3. Setting the scrolling time	
	Scrolling time setting range: from 1 to (demand interval period), unit is minutes, the default setting is 1 minute. Press **button 4** for 3 seconds to enter the editing mode. The value will start flashing.If you wish to return to the previous menu, press **button 1**. Note: The scrolling time has no effect when the demand interval period is set to 0.
	Press **button 2** or **3** to modify the set number. To confirm the number, press button 4, then set the second digit. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the set value and exit the setting mode. Note: The scrolling time value must be equal to or less than the demand interval period. If this condition is not met, the device will display an error.

4.6.6 - Setting the time class parameters

The time class parameters include: backlight time, automatic scrolling display time, and system time (RTC).

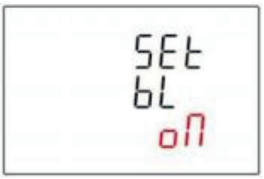
1. Press **button 4** for 3 seconds to access the settings screen. Enter the PSW and confirm by pressing **button 4** for 3 seconds. Press **button 3** four times to display the following screen, then press **button 4** for 3 seconds again.

2. Setting the backlight time



The backlight time can be set to: on, off, 5, 10, 30, 60, or 120 minutes, with the default setting being 60 minutes.
Press button 4 for 3 seconds to enter the editing mode. The value will start flashing.
If you wish to return to the previous menu, press **button 1**.

Note:
1. The "on" setting means the backlight is always on, and the "off" setting means the backlight is always off.
2. If other values are needed within 120 minutes, use the communication command to set them.

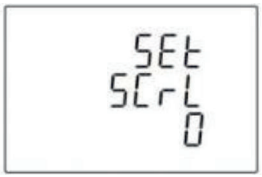


Press **button 2** or **button 3** to modify the value.

Press **button 4** for 3 seconds to confirm the entire setting.The device will save the setting and exit the setting mode.

Now, press **button 3** to display the next screen:

3. Setting the automatic scrolling display time



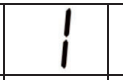
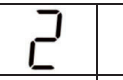
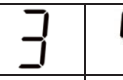
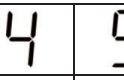
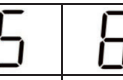
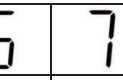
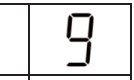
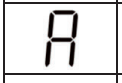
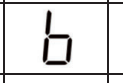
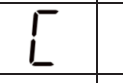
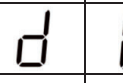
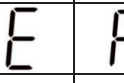
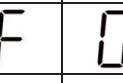
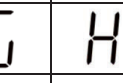
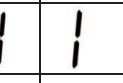
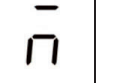
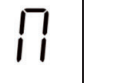
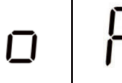
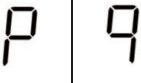
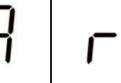
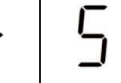
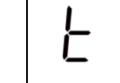
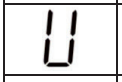
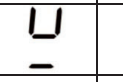
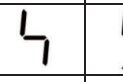
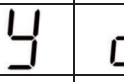
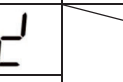
The automatic scrolling display time can be set from 0 to 60 seconds, with the default setting being 0 seconds.
Press **button 4** for 3 seconds to enter the editing mode. The display will start flashing.
If you wish to return to the previous menu, press **button 1**.

Note: If the automatic scrolling display time is set to 0, it means it is disabled.

	Press **button 2** or **3** to modify the set number. To confirm the number, press **button 4**, then set the second digit. Press **button 4** for 3 seconds to confirm the entire setting. The device will save the value and exit the setting mode. Now, press **button 3** to display the next screen:
4. Setting the system date (RTC)	
	Press **button 4** for 3 seconds to enter the editing mode. The display will start flashing. If you wish to return to the previous menu, press **button 1**.
	Press **button 2** or **button 3** to modify the set number. To confirm the number, press **button 4**, then set the second digit. Repeat the process for all three digits (day, month, and year). Press **button 4** for 3 seconds to confirm the setting. The device will save the values and exit the setting mode. Now, press **button 3** to display the next screen:
3. Setting the system time (RTC)	
	Press **button 4** for 3 seconds to enter the editing mode. The display will start flashing. If you wish to return to the previous menu, press **button 1**.
	Press **button 2** or **button 3** to modify the set number. To confirm the number, press button 4, then set the second digit. Repeat the process for all three digits (seconds, minutes, and hours). Press **button 4** for 3 seconds to confirm the setting. The device will save the values and exit the setting mode.

5 - ALLARM

Appendix A - LCD Character Definition Table

									
0	1	2	3	4	5	6	7	8	9
									
A	B	C	D	E	F	G	H	I	J
									
K	L	M	N	O	P	Q	R	S	T
									
U	V	W	X	Y	Z				

Appendix B - Fault Code Reference Table

N.	Fault Code	Fault Description
1	Err-01	The battery voltage is too low
2	Err-02	Wi-Fi module failure
3	Err-03	The battery voltage is too low Wi-Fi module failure

DISPOSAL OF ELECTRICAL & ELECTRONIC EQUIPMENT

This symbol on the product or its packaging to indicates that this product shall not be treated as household waste. Instead, it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment, such as for example:

- sales points, in case you buy a new and similar product;
- local collection points (waste collection centre, local recycling center, etc...).

By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handing of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your house hold waste disposal service or the shop where you purchased the product.

The device contains a non-removable battery and it must not be disposed of as urban waste but recycled in order to protect the environment. Failure to comply with the requirements of EU Directive 2006/66, and the national legislations for implementation of this Directive, for the disposal of products at the end of their service life, is punishable by law.