

KPM33
Three-Phase Rail Smart Energy Meter
user instructions V2.0

Danger and Warning

The device may only be installed by professionals. Caused any malfunction due to not follow the instructions in this manual, Manufacturers will not bear any responsibility.

Electric shock, burning and explosion

- Devices can only be installed and maintained by qualified staff.
 - Before any operation, the device should be isolated from the voltage input and power supply, and short circuit the secondary winding of all current transformers.
 - Verify if the device is live before operation.
 - All mechanical parts and covers should be restored in place before the device is energized
 - Device in use should be provided with the correct voltage.
 - Not paying attention to these precautions may cause serious injury.
- Do not pay attention to these precautions may cause serious injury.*

1 Outline

1.1 Function introduction

KPM33 three-phase rail smart energy meter is designed with the most advanced microprocessor and digital signal processing technology. A comprehensive three-phase electrical parameter measurement, display, energy accumulation, and network communication are integrated. Strong anti-interference ability, and can work stably even in serious electromagnetic interference.

1.2 Application

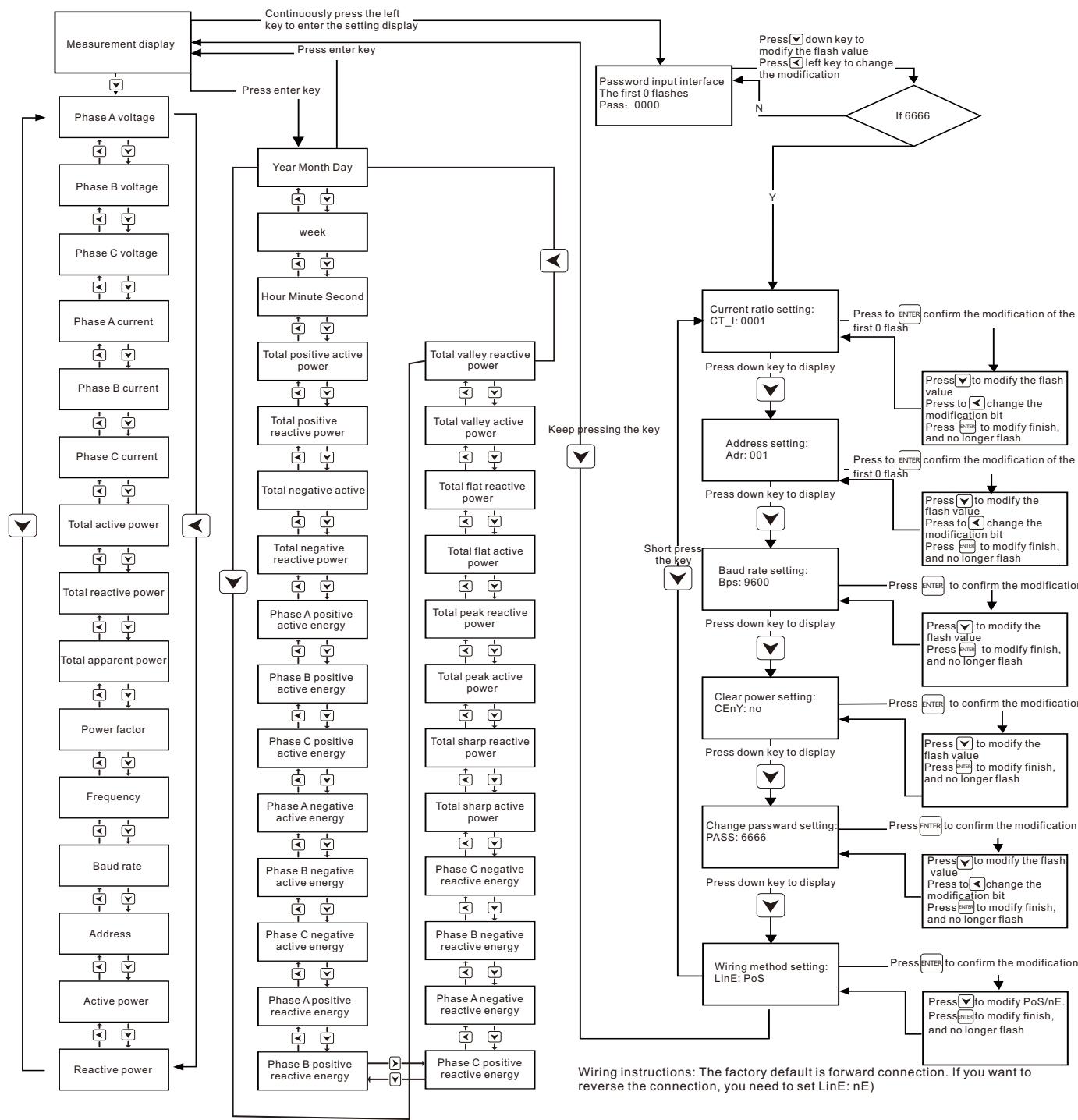
- Measuring and monitoring power parameters in distribution systems.
- Energy and Energy Efficiency Management System.
- Internal power consumption statistics analysis and charging statistics basis.
- Electric energy metering automatic meter reading system.
- Intelligent Distribution Management System.

1.1 Function features

- It can measure three-phase voltage, current, active power, reactive power, apparent power, power factor, frequency, active power, reactive power.
- Multi-rate electricity metering, up to 8 time period a day, 4 rates can be selected.
- 12-month history statistics function.
- Standard configuration 1-way RS485 communication interface, Modbus protocol, expandable DLT645-2007 protocol.
- Rated current available: 1.5(6)A, 10(60)A, 20(100)A.
- LED indicator pulse, missing phase display.
- 1-way passive optocoupler collector active pulse output.
- Front-end integrated DSP measurement chip, high measurement accuracy.
- Double-row display of power and electrical parameters at the same time.
- Built-in clock and maintenance-free battery, permanent data retention after power failure.
- 35mm standard rail installation, beautiful appearance, easy installation.

5.2 keys operation and display

Measurement and setting display flow chart



Wiring instructions: The factory default is forward connection. If you want to reverse the connection, you need to set LinE: nE)

2 Technical Parameters

2.1 Environmental conditions

Operating temperature: -25°C ~ +70°C
Storage temperature: -30°C ~ +75°C
Relative humidity: 5% ~ 95% No condensation
Altitude :3000 meters below

2.2 Rated parameters

Input voltage: AC 220/380V
Input current: 1.5(6)A, 10(60)A, 20(100)A
Power consumption: <2VA
Overload capacity:
AC voltage loop 1.2 times the rated voltage Continuous operation
2 times the rated voltage , Allow 10S
AC current loop 1.2 times the rated current, Continuous operation
20 times the rated current , Allow 1S

2.3 Precision index

Parameter	Accuracy	Resolution	Parameter	Accuracy	Resolution
Voltage	±0.2%	0.01V	Power factor	±0.5%	0.001
Current	±0.2%	0.01A	Active energy	±1.0%	0.1kWh
Active power	±1.0%	0.1W	Reactive energy	±2%	0.1kvarh
Reactive power	±2%	0.1var	Frequency	±0.02	0.01Hz

2.4 Electrical insulation performance

Power frequency withstand voltage:
In line with GB /T13729-2002 provisions
Power frequency voltage 2KV, 1 minute
Insulation resistance:
In line with GB /T13729-2002 provisions
Insulation resistance of not less than 50MΩ
Impulse voltage:
In line with GB /T13729-2002 provisions
Bear the impact of 1.2 / 50US peak for 5KV standard lightning

2.5 Mechanical properties

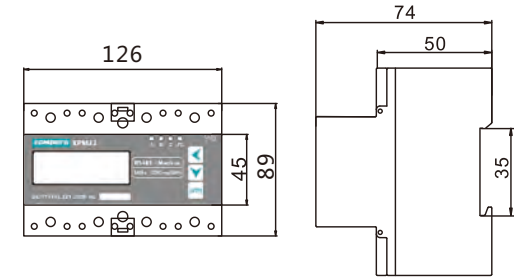
Vibration response:
IEC255-21-1:1998, level 1
Vibration durability:
IEC255-21-1:1998, level 1
Impact response:
IEC 255-21-2, level 1
Impact durability:
IEC 255-21-2, level 1
Collision:
IEC 255-21-2, level 1

2.6 EMC performance

Electrostatic discharge immunity:
IEC61000-4-4, level 4
Fast pulse group immunity:
IEC61000-4-5, level 4
Surge immunity:
IEC61000-4-2, level 4
Power frequency magnetic field immunity:
IEC61000-4-8, level 4

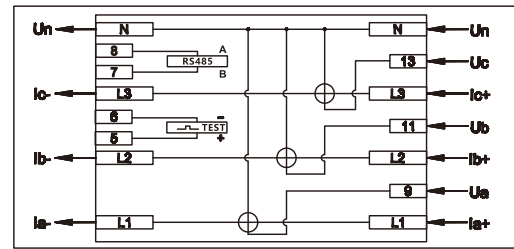
3 Installation and Wiring

3.1 Product size

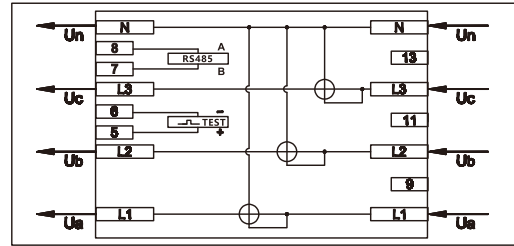


3.2 Installation and wiring

KPM33 Low voltage 3 phase 4 wire indirect access via CT/5A typical wiring diagram



KPM33 Low voltage 3 phase 4 wire direct access typical wiring diagram



Note: In the case of indirect access via CT/5A, the secondary side of the current transformer needs to be grounded.

4 Function Description

4.1 Energy Measurement

KPM33 records historical total active energy; total reactive energy; import/export active/reactive energy; active energy and reactive energy freeze on historical 12 settlement days (0:00 on the 1st of each month). KPM33 also provides multi-rate electric energy, provides four rates for sharp, peak, flat and valley; and can set up to 8 time periods in 24 hours a day. It can record the total active/reactive energy for sharp, peaks, flats and valley, record four rates for 12 months active/reactive, and four-rate historical energy.

Note:

- If the current transformer is applied, the meter displays the primary energy value.
- If the current is directly connected, the meter displays the primary side energy value.
- When the power is more than 9999999.9, the meter always shows 9999999.9.
- The communication part reads all the actual values on the primary side.

4.2 Pulse

Pulse output: KPM31 provides active/reactive energy metering, 1 active energy pulse output function, using optocoupler open collector output. The method of energy accuracy inspection refers to the national measurement regulations
Measurement procedures: Pulse error comparison methods for standard meters
Electrical characteristics: Open collector voltage VCC ≤ 48V, current Iz ≤ 50mA
Pulse constant: 3200imp/kWh
Its significance is: When the meter accumulates 1kWh, the number of pulse outputs is 3200
It is necessary to emphasize that 1kWh is the secondary side energy data of the electric energy. In the case of CT, the relative N pulse data correspond to the primary side electric energy:

$$N \div 3200 \times \text{Current ratio (Kwh)}$$

Application example: Assume that the external pulse counting device collects N pulses in a period of time, and the meter input is: 3*220V, 400A/5A, then the meter energy accumulation in the time period is: N*3200*80 kWh.

4.3 Missing phase indication

When A, B, C phase loss occurs on any of the three phases, the corresponding A, B, and C phase indicators are always on.

5 Application Operation Instructions

5.1 Interface display



NO.	Content displayed	Detailed description
1	Settings	Display when setting parameters
2	Display indication	Digital tube display UA (Phase A voltage), Ub (Phase B voltage), Uc (Phase C voltage), IA (Phase A current), Ib (Phase B current), Ic (Phase C current), P (total active power), q (total reactive power), S (total apparent power), PF (average power factor), F (frequency), bd (baud rate), Ad (address), active energy, reactive energy
3	Communication indication	Two small computers at the bottom left of the screen during communication
4	Time indication	When the enter key is pressed, the time and electrical parameters are switched and displayed
5	Sharp, peak, flat, valley display	Multi-rate power display
6	Power display	Display active power and reactive power
7	Electric parameter unit symbol	Voltage V, kV; Current: A, kA; Active power: W, kW; Reactive power var, kvar; apparent power: VA, kVA

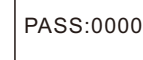
Three touch buttons on the front panel, they are labeled from left to right as key, key, key. The display of different measurement data and the setting of parameters can be realized through the operation of three buttons.

Name of key	Functional description
Left key	Press the left key or the down key to cycle through all the parameters of the function item; in the parameter setting state, long press the left key to enter the parameter setting state, short press the left key to switch the modification bit; press the key to change the value of the modification bit; Press the enter key to confirm the setting parameters, press the key to switch the setting item, and long press the key to return to the parameter display interface.
Down key	In the parameter setting state, it is used to enter the modification menu and confirm the programming parameters; in the parameter measurement interface, it is used to switch between the electric parameter and the multi-rate electricity.
Enter key	

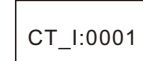
5.3 parameter setting menu is as follows

Before starting measurement, please set
If you want to enter the setting interface, you need to press and hold for 3 seconds to enter the password input interface. The default password is 6666. Enter the password. Press key to enter the parameter setting interface, then press key to select the item to be set. After pressing the key, the leftmost digit of the set value begins to flash. Press key to select the digit to be modified. Press key to increase the size of the modified digit value. After each modification, press key to confirm. In the setting interface, if there is no key in 30s, it will return to the measurement display.

1. Password input interface
Before entering the setting screen, enter the password, the initial password: 6666, you can set the password after entering the setting screen
Note: When setting the password, please save the password in advance and set it carefully.



2. Current ratio setting
If the input current is too large and an additional transformer is required, then the current ratio needs to be set.
Note: The setting range is 0001~9999; the default value is 0001, the maximum change ratio of this watch is 0300.



3. MODBUS address settings
The meter address is the standard Modbus-RTU address. On the same RS485 communication link, the addresses of all KPM33 power meters cannot have the same address. Before the operation, the address of the instrument must be set uniformly.
Note: Setting range: 001~247; Default value: 001



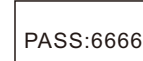
4. Baud rate setting
The baud rate of the RS485 interface can be set according to your own system, but pay attention to the parity of each byte of the communication data in the RS485 link.
Note: Setting range: 1200bps, 2400bps, 4800bps, 9600bps, default value: 9600bps



5. Clear power
Clearing the energy is to clear the current, historical records, and multi-rate active and reactive energy.
The default is no, you can switch to YES to clear.



6. Change Password
Initial password: 6666, users can set their own.
Note: When setting the password, please save the password in advance and set it carefully.



7. Modify wiring
Initial connection: PoS (forward), Users can set themselves
If the field wiring is inconvenient and it needs to be reversed, you need to set LinE:nE



After the setting is completed, long press the button for 3 seconds to enter the parameter measurement interface. If you do not press the button, you can automatically return to the display interface after a period of time.

5.4 Parameter settings

Parameter setting menu structure menu is as follows
Factory default value:

Parameter	Display character	Defaults	Meaning
Password	PASS	6666	Used to protect it from non-staff personnel to modify instrument parameters
Current ratio	Cl _I	1	Current transformer ratio
Communication address	Adr	1	Meter address for network communication 1-247
Baud rate	bPS	9600	Communication baud rate 1200-9600
Clear power	cEnY	no	Used to clear power data

6 Communication

KPM33 three phase rail energy meter provides MODBUS-RTU communication protocol, one start bit, 8-bit data bits, 1/0 parity bit, 1/2 stop bits, each byte length is 11 bits.
Supported baud rates: 1200bps, 2400bps, 4800bps, 9600bps.
Factory default communication parameters: 9600bps, Even parity bit, 1 stop bit

The format of each byte in the RTU mode:

1 start bit + 8 data bits + 1 parity bit + 1 stop bit

The format of the data frame is as follows:

Address field + command field + data field + CRC check field

Supported function codes			
DEC	HEX	Definition	Operation description
03	0x03	Read register data	Read the value of one or more registers
16	0x10	Write Multiple Registers	Write multiple register data at once

6.1 System parameters read and write

This area stores system parameters related to equipment operation, including communication parameters, current ratio, etc., which can be read by using the Modbus protocol 03H function code, or using the 10H function code setting.

Address	Parameter	Numerical range	Data type
0000H	Protection password	0-9999	Word
0001H	Communication address	Modbus address: 1-247	Word
0002H	Baud rate	Baud rate (BIT0-7): Data format: 0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 0: 8, 1, n 1: 8, 1, O 2: 8, 1, e	Word
0003H	Current ratio	1-9999	Word
000CH	Clear power	Enter 0x5577 command to clear the power immediately	Word

6.2 Basic measurement parameters srea

Basic measurement area, mainly measuring basic voltage, current, power, power factor, etc.; All parameters in this area are real-time measurement parameters and are read using the Modbus protocol 03H function code. It is read-only data. The data format is floating-point data, and the data in this area is a real-time data on the primary side because it has been multiplied by the transformation ratio.

Address	Parameter	Data type	Unit
0030H	Phase A voltage	Floating point	V
0032H	Phase B voltage	Floating point	V
0034H	Phase C voltage	Floating point	V
0036H	Phase A current	Floating point	A
0038H	Phase B current	Floating point	A
003AH	Phase C current	Floating point	A
003CH	AB Line voltage	Floating point	V
003EH	BC Line voltage	Floating point	V
0040H	CA Line voltage	Floating point	V

0042H	Phase A active power	Floating point	W
0044H	Phase B active power	Floating point	W
0046H	Phase C active power	Floating point	W
0048H	Three phase active power	Floating point	W
004AH	Phase A reactive power	Floating point	var
004CH	Phase B reactive power	Floating point	var
004EH	Phase C reactive power	Floating point	var
0050H	Three phase reactive power	Floating point	var
0052H	Phase A apparent power	Floating point	VA
0054H	Phase B apparent power	Floating point	VA
0056H	Phase C apparent power	Floating point	VA
0058H	Three phase apparent power	Floating point	VA
005AH	Phase A power factor	Floating point	
005CH	Phase B power factor	Floating point	
005EH	Phase C power factor	Floating point	
0060H	Three phase power meter	Floating point	
0062H	Frequency	Floating point	Hz

6.3 Energy data area

All data in this area are cumulative amount of energy and they all belong to the primary side, which can be read using the Modbus protocol 03H function code.

Address	Parameter	Data type	Unit
0068H	Phase A positive active energy	Floating point	kWh
006AH	Phase B positive active energy	Floating point	kWh
006CH	Phase C positive active energy	Floating point	kWh
006EH	Phase A negative active energy	Floating point	kWh
0070H	Phase B negative active energy	Floating point	kWh
0072H	Phase C negative active energy	Floating point	kWh
0074H	Phase A positive reactive energy	Floating point	kvarh
0076H	Phase B positive reactive energy	Floating point	kvarh
0078H	Phase C positive reactive energy	Floating point	kvarh
007AH	Phase A negative reactive energy	Floating point	kvarh
007CH	Phase B negative reactive energy	Floating point	kvarh
007EH	Phase C negative reactive energy	Floating point	kvarh
0080H	Total active energy	Floating point	kWh
0082H	Forward active energy	Floating point	kWh
0084H	Reverse active energy	Floating point	kWh
0086H	Total reactive energy	Floating point	kvarh
0088H	Forward total reactive energy	Floating point	kvarh
008AH	Reverse total reactive energy	Floating point	kvarh
008CH	Total sharp active energy	Floating point	kWh
008EH	Total peak active energy	Floating point	kWh
0090H	Total flat active energy	Floating point	kWh
0092H	Total valley active energy	Floating point	kWh
0094H	Total sharp reactive energy	Floating point	kvarh
0096H	Total peak reactive energy	Floating point	kvarh
0098H	Total flat reactive energy	Floating point	kvarh
009AH	Total valley reactive energy	Floating point	kvarh
009CH	Total combined active energy for this month	Floating point	kWh
009EH	Total combined active energy of the previous 1 settlement day	Floating point	kWh
00A0H	Total combined active energy of the previous 2 settlement day	Floating point	kWh
00A2H	Total combined active energy of the previous 3 settlement day	Floating point	kWh
00A4H	Total combined active energy of the previous 4 settlement day	Floating point	kWh
00A6H	Total combined active energy of the previous 5 settlement day	Floating point	kWh
00A8H	Total combined active energy of the previous 6 settlement day	Floating point	kWh
00AAH	Total combined active energy of the previous 7 settlement day	Floating point	kWh
00ACH	Total combined active energy of the previous 8 settlement day	Floating point	kWh

00AEH	Total combined active energy of the previous 9 settlement day	Floating point	kWh
00B0H	Total combined active energy of the previous 10 settlement day	Floating point	kWh
00B2H	Total combined active energy of the previous 11 settlement day	Floating point	kWh
00B4H	Total combined active energy of the previous 12 settlement day	Floating point	kWh
00B6H	Total combined reactive energy for this month	Floating point	kvarh
00B8H	Total combined reactive energy of the previous 1 settlement day	Floating point	kvarh
00BAH	Total combined reactive energy of the previous 2 settlement day	Floating point	kvarh
00BCH	Total combined reactive energy of the previous 3 settlement day	Floating point	kvarh
00BEH	Total combined reactive energy of the previous 4 settlement day	Floating point	kvarh
00C0H	Total combined reactive energy of the previous 5 settlement day	Floating point	kvarh
00C2H	Total combined reactive energy of the previous 6 settlement day	Floating point	kvarh
00C4H	Total combined reactive energy of the previous 7 settlement day	Floating point	kvarh
00C6H	Total combined reactive energy of the previous 8 settlement day	Floating point	kvarh
00C8H	Total combined reactive energy of the previous 9 settlement day	Floating point	kvarh
00CAH	Total combined reactive energy of the previous 10 settlement day	Floating point	kvarh
00CCH	Total combined reactive energy of the previous 11 settlement day	Floating point	kvarh
00CEH	Total combined reactive energy of the previous 12 settlement day	Floating point	kvarh
00D0H	Sharp active energy for this month	Floating point	kWh
00D2H	Sharp active energy of the previous 1 settlement day	Floating point	kWh
00D4H	Sharp active energy of the previous 2 settlement day	Floating point	kWh
00D6H	Sharp active energy of the previous 3 settlement day	Floating point	kWh
00D8H	Sharp active energy of the previous 4 settlement day	Floating point	kWh
00DAH	Sharp active energy of the previous 5 settlement day	Floating point	kWh
00DCH	Sharp active energy of the previous 6 settlement day	Floating point	kWh
00DEH	Sharp active energy of the previous 7 settlement day	Floating point	kWh
00E0H	Sharp active energy of the previous 8 settlement day	Floating point	kWh
00E2H	Sharp active energy of the previous 9 settlement day	Floating point	kWh
00E4H	Sharp active energy of the previous 10 settlement day	Floating point	kWh
00E6H	Sharp active energy of the previous 11 settlement day	Floating point	kWh
00E8H	Sharp active energy of the previous 12 settlement day	Floating point	kWh
00EAH	Sharp reactive energy for this month	Floating point	kvarh
00ECH	Sharp reactive energy of the previous 1 settlement day	Floating point	kvarh
00EEH	Sharp reactive energy of the previous 2 settlement day	Floating point	kvarh
00F0H	Sharp reactive energy of the previous 3 settlement day	Floating point	kvarh
00F2H	Sharp reactive energy of the previous 4 settlement day	Floating point	kvarh
00F4H	Sharp reactive energy of the previous 5 settlement day	Floating point	kvarh
00F6H	Sharp reactive energy of the previous 6 settlement day	Floating point	kvarh
00F8H	Sharp reactive energy of the previous 7 settlement day	Floating point	kvarh
00FAH	Sharp reactive energy of the previous 8 settlement day	Floating point	kvarh
00FCH	Sharp reactive energy of the previous 9 settlement day	Floating point	kvarh
00FEH	Sharp reactive energy of the previous 10 settlement day	Floating point	kvarh
0100H	Sharp reactive energy of the previous 11 settlement day	Floating point	kvarh
0102H	Sharp reactive energy of the previous 12 settlement day	Floating point	kvarh
0104H	Peak active energy for this month	Floating point	kWh
0106H	Peak active energy of the previous 1 settlement day	Floating point	kWh
0108H	Peak active energy of the previous 2 settlement day	Floating point	kWh
010AH	Peak active energy of the previous 3 settlement day	Floating point	kWh
010CH	Peak active energy of the previous 4 settlement day	Floating point	kWh
010EH	Peak active energy of the previous 5 settlement day	Floating point	kWh
0110H	Peak active energy of the previous 6 settlement day	Floating point	kWh
0112H	Peak active energy of the previous 7 settlement day	Floating point	kWh
0114H	Peak active energy of the previous 8 settlement day	Floating point	kWh
0116H	Peak active energy of the previous 9 settlement day	Floating point	kWh
0118H	Peak active energy of the previous 10 settlement day	Floating point	kWh
011AH	Peak active energy of the previous 11 settlement day	Floating point	kWh

011CH	Peak active energy of the previous 12 settlement day	Floating point	kWh
011EH	Peak reactive energy of this month	Floating point	kvarh
0120H	Peak reactive energy of the previous 1 settlement day	Floating point	kvarh
0122H	Peak reactive energy of the previous 2 settlement day	Floating point	kvarh
0124H	Peak reactive energy of the previous 3 settlement day	Floating point	kvarh
0126H	Peak reactive energy of the previous 4 settlement day	Floating point	kvarh
0128H	Peak reactive energy of the previous 5 settlement day	Floating point	kvarh
012AH	Peak reactive energy of the previous 6 settlement day	Floating point	kvarh
012CH	Peak reactive energy of the previous 7 settlement day	Floating point	kvarh
012EH	Peak reactive energy of the previous 8 settlement day	Floating point	kvarh
0130H	Peak reactive energy of the previous 9 settlement day	Floating point	kvarh
0132H	Peak reactive energy of the previous 10 settlement day	Floating point	kvarh
0134H	Peak reactive energy of the previous 11 settlement day	Floating point	kvarh
0136H	Peak reactive energy of the previous 12 settlement day	Floating point	kvarh
0138H	Flat active energy for this month	Floating point	kWh
013AH	Flat active energy of the previous 1 settlement day	Floating point	kWh
013CH	Flat active energy of the previous 2 settlement day	Floating point	kWh
013EH	Flat active energy of the previous 3 settlement day	Floating point	kWh
0140H	Flat active energy of the previous 4 settlement day	Floating point	kWh
0142H	Flat active energy of the previous 5 settlement day	Floating point	kWh
0144H	Flat active energy of the previous 6 settlement day	Floating point	kWh
0146H	Flat active energy of the previous 7 settlement day	Floating point	kWh
0148H	Flat active energy of the previous 8 settlement day	Floating point	kWh
014AH	Flat active energy of the previous 9 settlement day	Floating point	kWh
014CH	Flat active energy of the previous 10 settlement day	Floating point	kWh
014EH	Flat active energy of the previous 11 settlement day	Floating point	kWh
0150H	Flat active energy of the previous 12 settlement day	Floating point	kWh
0152H	Flat reactive energy for this month	Floating point	kvarh
0154H	Flat reactive energy of the previous 1 settlement day	Floating point	kvarh
0156H	Flat reactive energy of the previous 2 settlement day	Floating point	kvarh
0158H	Flat reactive energy of the previous 3 settlement day	Floating point	kvarh
015AH	Flat reactive energy of the previous 4 settlement day	Floating point	kvarh
015CH	Flat reactive energy of the previous 5 settlement day	Floating point	kvarh
015EH	Flat reactive energy of the previous 6 settlement day	Floating point	kvarh
0160H	Flat reactive energy of the previous 7 settlement day	Floating point	kvarh
0162H	Flat reactive energy of the previous 8 settlement day	Floating point	kvarh
0164H	Flat reactive energy of the previous 9 settlement day	Floating point	kvarh
0166H	Flat reactive energy of the previous 10 settlement day	Floating point	kvarh
0168H	Flat reactive energy of the previous 11 settlement day	Floating point	kvarh
016AH	Flat reactive energy of the previous 12 settlement day	Floating point	kvarh
016CH	Volley active energy for this month	Floating point	kWh
016EH	Volley active energy of the previous 1 settlement day	Floating point	kWh
0170H	Volley active energy of the previous 2 settlement day	Floating point	kWh
0172H	Volley active energy of the previous 3 settlement day	Floating point	kWh
0174H	Volley active energy of the previous 4 settlement day	Floating point	kWh
0176H	Volley active energy of the previous 5 settlement day	Floating point	kWh
0178H	Volley active energy of the previous 6 settlement day	Floating point	kWh
017AH	Volley active energy of the previous 7 settlement day	Floating point	kWh
017CH	Volley active energy of the previous 8 settlement day	Floating point	kWh
017EH	Volley active energy of the previous 9 settlement day	Floating point	kWh
0180H	Volley active energy of the previous 10 settlement day	Floating point	kWh
0182H	Volley active energy of the previous 11 settlement day	Floating point	kWh
0184H	Volley active energy of the previous 12 settlement day	Floating point	kWh
0186H	Volley reactive energy for this month	Floating point	kvarh

0188H	Volley reactive energy of the previous 1 settlement day	Floating point	kvarh
018AH	Volley reactive energy of the previous 2 settlement day	Floating point	kvarh
018CH	Volley reactive energy of the previous 3 settlement day	Floating point	kvarh
018EH	Volley reactive energy of the previous 4 settlement day	Floating point	kvarh
0190H	Volley reactive energy of the previous 5 settlement day	Floating point	kvarh
0192H	Volley reactive energy of the previous 6 settlement day	Floating point	kvarh
0194H	Volley reactive energy of the previous 7 settlement day	Floating point	kvarh
0196H	Volley reactive energy of the previous 8 settlement day	Floating point	kvarh
0198H	Volley reactive energy of the previous 9 settlement day	Floating point	kvarh
019AH	Volley reactive energy of the previous 10 settlement day	Floating point	kvarh
019CH	Volley reactive energy of the previous 11 settlement day	Floating point	kvarh
019EH	Volley reactive energy of the previous 12 settlement day	Floating point	kvarh

7 Common malfunction Analysis

- Nothing is displayed after the unit is powered on
 - Check that the supply voltage and other wiring are correct and that the supply voltage should be within the operating range
 - Turn off the device and the host computer, and then reboot
- The device is not working properly after power on
 - Turn off the device and the host computer, and then reboot
- Voltage or current readings incorrect
 - Check if the wiring mode setting matches the actual wiring mode
 - Check whether the voltage transformer (PT), current transformer (CT) ratio is set correctly
 - Check that GND is properly grounded
 - Check that GND is properly grounded
 - Check that the shield is grounded
 - Check the voltage transformer (PT), current transformer (CT) is intact
- The power or power factor reading is incorrect, but the voltage and current readings are correct
 - Comparison of the actual input voltage and current wiring and wiring diagram, to check whether the correct phase relationship
- RS-485 communication is not normal
 - Check whether the communication baud rate, ID and communication protocol settings of the host computer are consistent with the meter
 - Please check the data bits, stop bits, parity settings and the host computer is consistent
 - Check that the RS-232 / RS-485 converter is working properly
 - Check whether the problem entire communications network lines (short circuit, open circuit, grounding, shielding in a single properly grounded, etc.)
 - Turn off the device and the host computer, and then reboot
 - The communication line length is recommended to connect approximately 100 to 200 ohm matching resistors at the end of the communication line

Note: If there are some unsolved problems, please contact our company's after-sales service department

8 Contact details

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The final interpretation of this manual is owned by Henan Compere Smart Technology Co.,Ltd.