KPM31
Single phase DIN rail 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 qualified by the staff to install and maintain.
- Before any operation on the Devices, should be isolated from the voltage input and power supply, and the
- secondary windings of all current transformers are Short circuit.
- Verify that the device is live before operation.
- All mechanical parts and covers should be restored in

Not pay attention to these precautions may cause serious injury.

1.Overview

1.1.Function introduction

KPM31 is designed with advanced microprocessor and digital signal processing technology. It integrates comprehensive single- phase power measurement, display, energy accumulation, and network communication. It has strong anti-interference ability and can still work stably in situations with severe electromagnetic interference.

1.2 Applications

- Measure and monitor electric energy parameters in the distribution system
- Energy efficiency management system
- Statistical analysis of internal power consumption and basis for charging statistics
- Automatic meter reading system for electric energy measurement
- Intelligent power distribution management system

1.3 Features

- Measure single-phase voltage, current, active power, reactive power, apparent power, power factor, frequency, active power, and reactive power
- Multi-rate electricity metering, up to 8 time periods can be set a day, 4 rates can be selected.
- 12-month historical electricity statistics function
- Standard configuration 1 RS485 communication interface, Modbus protocol, expandable DLT645-2007 protocol
- Rated current 5(60)A
- 1 pulse passive optocoupler collector output
- Front-end integrated DSP measurement chip, high measurement accuracy
- Built-in clock and maintenance-free battery, data is permanently saved after power failure
- The internal expandable large-capacity magnetic latching relay realizes load on-off control
- 35mm standard guide rail installation, beautiful appearance, easy installation

1.4. Electrical insulation performance

Power frequency withstand voltage: In line with GB /T13729-2002 provisions, Power frequency voltage 2KV,Insulation resistance 1 minute.Insulation resistance: In line with GB / T13729-2002 provisions, Insulation resistance ≥50MΩ Impulse voltage: In line withGB / T13729-2002 provisions, can bear the impact of 1.2 / 50US, 5KV peak standard lightning.

1.5. 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

1.6. 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

2 Technical Parameters

2.1 Environmental Conditions

Working temperature: -10℃+55℃
Relative humidity: 5%~95% non-condensing
Storage temperature: -20℃+75℃
Altitude: Below 3000 meters

2.2 Rated Parameters

Input voltage: Rated 220V
Input current: 5-60A
Power consumption: Whole set power consumption < 0.5VA
Overload capacity:
AC voltage loop: 1.2 times rated voltage, continuous work
2 times rated voltage, allow 10s
AC current loop: 1.2 times rated current, continuous work
20 times rated current, allow 1s

2.3 Measurement Accuracy Index

Parameters	Accuracy	Parameters	Accuracy
U	0.2%	PF	±0.5%
I	0.2%	kWh	0.5s
P	0.5%	kVar	Class 2
Q	0.5%	F	±0.02

2.4 Electrical insulation Performance

Medium strength:
Comply with GB/T13729-2002 regulations, Power frequency voltage 2KV, time 1 minute
Insulation resistance:
Comply with GB/T13729-2002 regulations, 500V megger test, insulation resistance not less than 50MΩ
Impulse voltage:
Comply with GB/T13729-2002 regulations, Withstand the impact of 1.2/50US peak 5KV standard lightning wave

2.5. Mechanical properties

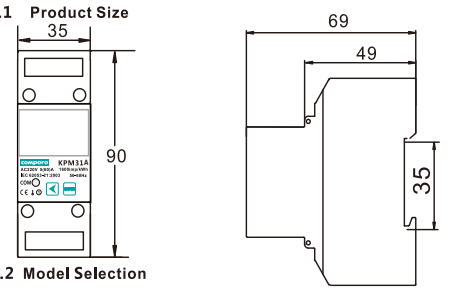
Vibration: Vibration response: GB/T11287-2000, level 1
Vibration durability: GB/T11287-2000, level 1
Impact: Impact response: GB/T14537-1993, level 1
Impact durability: GB/T14537-1993, level 1
Collision: GB/T14537-1993, level 1

2.6 Electromagnetic compatibility

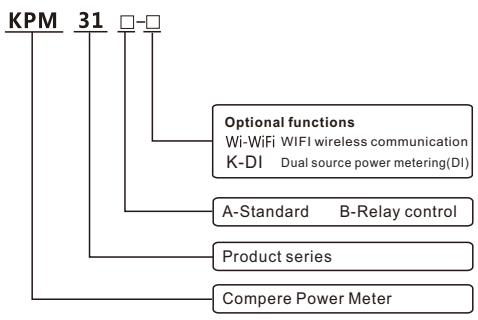
Electrostatic discharge immunity :
IEC61000-4-2, level 4
Fast pulse group immunity :
IEC61000-4-4, level 4
Surge immunity :
IEC61000-4-5, level 4
Power frequency magnetic field immunity :
IEC61000-4-8, level 4

3 Selection And Installation

3.1 Product Size



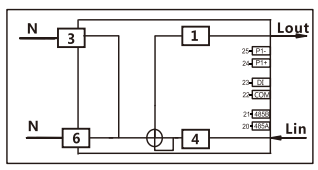
3.2 Model Selection



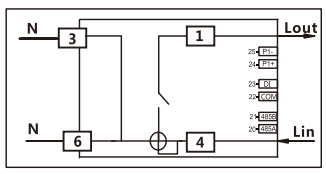
For example, KPM31A: Standard ,Rated 220V, 5(60)A, Standard model, multi-rate energy statistics, historical electric energy statistics, single-phase rail smart energy meter.

3.3 Installation Wiring

KPM31A Low-voltage single-phase direct access typical wiring diagram



KPM31B Low-voltage single-phase direct access typical wiring diagram



4 Function Description

4.1 Electric energy measurement

KPM31 records the historical total active power, total reactive power, forward and reverse power of active and reactive power, and freezes of active and reactive power in the historical 12 settlement days (restore power at 0 o'clock on the 1st of each month).KPM31 also provides Multi-rate electric energy, providing four rates of peak, flat and valley, up to 8 periods can be set 24 hours aday, can record total active/reactive energy at four rates of peak,flat and valley, and record four rates of active/reactive power for 12 months And four- rate historical power。
For example, the daily electricity measurement is divided into 5 time periods:
1# segment start time is 6 o' clock, end time 10 o' clock, billing segment is 1; 2# segment start time is 10 o'clock, end time 12 o'clock,billing segment is 2; and so on, 5# period start time is 24 o'clock and ends at 6 o'clock the next day, and the billing segment is 4. The electricity kWh of the same rate is calculated in combination. city measurement is divided into 5

Time slot	Time Slot Tart time	Rate
1#	6	1
2#	10	2
3#	12	1
4#	15	3
5#	23	4

4.2 Input Signal

- The input voltage should not be higher than 120% of the rated input voltage. It is recommended to install a fuse (typically 1A 250Vac) in the voltage input signal circuit.
- Current input: In actual engineering applications, it can be directly connected within 0-60A.

4.3 Output Signal

- Pulse output: KPM31A&B provides active/reactive energy measurement, active energy pulse output function, adopts the output of the optocoupler open collector, the method of energy accuracy inspection refers to the national measurement regulation: the pulse error comparis on method of the standard meter.
- Electrical characteristics: open collector voltage VCC≤48V, Current Iz≤50mA;
- Pulse constant: 1600 imp/kWh

4.4 RS485 communication

The meter provides RS485 communication, adopts the standard MODBUS-RUT protocol , and can query various power parameters.

4.5 Prepayment

The user needs remote pre stored electric energy. When the pre stored electric energy is 0, it will prompt the user to purchase electric energy (automatic power transmission after 10 seconds of power failure). The instrument defaults to an overdraft limit of 5 degrees, and the user can set and read the overdraft limit remotely.

4.6 Load control

The user can set / read the load threshold remotely, and view the load threshold locally in the p-val display item. The default is 65535kW. When the active power is greater than the load threshold for 30 seconds, the instrument will cut off the power. After the power is cut off, the power can only be transmitted through the local interface operation (the "Relay" option of the setting interface).

4.7 Relay control mode

The relay control mode is divided into local mode and remote mode, and the default is remote mode.

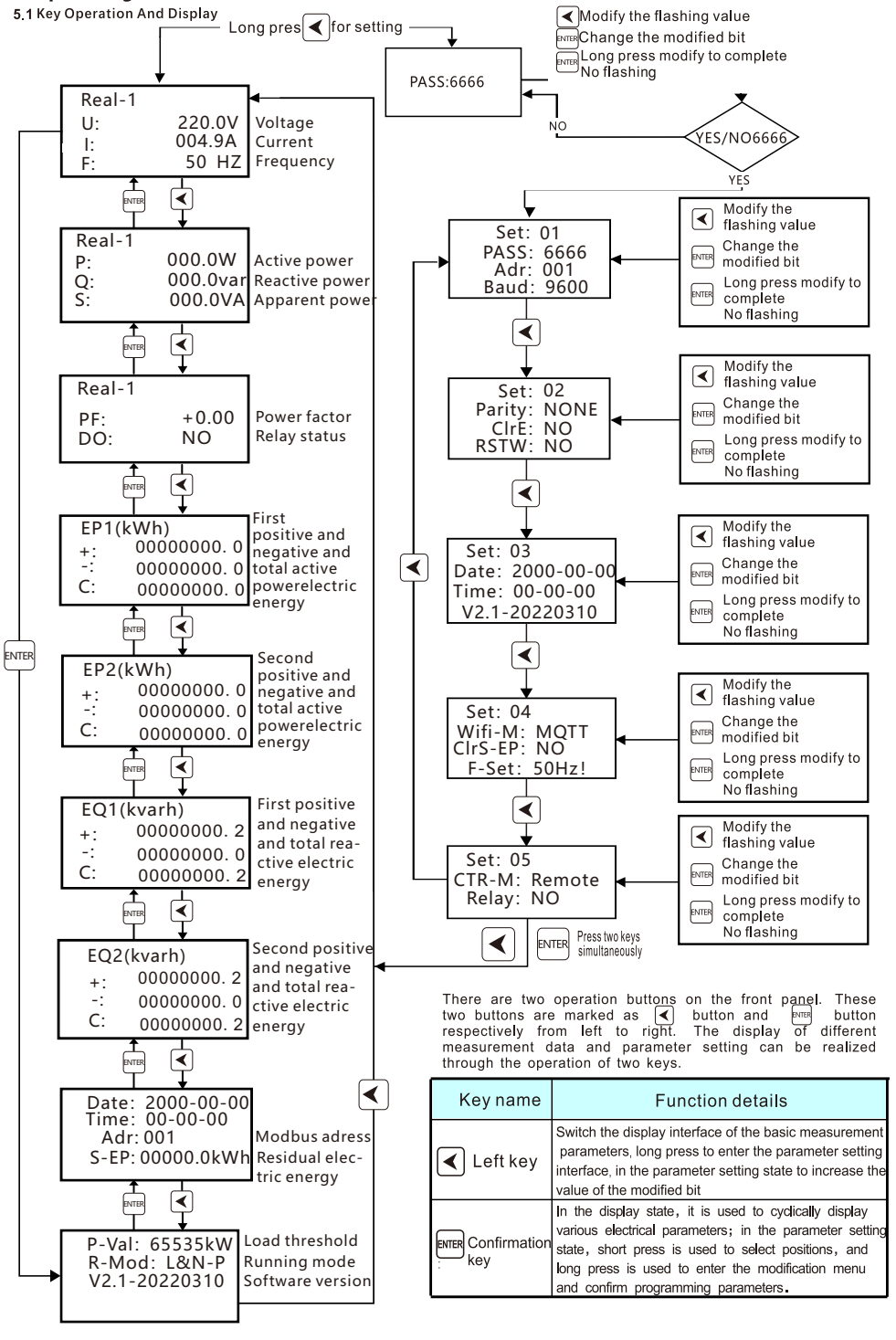
Local mode: the default prepayment and load control functions are turned on. The control of the relay is controlled by the local instrument according to the state of the electricity meter, and the remote control does not work.

Remote mode: the default prepayment and load control functions are turned off, and the relay is controlled remotely.

Note: switch between remote and local modes through

5. Operating Instructions

5.1 Key Operation And Display



There are two operation buttons on the front panel. These two buttons are marked as ◀ button and ENTER button respectively from left to right. The display of different measurement data and parameter setting can be realized through the operation of two keys.

Key name	Function details
◀ Left key	Switch the display interface of the basic measurement parameters, long press to enter the parameter setting interface, in the parameter setting state to increase the value of the modified bit
ENTER Confirmation key	In the display state, it is used to cyclically display various electrical parameters; in the parameter setting state, short press is used to select positions, and long press is used to enter the modification menu and confirm programming parameters.

5.3 Parameter Setting Menu

Please make settings before starting measurement. When entering the setting screen, you need to press ◀ and hold for 3 seconds to enter the password input interface. The default password is 6666. the password correctly. Long press ENTER key to enter the parameter setting interface, and then press ◀ key to select the item to be set, after long press ENTER key, the first number from left of the set value will start to flash, short press ◀ key to select the digit to be modified, short ENTER press the key to increase modified bit value. After finish the modification, long press ENTER key to confirm. In the setting interface, if there is no operation for 30s, it will return to the measurement display screen, or short press the ◀ and ENTER keys at the same time to return directly to the

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

PASS:0000
◀ :Select digit to be modified
ENTER :Short press this key to modify the value, long press it, if the password is correct, enter the parameter setting, otherwise return to the password input interface.

2.Password modification
: Initial password: 6666, which can be set by users.
Note: When setting a password, please save the password in advance and set it carefully.

PASS:6666
◀ : Select digit to be modified
ENTER : long press this key to save and no longer flash means operation success

3. Address setting
The address of the meter is the standard Modbus-RTU address. On the same RS485 communication cable, the addresses of all KPM31 meters can't be the same. The address of the meter must be set uniformly before putting it into operation.
Note: Setting range: 001~247; default value: 001

Adr:001
◀ :Select digit to be modified
ENTER :Short press this key to modify, long press it to save and no longer flash means operation success

4. Baud rate setting
The baud rate of the RS485 interface can be set according to your own system, but it must be consistent with the parity of each byte of the communication data in the RS485 link.
Settable range:1200、2400、4800、9600, Default 9600

Baud : 9600
◀ :Change Baud
ENTER :Short press this key to modify, long press it to save and no longer flash means operation success

5. Parity bit setting

Parity : None
◀ : Switch between NONE, EVEN and ODD
ENTER :Short press this key to modify, long press it to save and no longer flash means operation success

6. Energy clear

ClrE:NO
◀ : Switch between YES and NO
ENTER :Short press this key to modify, long press it to save and no longer flash means operation success

7.Reset WIFI module

RSTW:NO
◀ : Switch between YES and NO
ENTER : Short press this key to modify, long press it to save and no longer flash means operation success

8. WiFi mode setting

Wifi-M: MQTT
▼ :MQTT:Data upload; Debug: Configwifi
ENTER :Short press the "Enter" key to modify, and then long press the "Enter" key to stop flashing. The modification is successful.Default: MQTT.

Note:In the debug mode, the instrument configures the WiFi module networking parameters. After the configuration is completed, it needs to switch to the mqtt mode before the instrument can normally connect to the mqtt server.

9. Clear residual electric energy

ClrS-EP:NO
▼ :Swtich between Yes and no
ENTER :Short press the "Enter" key to modify, long press the "Enter" key does not flash, and the modification is successful.

10. Frequency setting

F-Set: 50Hz!
▼ :Can be switched to 50Hz or 60Hz
ENTER :Short press the "Enter" key to modify, and then long press the "Enter" key to stop flashing. The modification is successful.Default: 50Hz

11. Relay control mode setting

CTR-M:Remote
▼ :Can be switched to remote mode or local mode
ENTER :Short press the "Enter" key to modify, and then long press the "Enter" key to stop flashing. When you hear the relay action, the modification is successful.

12. Relay control

Relay: ON
▼ Control the opening or closing of relay
ENTER :Short press the "Enter" key to modify, and then long press the "Enter" key to stop flashing. When you hear the relay action, the modification is successful.

5.4 Parameter setting

The parameter setting menu structure menu is as follows:
Default value list

Item	Symbo	Defult	Description
Password	PASS	6666	Used to protect non-workers to modify instrument parameters
Communication address	Adr	1	Meter address 1~247 during network communication
Baud rate	baud	9600	Baud rate 1200~9600
Parity bit	Parity	Parity checking	Used to set the communication parity bit
Clear energy	Clr-E	NO	Used to clear energy data
Reset WIFI	RSTW	NO	Used to reset WIFI and configure WIFI module
WiFi mode	Wifi-M	MQTT	Switch WiFi mode: MQTT or Debug
Clear residual electric energy	ClrS-EP	NO	Used to clear residual energy
Frequency setting	F-Set	50Hz	Switching frequency to 50Hz or 60Hz
Relay control mode	CTR-M	Remote	Switch the control mode to local or remote
Relay control	Relay	ON	Control the opening or closing of relay

6 Communication

6.1 RS485

KPM31 single-phase DIN rail meter provides MODBUS-RTU communication protocol, 1 start bit, 8 data bits, 1 parity bit, 1 stop bit, each byte length is 11 bits.

◆Supported baud rate: 1200, 2400, 4800, 9600 (bps).

◆Factory default communication parameters: 9600bps, even parity

◆The format of each byte in 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

Function code			
DEC	HEX	Definition	Decription
01	0×01	Read relay output	Read one or more relay output status
03	0×03	Real register data	Read the value of one or more registers
05	0×05	Write single loop relay output	Control one loop relay to close or open
16	0×10	Write multiple registers	Write multiple register data in one time

6.1.1 Relay Output Control And Status Reading

This area stores the status of the relay. The user can use the Modbus protocol 01H function code to read the current status, and use the 05H function code to control the output.

Addr	Parameter	Data range	Data type	Read/Write
0001H	Relay (DO1)	1=ON0=OFF	Bit	R/W

6.1.1.1 Read Relay Output Status (Function code 01H)

Request data frame: read the status of Relay1.

Addr	Fun	StartReg hi	StartReg lo	RegNum hi	Reg Num lo	CRC16 hi	CRC16 lo
01H	01H	00H	01H	00H	01H	xxH	xxH

This area stores the status of the relay. The user can use the Modbus protocol 01H function code to read the current status, and use the 05H function code to control the output.

The example of read digital output status response.

Addr	Fun	Bytecount	Data	CRC16hi	CRC16lo
01H	01H	01H	01H	xxH	xxH

Data byte content (Relay 1 closed)

Addr	Fun	StartReg hi	StartReg lo	RegNum hi	Reg Num lo	CRC16 hi	CRC16 lo
01H	01H	00H	01H	00H	01H	xxH	xxH

6.1.1.2 Relay control (Function code 05H)

Note that the control relay 0xFF00 is the relay closed, and the 0x0000 relay is open

Request data frame:

Addr	Fun	DOaddr hi	DO addr lo	Value hi	Value lo	CRC16 hi	CRC16 lo
01H	05H	xx	xx	FFH	00H	xxH	xxH

Response data frame:

Addr	Fun	DOaddr hi	DO addr lo	Value hi	Value lo	CRC16 hi	CRC16 lo
01H	05H	xx	xx	FFH	00H	xxH	xxH

6.1.2 System Parameter Reading And Writing

This area stores system parameters related to equipment work, including communication, password and other parameters, , wh ich can be read using Modbus protocol 03H function code, or set using 10H function code.

Addr	Parameter	Data range	Format
0000H	Protection password	0~9999	Word
0001H	Communication address	Modbus communication address: 1~247	Word
0002H	Baud rate	1 : 1200 , 2 : 2400 , 3 : 4800 , 4 : 9600 ,	Word
000CH	Clear energy	Command word 0x55AA, i mmediately clear the electric energy data	Word

6.1.3 Basic Measuring Parameters

Basic measurement area, mainly measuring basic voltage, curr ent, power, power factor, etc.;

The parameters in this area are all real-time measurement para meters, which are read using Modbus-RTU protocol 03H functio n code and are read-only data. The data format is floating point data. The data in this area is real-time data for primary side.

Addr	Parameter	Data format	Unit
0030H	U	Floating point	V
0032H	I	Floating point	A
0034H	P	Floating point	W
0036H	Q	Floating point	var
0038H	S	Floating point	VA
003AH	PF	Floating point	
003CH	F	Floating point	Hz
0070H	Apparent demand	Floating point	VA

6.1.4 Multi-rate Parameter area

The parameters in this area are all real-time measurement parameters, which are read using Modbus protocol 03H function code and are read-only data.

0080H	Total active energy	Float	kWh
0082H	Import active energy	Float	kWh
0084H	Export active energy	Float	kWh
0086H	Total reactive energy	Float	kvarh
0088H	Import reactive energy	Float	kvarh
008AH	Export reactive energy	Float	kvarh
008CH	Total sharp active energy	Float	kWh
008EH	Total peak active energy	Float	kWh
0090H	Total flat active energy	Float	kWh
0092H	Total valley active energ	Float	kWh
0094H	Total sharp reactive energy	Float	kvarh
0096H	Total peak reactive energy	Float	kvarh
0098H	Total flat reactive energy	Float	kvarh
009AH	Total valley reactive energy	Float	kvarh
009CH	Total combined active energ y for this month	Float	kWh
009EH	Total combined active energy of the previous 1 settlement day	Float	kWh
00A0H	Total combined active energy of the previous 2 settlement day	Float	kWh
00A2H	Total combined active energy of the previous 3 settlement day	Float	kWh
00A4H	Total combined active energy of the previous 4 settlement day	Float	kWh
00A6H	Total combined active energy of the previous 5 settlement day	Float	kWh
00A8H	Total combined active energy of the previous 6 settlement day	Float	kWh
00AAH	Total combined active energy of the previous 7 settlement day	Float	kWh
00ACH	Total combined active energy of the previous 8 settlement day	Float	kWh
00AEH	Total combined active energy of the previous 9 settlement day	Float	kWh
00B0H	Total combined active energy of the previous 10 settlement day	Float	kWh
00B2H	Total combined active energy of the previous 11 settlement day	Float	kWh
00B4H	Total combined active energy of the previous 12 settlement day	Float	kWh
00B6H	Total combined active energ y for this month	Float	kvarh
00B8H	Total combined active energy of the previous 1 settlement day	Float	kvarh
00BAH	Total combined active energy of the previous 2 settlement day	Float	kvarh
00BCH	Total combined active energy of the previous 3 settlement day	Float	kvarh
00BEH	Total combined active energy of the previous 4 settlement day	Float	kvarh
00C0H	Total combined active energy of the previous 5 settlement day	Float	kvarh
00C2H	Total combined active energy of the previous 6 settlement day	Float	kvarh
00C4H	Total combined active energy of the previous 7 settlement day	Float	kvarh
00C6H	Total combined active energy of the previous 8 settlement day	Float	kvarh
00C8H	Total combined active energy of the previous 9 settlement day	Float	kvarh
00CAH	Total combined active energy of the previous 10 settlement day	Float	kvarh
00CCH	Total combined active energy of the previous 11 settlement day	Float	kvarh
00CEH	Total combined active energy of the previous 12 settlement day	Float	kvarh
00D0H	Sharp active energy for this month	Float	kWh
00D2H	Sharp active energy of the previo us 1 settlement day	Float	kWh
00D4H	Sharp active energy of the previo us 2 settlement day	Float	kWh
00D6H	Sharp active energy of the previo us 3 settlement day	Float	kWh
00D8H	Sharp active energy of the previo us 4 settlement day	Float	kWh
00DAH	Sharp active energy of the previo us 5 settlement day	Float	kWh
00DCH	Sharp active energy of the previo us 6 settlement day	Float	kWh
00DEH	Sharp active energy of the previo us 7 settlement day	Float	kWh
00E0H	Sharp active energy of the previo us 8 settlement day	Float	kWh
00E2H	Sharp active energy of the previo us 9 settlement day	Float	kWh
00E4H	Sharp active energy of the previo us 10 settlement day	Float	kWh
00E6H	Sharp active energy of the previo us 11 settlement day	Float	kWh
00E8H	Sharp active energy of the previo us 12 settlement day	Float	kWh
00EAH	Sharp reactive energy for this month	Float	kvarh
00ECH	Sharp reactive energy of the previous 1 settlement day	Float	kvarh
00EEH	Sharp reactive energy of the previous 2 settlement day	Float	kvarh
00F0H	Sharp reactive energy of the previous 3 settlement day	Float	kvarh
00F2H	Sharp reactive energy of the previous 4 settlement day	Float	kvarh
00F4H	Sharp reactive energy of the previous 5 settlement day	Float	kvarh
00F6H	Sharp reactive energy of the previous 6 settlement day	Float	kvarh
00F8H	Sharp reactive energy of the previous 7 settlement day	Float	kvarh
00FAH	Sharp reactive energy of the previous 8 settlement day	Float	kvarh
00FCH	Sharp reactive energy of the previous 9 settlement day	Float	kvarh
00FEH	Sharp reactive energy of the previous 10 settlement day	Float	kvarh
0100H	Sharp reactive energy of the previous 11 settlement day	Float	kvarh
0102H	Sharp reactive energy of the previous 12 settlement day	Float	kvarh
0104H	Peak active energy for this month	Float	kWh
0106H	Peak active energy of the previous 1 settlement day	Float	kWh
0108H	Peak active energy of the previous 2 settlement day	Float	kWh
010AH	Peak active energy of the previous 3 settlement day	Float	kWh
010CH	Peak active energy of the previous 4 settlement day	Float	kWh
010EH	Peak active energy of the previous 5 settlement day	Float	kWh
0110H	Peak active energy of the previous 6 settlement day	Float	kWh
0112H	Peak active energy of the previous 7 settlement day	Float	kWh
0114H	Peak active energy of the previous 8 settlement day	Float	kWh
0116H	Peak active energy of the previous 9 settlement day	Float	kWh
0118H	Peak active energy of the previous 10 settlement day	Float	kWh
011AH	Peak active energy of the previous 11 settlement day	Float	kWh
011CH	Peak active energy of the previous 12 settlement day	Float	kWh
011EH	Peak reactive energy of this month	Float	kvarh
0120H	Peak reactive energy of the previous 1 settlement day	Float	kvarh
0122H	Peak reactive energy of the previous 2 settlement day	Float	kvarh
0124H	Peak reactive energy of the previous 3 settlement day	Float	kvarh
0126H	Peak reactive energy of the previous 4 settlement day	Float	kvarh
0128H	Peak reactive energy of the previous 5 settlement day	Float	kvarh
012AH	Peak reactive energy of the previous 6 settlement day	Float	kvarh
012CH	Peak reactive energy of the previous 7 settlement day	Float	kvarh
012EH	Peak reactive energy of the previous 8 settlement day	Float	kvarh
0130H	Peak reactive energy of the previous 9 settlement day	Float	kvarh
0132H	Peak reactive energy of the previous 10 settlement day	Float	kvarh
0134H	Peak reactive energy of the previous 11 settlement day	Float	kvarh
0136H	Peak reactive energy of the previous 12 settlement day	Float	kvarh
0138H	Flat active energy for this month	Float	kWh
013AH	Flat active energy of the previous 1 settlement day	Float	kWh
013CH	Flat active energy of the previous 2 settlement day	Float	kWh
013EH	Flat active energy of the previous 3 settlement day	Float	kWh
0140H	Flat active energy of the previous 4 settlement day	Float	kWh
0142H	Flat active energy of the previous 5 settlement day	Float	kWh
0144H	Flat active energy of the previous 6 settlement day	Float	kWh
0146H	Flat active energy of the previous 7 settlement day	Float	kWh
0148H	Flat active energy of the previous 8 settlement day	Float	kWh
014AH	Flat active energy of the previous 9 settlement day	Float	kWh
014CH	Flat active energy of the previous 10 settlement day	Float	kWh
014EH	Flat active energy of the previous 11 settlement day	Float	kWh
0150H	Flat active energy of the previous 12 settlement day	Float	kWh
0152H	Flat reactive energy for this month	Float	kvarh
0154H	Flat reactive energy of the previou s 1 settlement day	Float	kvarh
0156H	Flat reactive energy of the previou s 2 settlement day	Float	kvarh
0158H	Flat reactive energy of the previou s 3 settlement day	Float	kvarh
015AH	Flat reactive energy of the previou s 4 settlement day	Float	kvarh
015CH	Flat reactive energy of the previou s 5 settlement day	Float	kvarh
015EH	Flat reactive energy of the previou s 6 settlement day	Float	kvarh
0160H	Flat reactive energy of the previou s 7 settlement day	Float	kvarh
0162H	Flat reactive energy of the previou s 8 settlement day	Float	kvarh
0164H	Flat reactive energy of the previou s 9 settlement day	Float	kvarh
0166H	Flat reactive energy of the previou s 10 settlement day	Float	kvarh
0168H	Flat reactive energy of the previou s 11 settlement day	Float	kvarh
016AH	Flat reactive energy of the previou s 12 settlement day	Float	kvarh
016CH	Volley active energy for this month	Float	kWh
016EH	Volley active energy of the previou s 1 settlement day	Float	kWh
0170H	Volley active energy of the previou s 2 settlement day	Float	kWh
0172H	Volley active energy of the previou s 3 settlement day	Float	kWh
0174H	Volley active energy of the previou s 4 settlement day	Float	kWh
0176H	Volley active energy of the previou s 5 settlement day	Float	kWh
0178H	Volley active energy of the previou s 6 settlement day	Float	kWh
017AH	Volley active energy of the previou s 7 settlement day	Float	kWh
017CH	Volley active energy of the previou s 8 settlement day	Float	kWh
017EH	Volley active energy of the previou s 9 settlement day	Float	kWh
0180H	Volley active energy of the previou s 10 settlement day	Float	kWh
0182H	Volley active energy of the previou s 11 settlement day	Float	kWh
0184H	Volley active energy of the previou s 12 settlement day	Float	kWh
0186H	Volley reactive energy for this month	Float	kvarh
0188H	Volley reactive energy of the previous 1 settlement day	Float	kvarh
018AH	Volley reactive energy of the previous 2 settlement day	Float	kvarh
018CH	Volley reactive energy of the previous 3 settlement day	Float	kvarh
018EH	Volley reactive energy of the previous 4 settlement day	Float	kvarh
0190H	Volley reactive energy of the previous 5 settlement day	Float	kvarh
0192H	Volley reactive energy of the previous 6 settlement day	Float	kvarh
0194H	Volley reactive energy of the previous 7 settlement day	Float	kvarh
0196H	Volley reactive energy of the previous 8 settlement day	Float	kvarh
0198H	Volley reactive energy of the previous 9 settlement day	Float	kvarh
019AH	Volley reactive energy of the previous 10 settlement day	Float	kvarh
019CH	Volley reactive energy of the previous 11 settlement day	Float	kvarh
019EH	Volley reactive energy of the previous 12 settlement day	Float	kvarh

6.2 Wireless communication

KPM31 supports WiFi wireless communication mode and can be connected to enterprise wireless AP. The uplink adopts mqtt protocol for data communication with the master station. The specific configuration steps are as follows:

Step 1: Set mobile hotspot

Set the WiFi hotspot account to compere-debug and the password to kpm-debug for the meter to connect. Then start the settings on Touch Energy APP.

Step 2: Set the meter to debug mode

Enter the setting interface of the meter, find the "Wifi-M" option and set it to the "Debug" mode.

Wifi-M:Debug

The server configuration of both modes needs to use Touch Energy APP-meter setting function. The configuration steps are as follows:

Step 3: 'Touch Energy' APP meter setting

1. **Download 'Touch Energy' from Google play or Apple store. As Fig 1.**

2. **Click 'Meter setting' to enter the code search page. As shown in Fig 2.**

3. **Search for devices: Input the production number to search If the number is wrong, the search button will be grayed and cannot be clicked.**
If the number is correct, click the "code search" button to identify the device.

4. **Input the configuration parameters and submit:**
After entered the device details page, click refresh button in Device status until it's online.

4.1 Private server settings

This page is for the meters sending data to the customers' private server.

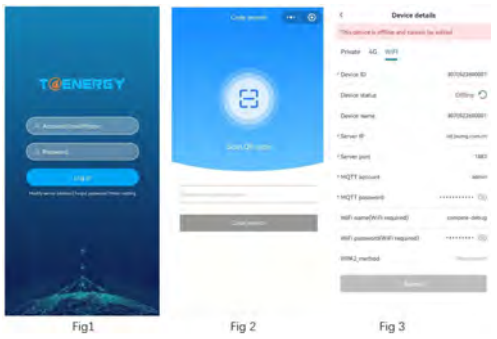


Fig1 Fig 2 Fig 3

Input private server address (support domain name and IP address), server port, MQTT account, MQTT password, etc.
If using WIFI meter, the local WIFI name and Password are required. WPA2 for enterprise level WIFI can be set too.
If using 4G meter, the WIFI name and Password is not required.

4.2 4G communication setting

Input server address (support domain name and IP address), port, MQTT account, MQTT password and submit.
The default information is for sending data to T@ENERGY cloud platform.

4.3 WIFI communication setting

Input server address (support domain name and IP address), port, MQTT account, MQTT password, local WiFi name and password (WPA2 for enterprise level WIFI can be set too) and submit.
The default information is for sending data to T@ENERGY cloud platform.

5. Wait for about 20 seconds for the meter to return status information.
If the configuration is successful, it will display "Successfully issued, please continue ", click 'exist' to return to the device ID search interface.

Click "next" for bulk quantity meters settings. It will enter the last setting page and retain the data set last time. Users only need to change the meter number and submit.

Note: The device status will be offline after submitted successfully.

Step 4: Set the meter to MQTT mode

Wifi-M: **MQTT**

FAQ for network connection

1. Issuing timeout: data communication timeout. It means the settings are not successfully or setting is succeeded but data return is failed.
Solution: Click 'OK' to stay on the device information page and wait for 30 seconds to see if the device is showing offline.
If yes (offline), that means the setting is succeeded.
If not (online), pls submit again.

2. Parameter lost: Data lost during communication.
Solution: Click 'OK' to stay on the device information page and wait for 30 seconds to see if the device is showing offline.
If yes (offline), that means the setting is succeeded.
If not (online), pls submit again.

7 Common Failure Analysis

No display after device is powered on
- Check whether the power supply voltage and other wiring are correct, and the power supply voltage should be within the working range;
- Turn off the device and host computer, and then restart.

The device does not work properly after power-on
- Turn off the device and host computer, and then restart.

Incorrect voltage or current reading
- Check whether the wiring mode setting is consistent with the actual wiring method

The power or power factor is incorrect, but the voltage and current is correct
- Compare the voltage and current input of the actual wiring and the wiring diagram, and check whether the phase relationship is correct

RS-485 communication is abnormal
- Check whether the communication baud rate, ID and commun ication protocol settings of the host computer are consistent w ith the device;Please check whether the data bit, stop bit, check bit settings are consistent with the host computer

8 Product Quality Assurance

8.1 Quality Assurance

All new devices sold to users, within a certain number of years from the date of sale to users, are subject to free quality assurance for failures caused by defects in design, materials an workmanship. If the product is determined to meet the above warranty conditions, the supplier will repair and replace it free of charge.
The supplier may require the user to send the device back to the manufacturer to confirm whether the device is covered by the fre warranty and repair the device.

8.2 Warranty Restrictions

The following devices are not covered by the free warranty:
- Damage caused by incorrect installation, use, and storage.
- Abnormal operation and application conditions beyond the product specifications.
- Devices repaired by organizations or persons not authorized b the company.
- Devices that have exceeded the free warranty period.

9 Contact Details

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