Three phase digital tube YB06 multi-function manual

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1.Technical specifications

Signal input	Wiring		Three-phase four-wire Y34/ three-phase three-wire V33
	Voltage	Range	400V/100V
		Over duty	Duration: 1.2 times; Instantaneous: 2x
		Power dissipation	<1VA
	Electric current	Range	5A/1A
		Over duty	Duration: 1.2 times; Instantaneous: 2x
		Power dissipation	<1VA
	Frequency		40~65 Hz
Power source			AC220V(Default) or AC/DC80-270V
Electrical energy pulse			Passive optocoupler output fixed pulse width 80mS±20%
Communication			RS485 communication port, isolated at the physical layer In line with the international standard MODBUS-RTU protocol Communication speed 1200~9600 Verification mode N81,E81,O81
Analog output			0/4~20mA or 0~5/10V transmission output Programmable setting of transmission items and corresponding values
Relay output			Programmable remote control/alarm relay output Capacity 5A/250VAC5A/30VDC Programmable alarm power, switch input, analog input or remote control
Telemetry switch			Telemetry switch input measurement, passive dry junction input programmable associated alarm output
Class of measurement			Power: 0.5 Frequency: ±0.1Hz Active power: 0.5S Reactive power: 1 Analog input: 0.5
Display mode			Integrated digital tube/HD LCD display
Environment			Operating temperature: -10-55℃ Storage temperature: -20-75℃
Secure			Insulation: signal, power supply, output terminal resistance to the shell >5MQ voltage, signal input, power supply, output >AC2KV
Appearance			Size 2S□:120*120*106mm ;9S□:96*96*95mm Weight 2S□:0.6kg; 9S□:0.5kg

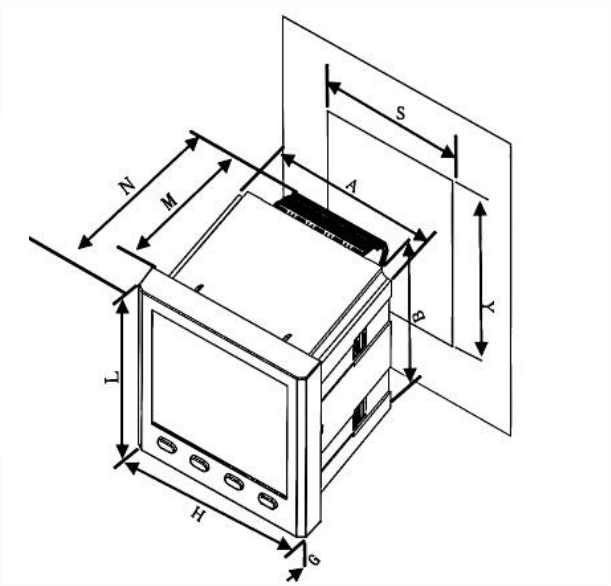
2.Installation and wiring

2.1 Size

Installation size :AXB

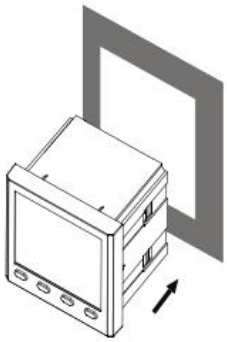
Opening size :SXY

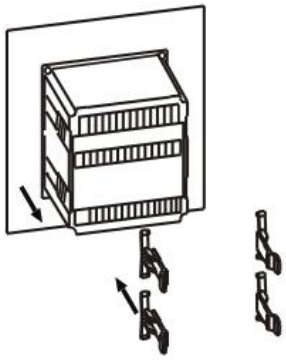
Panel size :LXH(unit mm)



Outline size (L×H) Unit(mm)	Screen mounting to match size (A×B) Unit(mm)	Opening size (S×Y) Unit(mm)	Overall length (N) (mm)	Depth size (M) (mm)
120×120	110×110	111×111	93	78
96×96	91×91	92×92	93	78
80×80	75×75	76×76	71	68
72×72	67×67	68×68	71	68

2.2 Installation method





2.3 Functions of wiring terminals

1) Signal and function terminal number

This series of terminals adopts a unified number, which is suitable for all products of this series, and its situation is shown in the following table:

Power source	1,2	AC220V,AC/DC80-270V
Current signal	4,5,6,7,8,9	4,6, and 8 are the three phase current inlet ends
Voltage signal	11,12,13,14	Three phase voltage input UA,UB,UC,UN
Relay output	15~22	4 relay outputs
Converter output	30,31,32,33,34	4 channels 4-20mA transmission output, 30 for the common end
Electrical energy pulse	47,48,49	47,49 is the positive end of the passive output, connected to the positive end of the external power supply
RS485	58,59	It's A+,B-
Switch input	70~74	Four switch inputs, 70 is the public end

2) Instructions:

(a) 1,2 is the auxiliary power supply for instrument operation, and the limit power supply voltage is AC220V(default). Please ensure that the power supply is suitable for this series of products to prevent damage to the products.

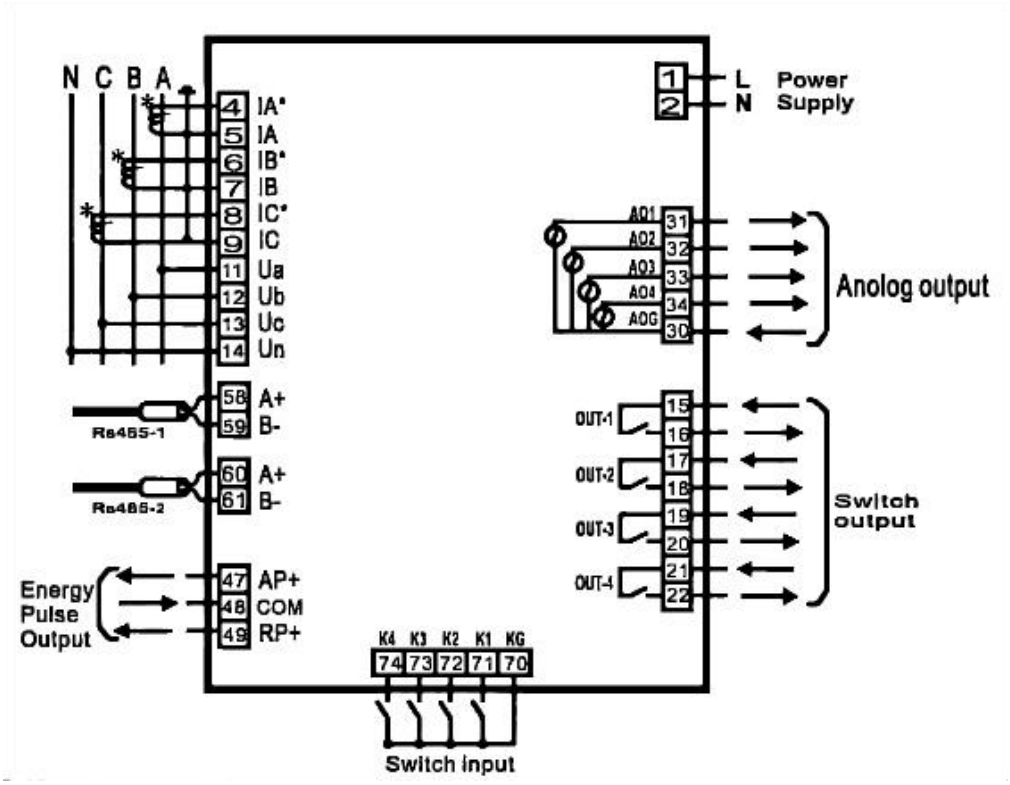
(b) 4,6, and 8 are the incoming terminals of the current transformer, and the incoming terminals marked with * represent the current.

(c) three-phase three-wire connection: In the three-phase three-wire network, the B-phase current does not need to be connected,UB is connected to the No. 14 terminal, the specific wiring can refer to 2.4 wiring.

(d) For the detailed use of terminal terminals, please connect according to the wiring diagram on the specific product housing.

2.4 Connecting Cables

(1) Typical wiring diagram of low-voltage network

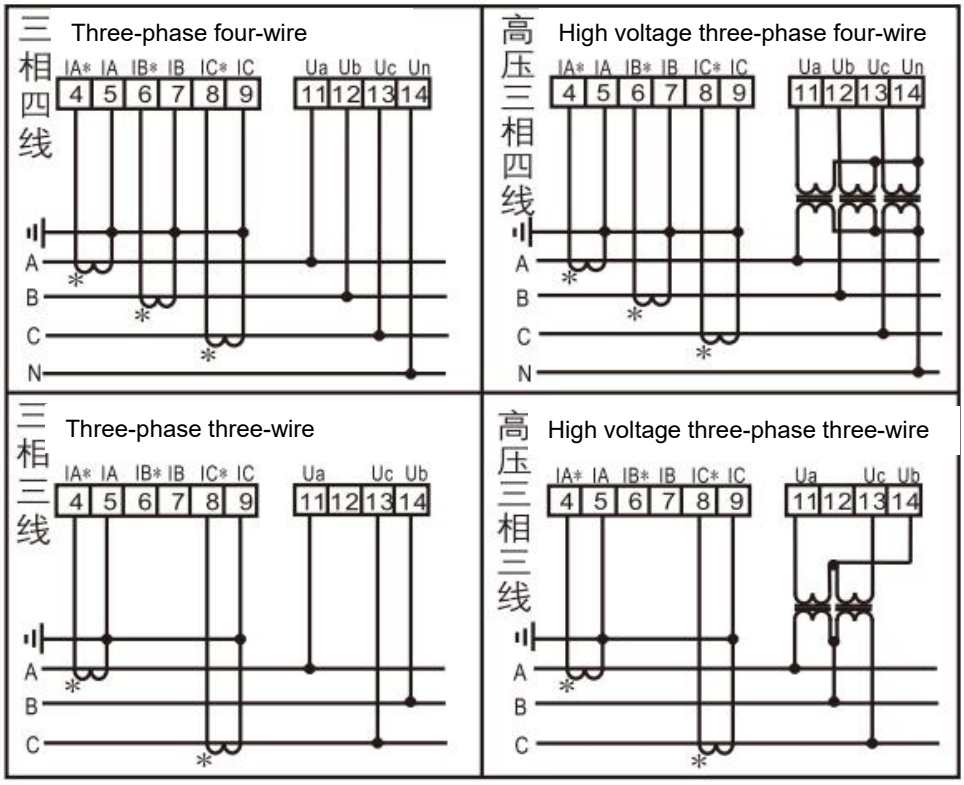


Typical wiring diagram of low voltage network

The figure takes the enhanced model with an external dimension of 120*120 as an example, and the wiring diagram of the rest of the products is similar to it, except that the terminal and function modules are reduced.

Note: The terminal order of each product is slightly different, please follow the wiring diagram on the product shell to connect

(2) Input signal wiring method



Wiring instructions:

(a) Voltage input: The input voltage should not be higher than the rated input voltage of the product (100V or 400V), otherwise PT should be considered, in order to facilitate maintenance, it is recommended to use wiring bars

(b) Current input: The standard rated input current is 5A, and external CT should be used if the current is greater than 5A. If the CT used is connected to other instruments, the wiring should be connected in series. Before removing the current input connection of the product, it is necessary to disconnect the primary circuit or short-circuit the secondary circuit of the CT. It is recommended to use a wiring bar for easy maintenance

(c) Ensure that the input voltage and current are corresponding, the phase sequence is consistent, and the direction is consistent; Otherwise, numerical and symbolic errors (power and energy) will occur.

(d) The instrument can work in three-phase four-wire mode or three-phase three-wire mode, and the user should choose the corresponding wiring mode according to the field use, generally using three-phase three-wire mode without a center line. In the case of A three-phase four-wire mode with a Central Line, the three-phase three-wire can only install 2CT (phase A and C), and the three-phase four-wire needs to install three CT(in the case of only 2CT, another phase current can be synthesized).

Note: Two wiring modes can be set in the instrument. The actual wiring mode and the setting mode in the instrument must be the same, otherwise the measurement data of the instrument is inaccurate.

Note: The specific wiring mode, pulse constant and other technical parameters are subject to the random wiring diagram of the product

3. Program operation

3. 1 Enter and exit the programming state

When the status is displayed, press the "SET" key , enter the password authentication page. Use the " ← " key or " → " key to enter the password (the default password is 0001), and then press the " ↵ " key to enter the programming status page. Note: If the page does not act after you press " ↵ " to enter the password, it indicates that the password is incorrect

Pressing the "SET" key when you have retreated to the first level menu of the programming interface will prompt "SAVE-YES"

There are two options at this point:

(a) Save exit ,select " ↵ " key;

(b) Keep the programming state, select the "SET" key to not save, directly exit the programming state, at this time all previous changes,All are invalid;

3.2 Use of keys in programming operation Common functions of four keys:

The " → " key and " ← " key are used for switching keys or adding or subtracting values of the same layer menu; "SET" button is used to return the menu or enter the programming interface, " ↵ " is used to enter the lower menu or modify the value of the confirmation.

How to achieve the increase or decrease of ten, hundred and thousand bits under the digital display interface:

Single-digit increase or decrease: " → " (Press " → " to add data 0-9 cycles)

Ten digit increase or decrease: When increasing (decreasing) the number of ten digits, you can press " ← "

to shift the operation and then press " ➡ " to increase or decrease

Hundred digit increase or decrease: When the number of hundred digits increases (decreases), you can press " ⬅ " to shift the operation, and then press " ➡ " to increase or decrease

Thousand-digit increase or decrease: When increasing (decreasing) the number of thousands of digits, you can press " ⬅ " to shift the operation.

Then press " ➡ " to increase or decrease

For example, under the menu item INPt-pt-0001, if you press ➡ , the system changes to INPT-PT-0002. If you press " ⬅ ", you can add or subtract the tens digit. If you press" ➡ "again, it becomes" IPT-PT-0012 ".

If you press " ⬅ " again, you can add or subtract hundreds.

If you press ➡ again, it will become PT-PT-0112. If you press ⬅ again, you can add or subtract thousands. If you press ➡ again, it will become PT-PT-1112.

3.3 Programming Operations

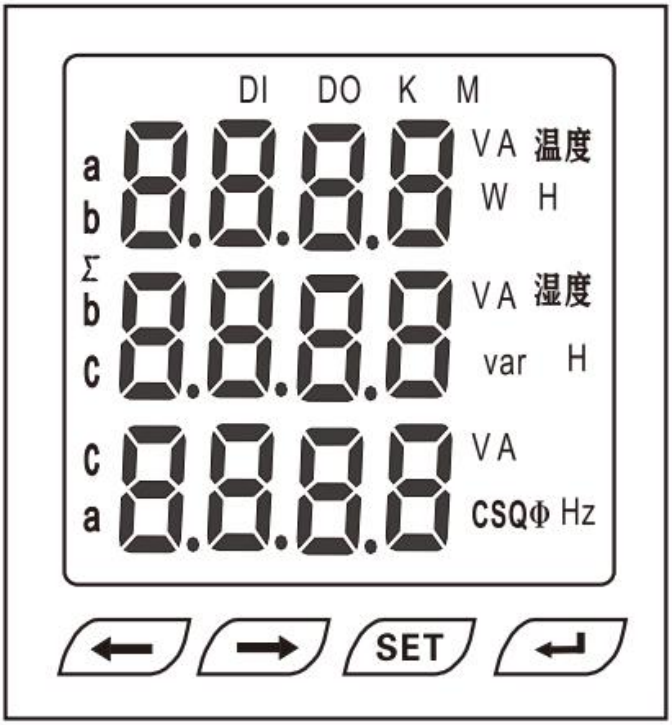
3.3.1 Menu structure

In the programming state, the display interface adopts the hierarchical structure of the menu, the instrument provides three rows of LED display:

The first row is the first layer of menu information;

The second row LED displays the second layer menu information;

The third row of leds provides the third layer menu information.



temperature

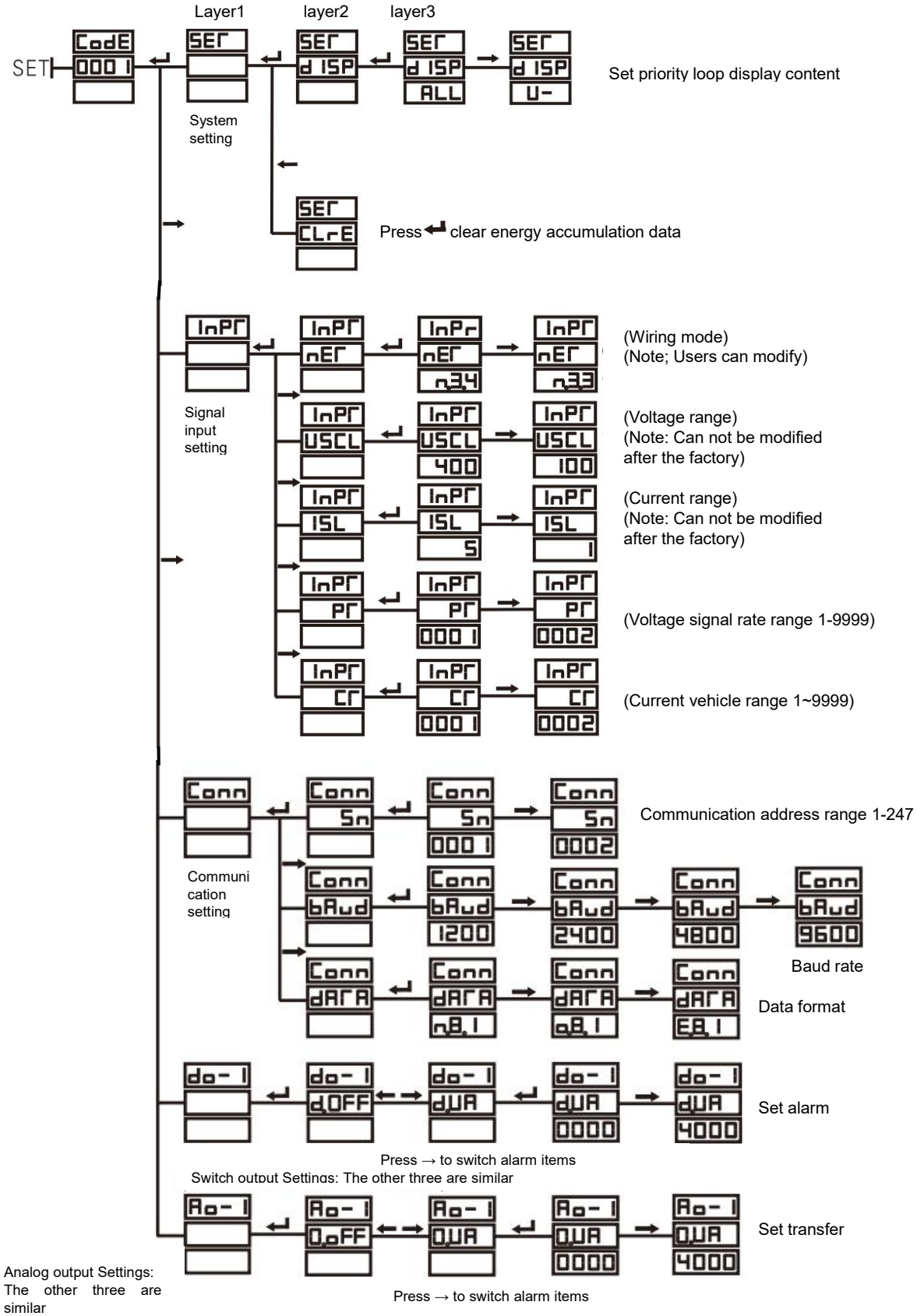
humidness

The menu structure is as follows. You can set parameters as required.

Layer 1	Layer 2	Layer 3	description
System setting SET	Password CODE	0-9999	Set User Password
	Show DISP	ALL or other data	Set the priority loop display item If the value is set to U-, the priority display voltage is set to ALL when the power is on to turn off the loop display. At this time, you need to manually press the left and right keys to check.
	Clean energy Clean demand CLr	"↵ "or "SET"	Press "↵ " to clear 0. If the accumulated power data is pressed by" SET ", it returns an undefined zero
Signal input NPT	Wiring mode NET	N.3.4 or N.3.3	Select the wiring mode of the input signal (N.3.4 for three-phase four-wire, N.3.3 for three-phase three-wire)
	Voltage range U.SCL	400V or 100V	Select the range of input voltage (can not be modified after factory)
	Current range I.SCL	5A or 1A	Select the range of input current (can not be modified after factory)
	Voltage ratio「.U	1~5000	Set the voltage ratio =1 scale /2 scale
	Current to current ratio 「.I	1~5000	Set the current ratio =1 scale /2 scale
Commun ication setup	Address SN	1~254	Meter addresses range from 1 to 247
	Communication speed BAUD	1200~9600	Baud rate 1200,2400,4800,9600
	DATA format DATA	N,E,O data format	Data format N81,E81,081
Relay output set DO-i (i is 1~4)	Select alarm item or turn off alarm (see 5.4 Relay Output for details)	Set specific thresholds for alarm items	Select the alarm item and set the corresponding threshold value. Once the alarm conditions are met, the switch output is switched on. For example, set it as "do-1", "U.UA", "3800" It indicates that when the A-phase voltage is greater than 380V, the output of the first relay is switched on
Converte r output set AO-i (i is 1~4)	Select the transfer item or turn off the transfer output (see 5.3 Transfer Output for details)	Sets the full scale value of the transfer item	Select the transmission item and the corresponding power parameter (i.e 0~20mA,4~20mA,4~12~20mA),For example, "Ao-1", "IAH","5000" means that when the phase A current 0~5A pairs the first 4~20mA converter output signal.

Note: The above menu items are all available menu items. If the user finds that some menu items in the menu are less or do not work than those in the above table during use, it means that the product selected by the user does not support the function.

The structure diagram is as follows：



Operating instructions:

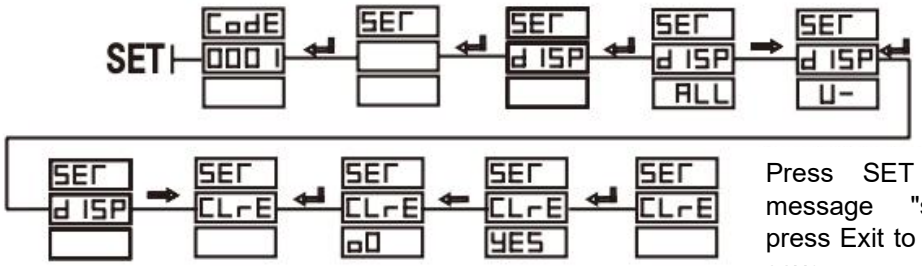
(a) After the data (or options) of the third layer menu is changed, press "one" to return to the second layer menu to take effect. If you press "SET" to return to the second layer menu, no change has occurred (that is, the change does not take effect).

(b) The voltage and current range is not allowed to be modified in the factory setting, and the wiring mode can be modified according to the actual wiring mode on site.

(c) Under normal circumstances, the type parameters and factory setting parameters of the instrument are marked in the label behind the instrument, and the user can also re-program the instrument according to the actual needs, see 3.3.2 Typical programming operation Example.

3.3.2 Typical Programming Operations

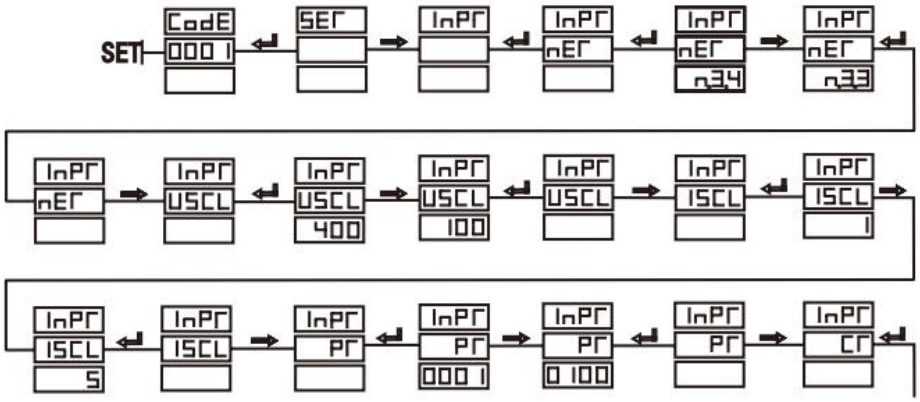
(1) System Settings: The user should set the cyclic display mode to voltage priority and zero power data.

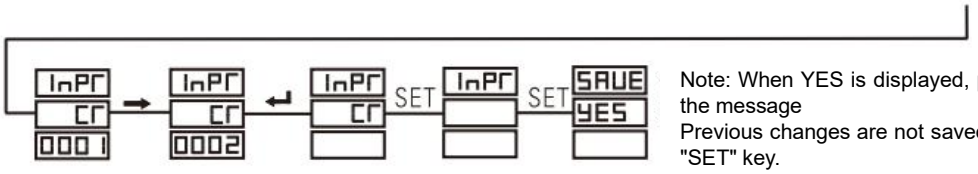


Press SET twice. When the message "save-yes" appears, press Exit to SAVE. SET does not save

If you only perform the power zeroing operation, you can skip the operation of modifying the measurement information display mode.

(2) The setting of the input signal (including changing the wiring mode): The average user must program the instrument before changing the wiring mode or the range of signal input. For example, the user wants to modify the three phase three wire; Signal :10KV/100V 1000A/5A instrument (assuming the original connection mode is three-phase four-wire; Signal :400V/400V1A/1A instrument). The operation is as follows: Change the wiring mode from three-phase four-wire to three-phase three-wire; The signal input range is changed to: voltage 100V, current 5A; The voltage ratio is set to 100 and the current ratio to 200.

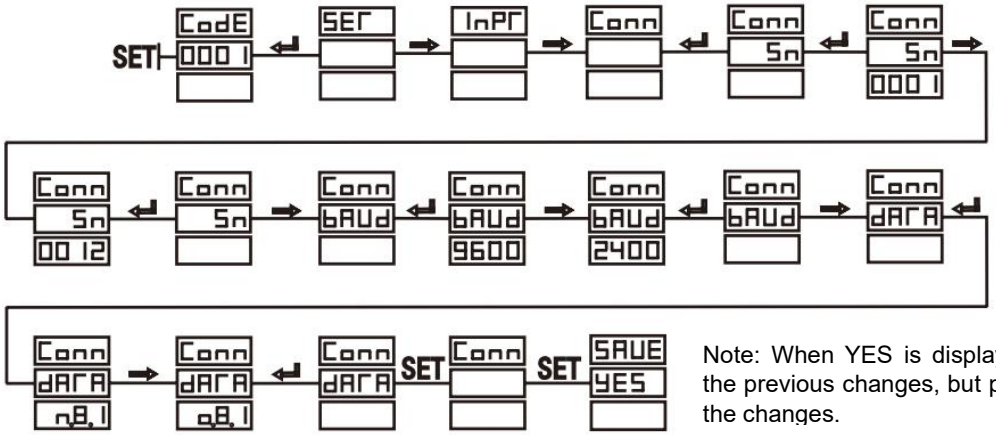




Note: When YES is displayed, press ↵ to save the message
Previous changes are not saved by pressing the "SET" key.

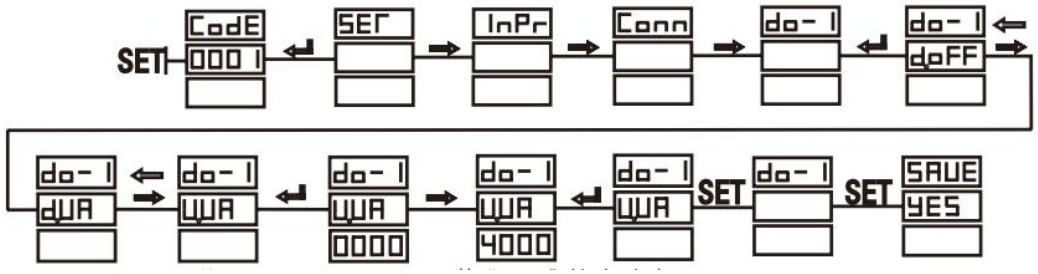
Note: The factory setting of the input voltage and current range cannot be modified. The wiring mode can be modified according to the actual wiring mode on site.

(3) Communication Settings example: If the user wants to use the communication function of the instrument, it is generally necessary to check the instrument communication parameters or make corresponding modifications. In this example, the user needs to change the communication address of the instrument to 12, the baud rate to 2400, and the data format to 0.8.1 odd check mode (assuming that the parameters of the instrument before programming are: address 1, baud rate 9600, and data format to n.8.1 no check).



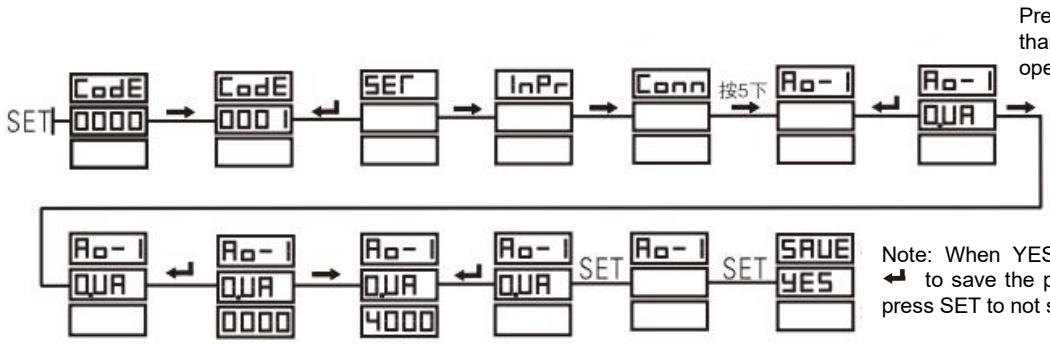
Note: When YES is displayed, press ← to save the previous changes, but press SET to not save the changes.

(4) Relay alarm output setting example: set the A-phase voltage high alarm output, when the A-phase voltage is greater than 400V to achieve the first switch quantity alarm output, that is, the first switch quantity on.(assuming that the instrument is in the off alarm output state before programming).



Note: When YES is displayed, press ↵ to save the previous changes, but press SET to not save the changes.

(5) Analog converter output setting example: set the A-phase voltage 0~400V to the strain output 4~20mA current signal.(Assuming that the instrument is in the off converter state, the A-phase voltage signal input range is 400V).



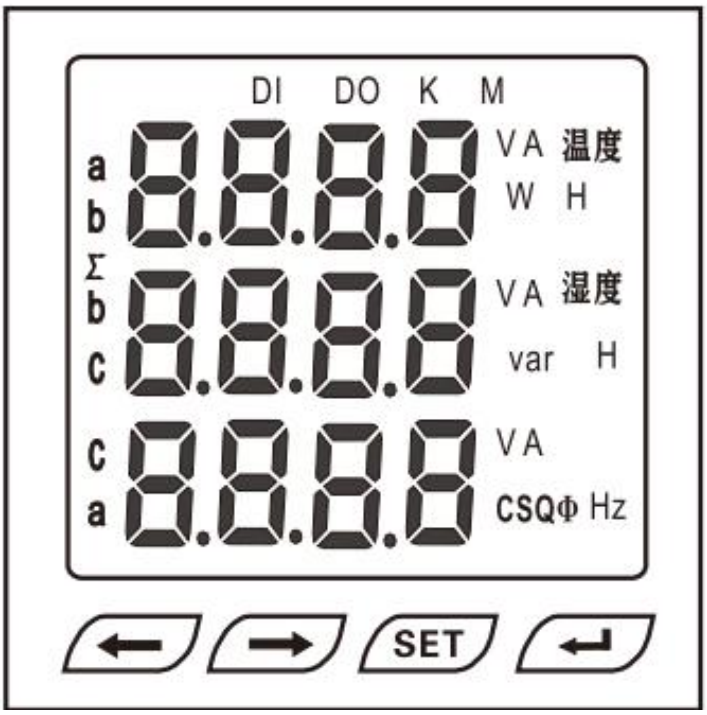
Press" ⬅ "key for more than 2 seconds to shift the operation and then click

Note: When YES is displayed, press ↵ to save the previous changes, but press SET to not save the changes.

Note: The full scale value of the transmission item should be set accurately, otherwise the transmission will be inaccurate.

4. Display panel description and measurement information

4.1 Product Panel and Display Information

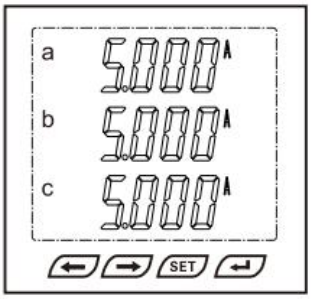
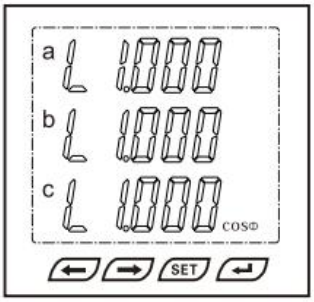
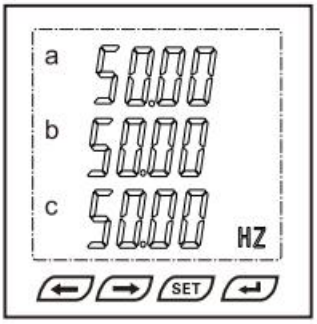


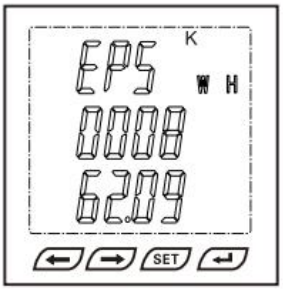
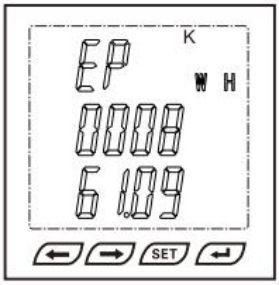
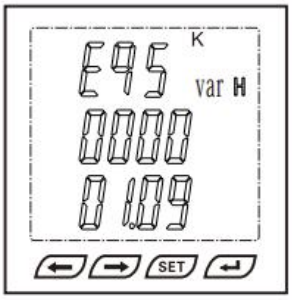
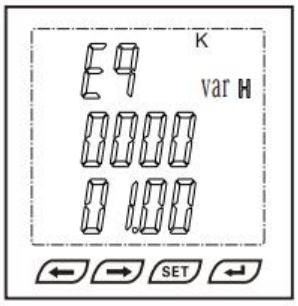
Temperature

Humidness

4.2 Displays interface information

There are 6 pages of measurement information (the default disp is set to OFF, that is, the cyclic display is turned off; if it is set to other, the setting item is displayed preferently when powered on), "⬅ " and "➡ " can be used for page switching, and "↵ " is used for information on the same page. The information switch per page is shown in the following table.

Page	Content	Instructions
XS1=1		Three phase voltage Ua,Ub,Uc Press One to display the line voltage Uab,Ubc,Uca, the figure on the left shows the input voltage of one test Voltage multiplies to set the PT variable ratio.
XS1=2		Display three phase current IA,IB,IC,On the left, IA=5.000A, IB = 5.000 A,IC=5.000A, The display current is a primary value, that is, the input current value multiplied by the set CT variable ratio.
XS1=3		The display has power W, reactive power var, apparent power VA, KW,Kvar ;when K is on; In the left figure, P=3300W, Q=1200var, S=4800VA. ∑ represents the sum of the three phases, press → to switch to the various powers of the abc phase in turn
XS1=4		abc three-phase power factor
XS1=5		The frequencies of the three phases

Page	Content	Instructions
XS1=6		EPS stands for total active energy, the second and third lines are read together, and the degree of the left figure is 862.09KWH
XS1=7		EP stands for forward active energy, read in the second and third rows, left The degree is 861.09KWH, press ↵ key to switch to EP- means reverse Yes Power and electrical energy.
XS1=8		Eqs stands for total reactive energy, and the second and third rows are read together, and the picture on the left reads 1.09kvarH
XS1=9		Eq stands for forward reactive energy, read the second and third rows connected, left picture The degree is 1.0kvarH, press ↵ key to switch to Eq- for reverse reactive power.
XS1=10		The alarm output state DO and switch input state DI are displayed. The picture on the left shows that the third and fourth relays are in output draw state. The first circuit is on.

5. Function modules

5.1 Communication

5.1.1 Physical Layer

1) RS485 communication interface, asynchronous half-duplex mode;

2) Communication speed 1200~2400bps can be set, the factory default is 9600 bps;

3) Byte transmission format: 1-bit start bit, 8-bit data bit, 1-bit check bit, 1-bit stop bit (N81 E81081) optional;

5.1.2 Communication protocol MODBUS-RTU

The MODBUS protocol adopts the communication connection mode of master-slave response in one communication cable. The host's signal is addressed to a slave with a unique address, and the response signal from the slave is transmitted to the host in the opposite direction, that is, on a separate communication line, the signal transmits all the communication data streams in the opposite directions (half-duplex mode of operation).

The MODBUS protocol only allows communication between the host (PC, PLC, etc.) and the terminal device, and does not allow data exchange between independent terminal devices, so that the terminal devices do not occupy the communication line when they are initialized, but are limited to responding to the query signal arriving at the local machine.

Query response period graph

Primary device query message

Device address
Function code
Data segment
Error detection

Device address
Function code
Data segment
Error detection

Slave device query message

Structure of the data frame: that is, the format of the message.

Address code	Function code	Data code	Check code
1 BYTE	1 BYTE	N BYTES	2 BYTES

Address code: consists of a byte (8-bit binary code), decimal 0~255, in our system only use 1~247, other addresses reserved. The address of each terminal device must be unique, and only the terminal that is addressed will respond to the corresponding query.

Function code: tells the terminal to perform what function to be addressed. The following table lists the function codes supported by the meter, as well as the function codes, and their meaning and function.

CODE	SIGNIFICANCE
01	Read relay output status
02	Telemetry switch input status
03	Read the data register value
05	Remote control individual relay output action
0F	Remote control of multiple relay output actions

Data code: contains the data required by the terminal to perform a specific function or the data collected when the terminal responds to a query. The contents of this data may be numerical values, reference addresses, or set values.

Check code: The error check (CRC) field takes two bytes and contains a 16-bit binary value. The CRC value is calculated by the transmitting device and then attached to the data frame. The receiving device recalculates the CRC value as it receives the data and then compares it to the received value in the CRC domain. If the two values are not equal, an error has occurred.

The process for generating a CRC is as follows:

(1). Preset a 16-bit register as 0FFFFH(hexadecimal, all 1), called CRC register.

(2). The 8 bits of the first byte in the data frame and the low byte in the CRC register are XOR operation, and the result is saved back to the CRC register.

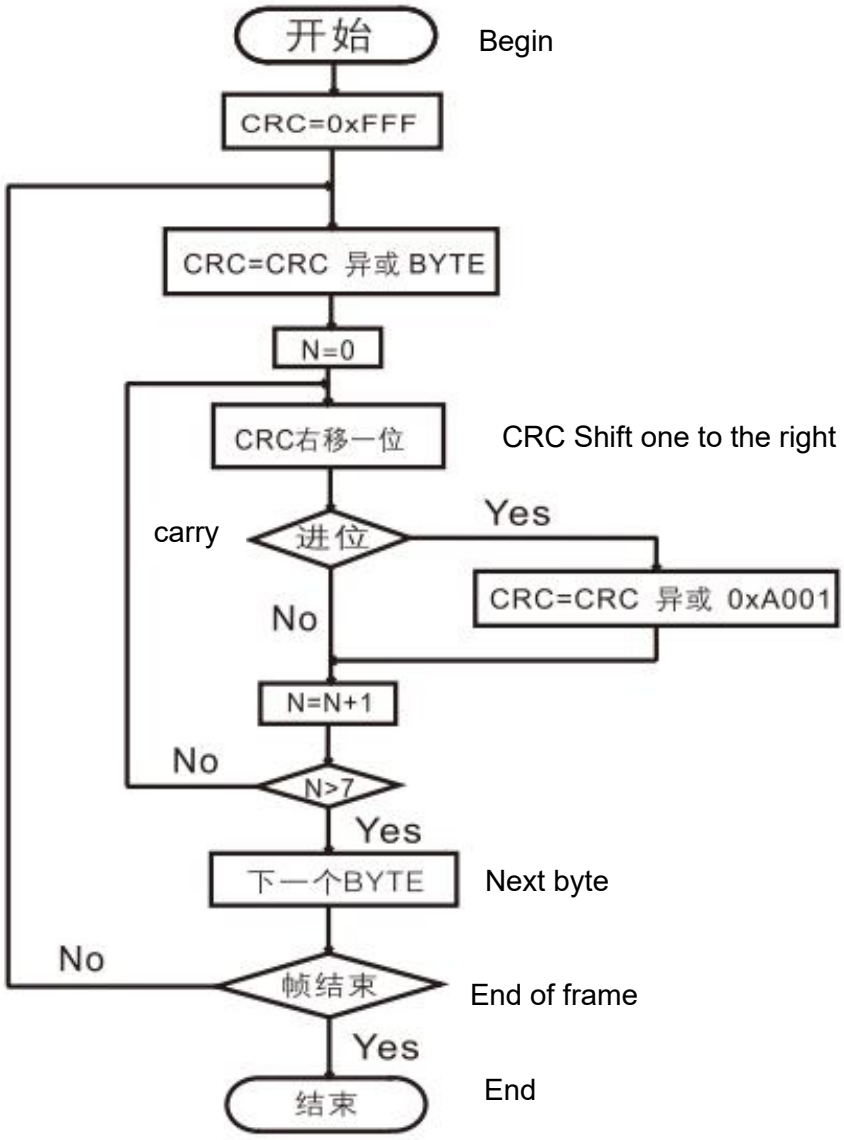
(3). Move the CRC register one bit to the right, fill the highest bit with 0, and the lowest shift out and detect.

(4). If the digit removed in the previous step is 0: repeat the third step (next shift); To 1: Performs an XOR operation on the CRC register with a preset fixed value (0A001H).

(5). Repeat steps 3 and 4 until 8 shifts. This completes the eight bits of a byte.

(6). Repeat steps 2 through 5 to process the next octet of bytes until all bytes are processed.

(7) The value of the final CRC register is the value of CRC.



Example communication message:

1. Read data (function code :03/04): This kinetic energy allows the user to obtain the data collected and recorded by the terminal equipment, as well as the system parameters. There is no limit on the number of data collected by the host at a time, but it cannot exceed the defined address range.

The following is from the terminal device address 01(01H) slave machine, read 3 data Ia, Ib, Ic(data frame each address occupies 2 bytes, Ia start address is 43(03H), data length is 3(03H) sub))

Query data frame (host)

Address	Command	Start register Address (high)	Start register Address (low)	Register count (high)	Register count (low)	CRC16 low-order	CRC16 high-order
01H	03H	00H	03H	00H	03H	F5H	CBH

The response data frame (slave) indicates that Ia=1380H(4.992),Ib=1390H(5.008), Ic=1370H(4.976).

Address	Command	Data byte length	Data 123456	Crc16 low	Crc16 high
01H	03H	06H	13H 80H 13H 90H 13H 70H	72H	E5H

Preset data (function code :16): This function allows users to change the content of multiple registers (electrical measurement can be written by this function number, it should be emphasized that the written data is writable property parameters, the number does not exceed the address range, the following example is to write the current ratio of 400A/5A=80 communication mode

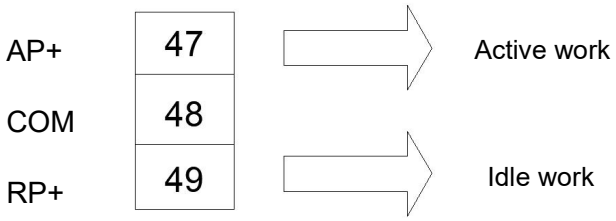
Query data frame (host)

Address	Command	Start register Address (high)	Start register Address (low)	Register count (high)	Register count(low)	Write bytes	Write data	CRC16 low	CRC16 high
01H	10H	00H	5AH	00H	01H	02H	00H50H	AAH	96H

Response data frame (slave), indicating that data has been written.

Address	Command	Start register Address (high)	Start register Address (low)	Register count (high)	Register count(low)	CRC16 low	CRC16 high
01H	10H	00H	5AH	00H	01H	21H	DAH

5.2 Power Metering and power pulse output PD series LCD multifunctional power meter can provide bidirectional active power, bidirectional reactive power metering,2 power pulse output function and RS485 digital interface to complete the display and remote transmission of power data. Instrument to achieve active power, reactive power 1 measurement data: collector level open circuit optocoupler relay electrical energy pulse to achieve active power and reactive power remote transmission, can use remote computer terminal,PLC,DI switch acquisition module to collect the total number of pulses of the instrument to achieve electric energy accumulation measurement. The output method used is the method of precision inspection of electric energy (national metrology rules: pulse error comparison method of standard table).



Computer pulse output Idle work

(a). Electrical characteristics: In the circuit diagram of the pulse acquisition interface, VCC≤48V,Iz≤50mA

(b). Pulse constant :5000imp/kwh

Its significance is: when the meter accumulates 1kWh, the pulse output number is N(5000), it needs to be emphasized that 1kWh is the electrical energy of 2 measurements of electrical energy data, in the case of PT,CT, the relative N pulse data corresponds to 1 measurement of electrical energy of 1kWhx voltage ratio PTx current ratio CT.

(c). Application example: The PLC terminal uses a pulse counting device, assuming that the number of pulses collected in a period of time of t length is N, the instrument input is :10kV/100V400A/5A, then the instrument electric energy accumulation during the period is :N/ 5000x100x80 degrees of electric energy.

5.3 Transfer Output

Series of liquid crystal multi-function power meter with analog measurement and transmission function, each way can be flexibly set transmission items and transmission range, such as 4.UA3800(UA0-380V strain output 4~20mA),0.A 5000(Ia0-5A strain output 0~20mA),4.PA5700(PA0~5700W For strain transmission output 4~20mA), etc., the detailed transmission items can refer to the transmission output comparison table.

Electrical parameters: Output 0/4~20mA

Accuracy class :0.5S

Overload :120% effective output, maximum current 24mA, voltage 12V. Load :Rmax=4009

Transmission items: phase voltage, line voltage, phase current, phase active power, total active power, phase reactive power, total reactive power, three-phase power, total apparent power, power factor, frequency, bidirectional active power and bidirectional reactive power, etc.

Customers can also specify the transmission items and the transmission range in detail when ordering, and the instrument will be set up according to user requirements at the factory; Users can also modify the transmission items and the transmission output range according to actual needs in the product factory, but can not modify the electrical parameters 0/4~20mA

5.4 Relay output and input

Relay capacity :5A250VAC/5A30VDC

Customers need special specifications of relay capacity, you can contact the company's Marketing Department, special customization. The relay output module has two working modes: power alarm mode and communication remote control mode. Each relay can flexibly set working mode, alarm item and alarm range in programming operation. For example, the alarm item "U.U.A" alarm range "4000" means that the relay switch is on when UA>400.0V; Alarm item "d.UA" Alarm range "1000" indicates that the relay switch is on when UA<100.0V.

See alarm item setting table for details

Relay alarm and switch input detection are displayed in binary format on the display screen. 1 means alarm or on, 0 means no alarm or off. See page for the interface description.

When the communication protocol is used to check the alarm and on status, the value of the alarm and on register is hexadecimal, the high eight bits are the alarm output, and the low eight bits are the switch input. bit 0,1,2.3 of address 0X47 correspond to the first, second, third, and fourth switches respectively. bit 3,2, and 1.0 of address 0X46 correspond to the first alarm, second alarm, third alarm, and fourth alarm.

6. Common problems and solutions

6.1 About Communication

1) The meter does not send back data

Answer: First of all, ensure that the communication Settings of the instrument such as slave address, baud rate, verification mode, etc. are consistent with the requirements of the host computer; If there is no data return in the communication of multiple instruments in the field, check whether the connection of the field communication bus is accurate and reliable, and whether the RS485 converter is normal. If only a single or a few instruments communicate abnormally, it is necessary to check the corresponding communication line. You can change the address of the switch abnormal and normal instruments to test, eliminate or confirm the

software problem of the upper computer, or test, eliminate or confirm the instrument fault by switching the installation position of the abnormal and normal instruments.

2) The instrument feedback data is inaccurate

Answer: The data open to the customer for the communication of the liquid crystal multifunctional power meter is the primary grid float data and the secondary grid int/long data. Please carefully read the description of the data storage address and storage format in the communication address table, and ensure that the data can be converted according to the corresponding data format, integer, floating point,16 Display in decimal format, can be directly compared with the instrument display data.

6.2 Inaccurate measurement of U,1,P, etc

Answer: First of all, you need to ensure that the correct voltage and current signal has been connected to the instrument, you can use a multimeter to measure the voltage signal, if necessary, use a clamp meter to measure the current signal, and then ensure that the connection of the signal line is correct, such as the same name of the current signal end (that is, the incoming line end), and the phase sequence of each phase is wrong, for the instrument can observe the power interface display Only in the case of reverse power supply, the active power symbol is positive in general use, if the active power symbol is negative, it is possible that the current inlet and outlet lines are connected incorrectly, of course, the wrong phase sequence connection will also lead to abnormal power display. In addition, it should be noted that the power displayed by the meter is the primary power grid value. If the power ratio of the voltage and current transformer set in the meter is inconsistent with the actual use of the transformer, it will also lead to inaccurate meter power display, and the range of voltage and current in the meter is not allowed to be modified after the factory. The wiring network can be modified according to the actual connection on site, but the setting of the wiring mode in the programming menu should be consistent with the actual wiring mode, otherwise it will also lead to incorrect display information.

6.3 Incorrect wording regarding electrical energy

Answer: The electric energy accumulation of the instrument is based on the measurement of power, first observe the power value of the instrument and the actual load is consistent with the multi-function electric energy meter support two-way electric energy measurement, in the case of wiring error, the total active power is negative, the electric energy will be accumulated to the reverse active energy, the positive active energy is not accumulated. In field use, the most common problem is that the incoming line and the outgoing line of the current transformer are connected inversely, and the active power with symbol can be seen. If the power is negative, it may be wrong wiring. In addition, the wrong phase sequence connection may also cause abnormal power transmission of the instrument.

6.4 The instrument is not bright

A: Ensure that the appropriate auxiliary power supply (AC/DC80-270V) has been added to the auxiliary power terminal of the meter. An auxiliary power supply voltage exceeding the specified range may damage the meter and cannot be restored. You can use a multimeter to measure the voltage of the auxiliary power supply. If the power supply voltage is normal and the meter has no display, you can consider powering it on again. If the meter is not displayed normally, please contact the technical service department of the company.

6.5 The meter does not respond to any operation

A: Press the instrument keyboard "⬅""➡" "SET" "➡" The instrument does not respond, try to power off and re-set,If the instrument cannot be restored to normal after re-powering on, please contact the technical service department of the company.

6.6 Other Exceptions

A: Please contact the technical service department of the company in time, the user should describe the scene in detail, the company's technical personnel will analyze the possible causes according to the on-site feedback, if the problem cannot be solved through communication, the company will arrange technical personnel to the scene as soon as possible to deal with the problem.

Transfer item Settings table

Item	Type	Range	Instructions
A-phase voltage	0.UA	4000	0-20mA output of 0-400V
	4.UA	4000	4-20mA output of 0-400V
B-phase voltage	0.Ub	4000	0-20mA output of 0-400V
	4.Ub	4000	4-20mA output of 0-400V
C-phase voltage	0.UC	4000	0-20mA output of 0-400V
	4.UC	4000	4-20mA output of 0-400V
AB line voltage	0.UAb	4000	0-20mA output of 0-400V
	4.UAb	4000	4-20mA output of 0-400V
BC line voltage	0.UbC	4000	0-20mA output of 0-400V
	4.UbC	4000	4-20mA output of 0-400V
CA line voltage	0.UAC	4000	0-20mA output of 0-400V
	4.UnC	4000	4-20mA output of 0-400V
A-phase current	0.1A	5000	0-20mA output of 0-5A
	4.1A	5000	4-20mA output of 0-5A
B-phase current	0.1b	5000	0-20mA output of 0-5A
	4.1b	5000	4-20mA output of 0-5A
C-phase current	0.1C	5000	0-20mA output of 0-5A
	4.1C	5000	4-20mA output of 0-5A
A phase active power	0.PA	6000	0-20mA output of 0-6000W
	4.PA	6000	4-20mA output of 0-6000W
B phase active power	0.Pb	6000	0-20mA output of 0-6000W
	4.Pb	6000	4-20mA output of 0-6000W
C phase active power	0.PC	6000	0-20mA output of 0-6000W
	4.PC	6000	4-20mA output of 0-6000W
Total reactive power	0.PS	6000	0-20mA output of 0-6000W
	4.PS	6000	4-20mA output of 0-6000W
A phase reactive power	0.9A	9000	0-20mA output of 0-9000W
	4.9A	9000	4-20mA output of 0-9000W
B phase reactive power	0.9b	9000	0-20mA output of 0-9000W
	4.9b	9000	4-20mA output of 0-9000W
C phase reactive power	0.9C	9000	0-20mA output of 0-9000W
	4.9C	9000	4-20mA output of 0-9000W
Total reactive power	0.9S	9000	0-20mA output of 0-9000W
	4.9S	9000	4-20mA output of 0-9000W
Phase A power factor	0.PFA	1000	0-20mA output of 0-1.000 COS
	4.PFA	1000	4-20mA output of 0-1.000 COS
Phase B power factor	0.PFb	1000	0-20mA output of 0-1.000 COS
	4.PFb	1000	4-20mA output of 0-1.000 COS

Item	Type	Range	Instructions
Phase C power factor	0.PFC	1000	0-20mA output of 0-1.000 COS
	4.PFC	1000	4-20mA output of 0-1.000 COS
Total power factor	0.PFS	1000	0-20mA output of 0-1.000 COS
	4.PFS	1000	4-20mA output of 0-1.000 COS
A	0.5A	8000	0-20mA output of 0-8000W
	4.5A	8000	4-20mA output of 0-8000W
B phase Apparent power	0.5b	8000	0-20mA output of 0-8000W
	4.5b	8000	4-20mA output of 0-8000W
C phase Apparent power	0.5C	8000	0-20mA output of 0-8000W
	4.5C	8000	4-20mA output of 0-8000W
Total Apparent power	0.5S	8000	0-20mA output of 0-8000W
	4.5S	8000	4-20mA output of 0-8000W
Frequency	0.Fr	0500	0-20mA output of 0-8000W
	4.Fr	0500	4-20mA output of 0-8000W
OFF	0.oFF	OFF: Turns off the converter output	

Alarm item setting table

Item	Type	Range	Instructions
A-phase voltage	dUA	4000	Output lower than 400V
	UUA	4000	Output higher than 400V
B-phase voltage	dUb	4000	Output lower than 400V
	UUb	4000	Output higher than 400V
C-phase voltage	dUC	4000	Output lower than 400V
	UUC	4000	Output higher than 400V
AB-line voltage	dUAb	4000	Output higher than 400V
	UUAb	4000	Output higher than 400V
BC-line voltage	dUbC	4000	Output lower than 400V
	UUbC	4000	Output higher than 400V
CA-line voltage	dUAC	4000	Output lower than 400V
	UUnC	4000	Output higher than 400V
A-phase current	d.1A	5000	Output lower than 5A
	U.1A	5000	Output higher than 5A
B-phase current	d.1b	5000	Output lower than 5A
	U.1b	5000	Output higher than 5A
C-phase current	d.1C	5000	Output lower than 5A
	U.1C	5000	Output higher than 5A
A-phase active power	dPA	6000	Output lower than 6000W
	UPA	6000	Output higher than 6000W
B-phase active power	dPb	6000	Output lower than 6000W
	UPb	6000	Output higher than 6000W
C-phase active power	dPC	6000	Output lower than 6000W
	UPC	6000	Output higher than 6000W
Total active power	dPS	6000	Output lower than 6000W
	UPS	6000	Output higher than 6000W

Item	Type	Range	Instructions
A phase reactive power	d.9A	9000	Output lower than 9000W
	U.9A	9000	Output higher than 9000W
B phase reactive power	d.9b	9000	Output lower than 9000W
	U.9b	9000	Output higher than 9000W
C phase reactive power	d.9C	9000	Output lower than 9000W
	U.9C	9000	Output higher than 9000W
Total reactive power	d.9S	9000	Output lower than 9000W
	U.9S	9000	Output higher than 9000W
A phase power factor	d.PFA	1000	Output lower than 1.000cos
	U.PFA	1000	Output higher than 1.000cos
B phase power factor	d.PFb	1000	Output lower than 1.000cos
	U.PFb	1000	Output higher than 1.000cos
C phase power factor	d.PFC	1000	Output lower than 1.000cos
	U.PFC	1000	Output higher than 1.000cos
Total power factor	d.PFS	1000	Output lower than 1.000cos
	U.PFS	1000	Output higher than 1.000cos
A phase Apparent power	d.SA	8000	Output lower than 8000W
	U.SA	8000	Output higher than 8000W
B phase Apparent power	d.Sb	8000	Output lower than 8000W
	U.Sb	8000	Output higher than 8000W
C phase Apparent power	d.SC	8000	Output lower than 8000W
	U.SC	8000	Output higher than 8000W
Total Apparent power	d.SS	8000	Output lower than 8000W
	U.SS	8000	Output higher than 8000W
Frequency	d.Fr	5000	Output lower than 50Hz
	U.Fr	5000	Output higher than 50Hz
OFF	d.oFF	OFF: Turns off the alarm output	

MODBUS address information table

Note: All data read are secondary values		
Address	Description	Specification
0x00	A-phase voltage	XXX.X V
0x01	B-phase voltage	XXX.X V
0x02	C-phase voltage	XXX.X V
0x03	A-phase current	X.XXX A
0x04	B-phase current	X.XXX A
0x05	C-phase current	X.XXX A
0x06	Neutral current	X.XXX A

Address	Description	Specification
0x07	Total active power	XXXX W
0x08	Phase A active power	XXXX W
0x09	B phase active power	XXXX W
0x0A	C phase active power	XXXX W
0x0B	Total reactive power	XXXX Var
0x0C	Phase A reactive power	XXXX Var
0x0D	B phase reactive power	XXXX Var
0x0E	C-phase reactive power	XXXX Var
0x0F	Total apparent power	XXXX VA
0x10	A look at each other in power	XXXX VA
0x11	B look at each other in power	XXXX VA
0x12	C look at each other in power	XXXX VA
0x13	Total power factor	X.XXX
0x14	Phase A power factor	X.XXX
0x15	B phase power factor	X.XXX
0x16	Phase C power factor	X.XXX
0x17	Phase A line voltage	XXX.X V
0x18	B phase line voltage	XXX.X V
0x19	Phase C line voltage	XXX.X V
0x1A	A-phase frequency	XX.XX HZ
0x1B	B-phase frequency	XX.XX HZ
0x1C	C-phase frequency	XX.XX HZ
0x1D	Positive active energy (high 16 bit)	XX.XX KWH
0x1E	Positive active energy (low 16 bits)	
0xlF	Reverse active energy (high 16 bits)	XX.XX KWH
0x20	Reverse active energy (low 16 bits)	
0x21	Forward reactive energy (high 16 bits)	XX.XX KVarh
0x22	Forward reactive energy (low 16 bits)	
0x23	Reverse reactive power (high 16 bits)	XX.XX KVarh
0x24	Reverse reactive power (low 16 bit)	

Address	Description
0x45	Reserve
0x46	Alarm output
0x47	Input signal
0x50	Password (1~9999)
0x51	Mailing address (1~254)
0x52	Baud rate (0:1200 1:2400 2:4800 3:9600)
0x53	The parity bit (0:N81 1:081 2:E81 3:N82)none,odd,even
0x54	Reserve
0x55	Connection mode (0:3-31:3-4)
0x56	Maximum voltage (0:100V 1:400V)
0x57	Maximum current (0:1 :5A)
0x58	Reserve
0x59	PT
0x5A	CT

Address (Hex)	Data content	Data Format	Data length	Description
0x5B	A01-Type	Int	1	Analog output 1 Data items and modes (0~52)
0x5C	A01-Hi	Int	1	Analog output 1 high-end
0x5D	A01-LO	Int	1	Analog output 1 low end
0x5E	A02-Type	nt	1	Analog output 2 data items and modes (0~52)
0x5F	A02-Hi	Int	1	Analog output 2 high-end
0x60	A02-L0	Int	1	Analog output 2 low end
0x61	A03-Type	Int	1	Analog output 3 data items and modes (0~52)
0x62	A03-Hi	Int	1	Analog output 3 high-end
0x63	A03-LO	nt	1	Analog output 3 low end
0x64	A04-Type	Int	1	Analog output 4 data items and modes (0~52)
0x65	A04-Hi	Int	1	Analog output 4 high-end
0x66	A04-LO	Int	1	Analog output 4 low end
0x67	Do1-Type	Int	1	Alarm output 1 Data items and modes (0~52)
0x68	Do1-Value	Int	1	Alarm output 1 threshold
0x69	Do2-Type	Int	1	Alarm output 2 Data items and modes (0~52)
0x6A	Do2-Value	Int	1	Alarm output 2 threshold
0x6B	Do3-Type	Int	1	Alarm output 3 Data items and modes (0~52)
0x6C	Do3-Value	Int	1	Alarm output 3 threshold
0x6D	Do4-Type	Int	1	Alarm output 4 Data items and modes (0~52)
0x6E	Do4-Value	Int	1	Alarm output 4 threshold