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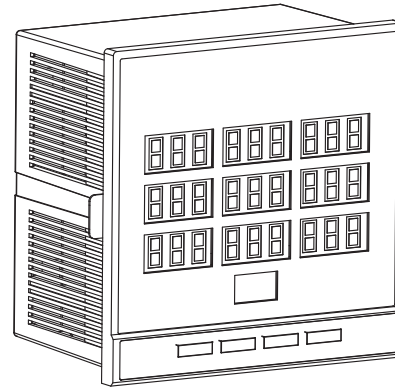


JKGHYBA580

Intelligent combination low-voltage reactive power measuring & control device

user's manual

JKGHYBA580 Intelligent combination low-voltage reactive power measuring & control device

1 Product introduction

JKGHYBA580 intelligent combined low-voltage reactive power compensation measurement and control device is a new low-voltage reactive power compensation controller integrating measurement, control and display. Compared with the common low-voltage reactive power compensation controller, it mainly integrates the conventional voltmeter, ammeter, power factor meter, reactive power meter, and active power meter into one controller, and can also display the three-phase compensation current, and display the state of capacitor switching.
This product adopts RS485 communication mode and can connect up to 20 sets of our HY series combined low-voltage power capacitors.

2 main features

1. Using special power metering chip, the measurement parameters are more accurate and the control efficiency is higher.
2. The device can display three phase voltage, three-phase current, three-phase power factor, combined phase power factor, three-phase active power, three-phase reactive power and three-phase compensation current, as well as capacitor switching status.
3. By setting, the controller sampling mode can be single-phase sampling mode, which is limited to three-phase compensation.
4. The equipment has a friendly HMI, which is convenient for users to query the parameters of voltage, current, power factor, active and reactive power compensation current, and change the parameters such as voltage over-voltage value, over temperature value, time delay, CT ratio, upper and lower limit value of power factor according to requirement.
5. The anti-interference single chip microcomputer and double watchdog technology are adopted, and the counting voting and comparing the verification code of the metering chip are adopted in the software to enhance the anti-interference ability of the equipment and ensure the reliable operation of the equipment.

3 Main technical parameters

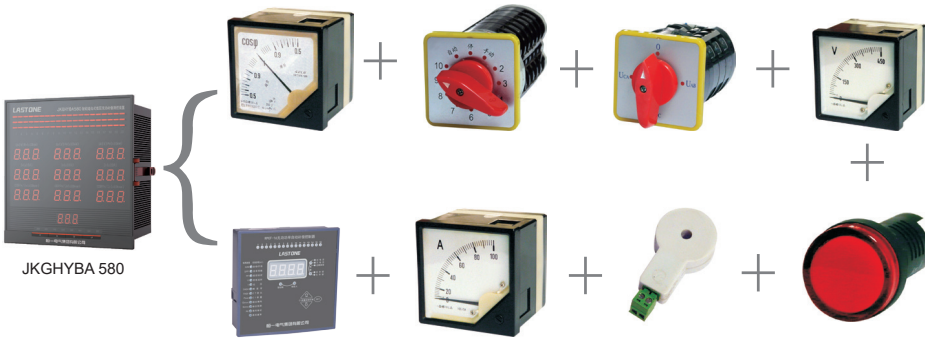
working environment	-25℃ ~55℃ Environment temperature
	40℃时 20%~90% Relative humidity ； 20%~90% at 40℃
	≤2000m Altitude
	no flammable and explosive media, no conductive dust or corrosive gas
Power supply	Working voltage: 220V±10%, frequency 50Hz, THD ≤5%
	Power consumption: ≤5VA
measurement accuracy	Voltage: 0.5% Current: ±0.5% Active power: ±2.5%
	Power factor: ±1% Reactive power: ±2.5%
Other parameters	Sampling current analog quantity <5A, 50Hz, current analog input impedance <0.1Ω
Control capacity	JKGHYBA580 can control 20 sets

4 Dimension and mounting hole dimension

Dimension(W×H×D)	mounting hole dimension
170mm(W)×170mm(H)×120mm(D)	160mm(W)×160mm(H)

5 Comparison with conventional product

1 set of low voltage reactive power automatic compensation controller can alternative:
voltmeter: 1pc; voltage measurement transfer switch:1pc; power factor meters: 3pcs; Manual/automatic transfer switch: 1pc, ammeter: 3pcs, secondary CT: 3pcs, capacitor switching status indicator: 60pcs

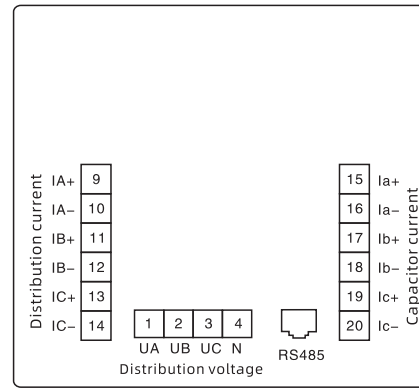


6 Function introduction

Measurement function	The product is in "measurement" state, which can measure and display: active power, reactive power and compensation current. The product is in "automatic control" state, which can measure and display: distribution voltage, distribution current and power factor.
Parameter setting function	Delay time setting • overvoltage protection value setting • distribution current CT ratio setting • compensation current CT ratio setting • power factor upper limit value setting • power factor lower limit value setting • harmonic protection value setting
control function	Automatic control function: automatically switch power capacitors according to reactive power and power factor. Switch capacitors for the same capacity in a cyclic manner, and switch corresponding capacitors for different capacities according to reactive power shortage. Manual control function: according to the requirement to manually switch and control intelligent capacitor.
State display function	capacitor switching status display; measurement data display function; setting parameter display function.
Protection function	Overvoltage, undervoltage and undercurrent protection, over-harmonic protection.

7 Terminal description

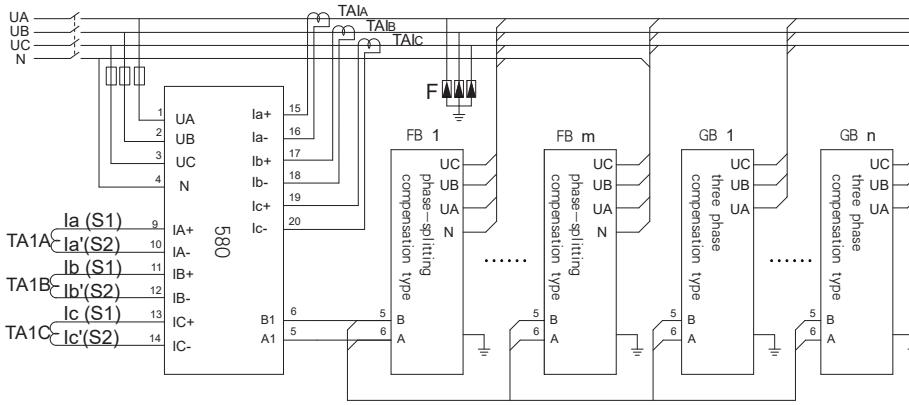
7.1 Terminals 1, 2, 3, 4 are: Distribution voltage power access terminal UA、UB、UC、N . Regardless of single-phase or three-phase sampling, please connect in 3P4W mode.
7.2 Terminals 9 and 10 are the A -phase distribution sampling current primary CT signal access terminal, terminals 11 and 12 are for B-phase, and terminals 13 and 14 are for C-phase.
For single-phase sampling, only terminal 9 and terminal 10 of current A-phase need to be connected.
7.3 Terminals 15 and 16 are the A -phase capacitor compensation current primary CT signal access terminal,. Terminals 17 and 18 are for B-phase, and terminals 19 and 20 are for C-phase .
7.4 RS485 communication port is connected with intelligent capacitor.



Remarks:
Distribution sampling current: sampling current of incoming cabinet; distribution voltage: sampling voltage; capacitor compensation current: sampling current of capacitor cabinet.

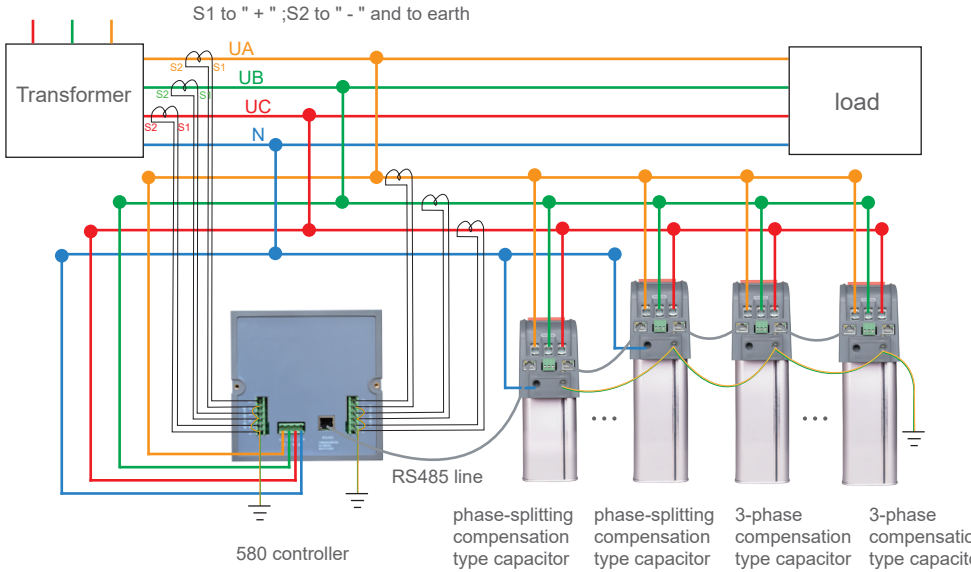
8 Product wiring description

(total number of split compensation capacitors m + total number of three phase compensation capacitors n ≤ 20)



Note: In single-phase sampling, the primary CT of distribution only needs to be connected to terminal 9 and terminal 10 of phase A of distribution current.

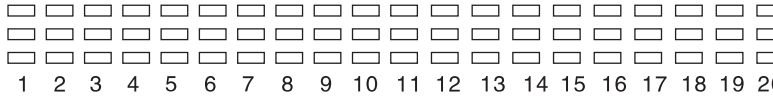
Schematic diagram of compound connection



Note: The primary CT ratio of the distribution current must be set, for example: 500/5, set to 100.

9 Display instructions and operation

Capacitor switching status display instructions



The serial number 1-20 indicates the address number of intelligent power capacitor in the compensation cabinet.

Note: When networking, the communication address is set within the range of 1-20 of the intelligent power capacitor address number in the compensation cabinet, and each address is not repeated.

The two sets of capacitors of the three phase compensation type use ″two LED lights″ to indicate the state of the C1 and C2 capacitors respectively.

LED indicator (top): capacitor C1, LED indicator (bottom): capacitor C2.

One set of capacitors with three phase compensation uses ″one LED light″, LED indicator (middle): capacitor C.

The split phase type uses ″three LED lights″ to indicate the states of the A, B, and C three-phase capacitors,

LED indicator (top): A-phase capacitor, LED indicator (middle): B-phase capacitor, LED indicator (bottom): C-phase capacitor

Description of parameter display

Three phase sampling

UA(V)	UB(V)	UC(V)
A-Phase distribution voltage	B-Phase distribution voltage	C-Phase distribution voltage
IA(X10A)	**IB(X10A)**	**IC(X10A)**
A-Phase distribution current	B-Phase distribution current	C-Phase distribution current
COSΦ A	**COSΦ B**	**COSΦ C**
A-Phase power factor	B-Phase power factor	C-Phase power factor

Distribution parameters
(automatic control state)

PA(×10kW)	PB(×10kW)	PC(×10kW)
A-Phase active power	B-Phase active power	C-Phase active power
IA(X10A)	**IB(X10A)**	**IC(X10A)**
A-Phase compensation current	B-Phase compensation current	C-Phase compensation current
QA (×10kvar)	**QB (×10kvar)**	**QC (×10kvar)**
A-Phase reactive power	B-Phase reactive power	C-Phase reactive power

Power, capacitor current parameters
(measurement status)

Single phase sampling

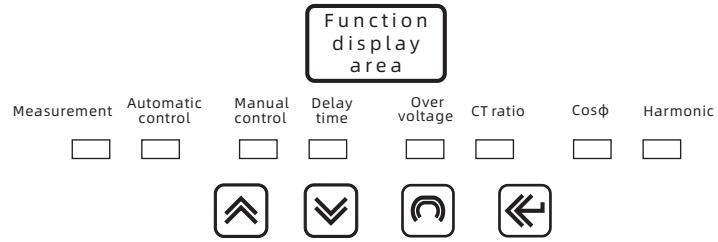
UA(V)	UB(V)	UC(V)
A-Phase distribution voltage	B-Phase distribution voltage	C-Phase distribution voltage
IA(X10A)	**IB(X10A)**	**IC(X10A)**
A-Phase distribution current	— — —	— — —
COSΦ A	**COSΦ B**	**COSΦ C**
A-Phase power factor	— — —	— — —

Distribution parameters
(automatic control state)

PA(×10kW)	PB(×10kW)	PC(×10kW)
A-Phase active power	— — —	— — —
IA(X10A)	**IB(X10A)**	**IC(X10A)**
A-Phase compensation current	B-Phase compensation current	C-Phase compensation current
QA (×10kvar)	**QB (×10kvar)**	**QC (×10kvar)**
A-Phase reactive power	— — —	— — —

Power, capacitor current parameters
(measurement status)

10 Operating instructions



Press the key to switch among the indicators

The indicator light is on	display	Current state of the system	Press to enter and display the default value
①	001	Measurement status	□□□
②	002	Automatic control	□□□
③	003	Manual control	(C/F/E)01
④	004	Switching delay time setting	010
⑤	005	Overvoltage protection setting	245
⑥	006	Sampling current primary CT ratio setting	100
	007	Compensation current primary CT ratio setting	100
	008	terminal wiring (take phase primary CT)	JF1
⑦	009	Power factor upper limit setting	1.00
	010	Power factor lower limit setting	0.95
⑧	011	Voltage harmonic protection setting	005
	012	current harmonic protection setting	020

Note 1: when the current state is in ″measurement″ or ″automatic control″, can press the or key to switch the display of ″measurement″ and ″automatic control″ cycle.
Note 2: long press key for 3 seconds to select single-phase or three-phase sampling mode conversion.
Three phase sampling must be used for mixed compensation or split phase compensation. Three phase sampling or single-phase sampling can be used for three-phase compensation. When single-phase sampling, it is necessary to confirm the basic balance of three-phase load for more reasonable compensation.

	Description (Press ⩓ or ⩔ to change the value)
	″□□□″ connected capacitor quantity, for example: 005 means 5 units have been connected.
	"001~020" searches the number of slaves one by one, and after completion, it displays "combined power factor".
	C: Three phase compensation, F: Split compensation, E: No connection. Ex: C03: The third is three phase compensation capacitor. Press Enter to increase one by one, such as: C01, to C02, to C03 ---- . Press the ⩓ key to manually input the current capacitor, and press the ⩔ key to cut the current capacitor.
	The delay time of switching capacitors (10s~300s).
	The overvoltage protection value of this controller (225V-265V).
	Sampling current primary CT ratio. ex: 500/5 set 100
	Compensation current primary CT ratio.ex: 500/5 set 100
	S1 is connected to ″+″ , S2 is connected to ″-″ ; the default setting is ″JF1″ ; S1 is connected to ″-″ , S2 is connected to ″+″ ; it needs to be set to ″JF2″ ;
	Power factor upper limit setting, parameter range: 0.95-0.99.
	Power factor lower limit setting, parameter range: 0.85-0.99.
	Voltage harmonic protection setting is 5%, parameter range: 0~20%.
	Current harmonic protection setting is 20%, parameter range: 0~40%.

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LASTONE

Product certificate

This product is approved to leave the factory after inspection.

Inspectors: Inspector 02

Production Date:

HENGYI ELECTRIC GROUP CO.,LTD