1 Description of Product

JKGHYBA580 Type reactive power compensation measuring & control device is the new type low-voltage reactive power compensation controller integrating measurement, control and display together. Comparing to other such controllers on the market, it integrates the common voltmeter, ammeter, power factor meter, reactive power meter, and active power meter into one controller and displays three-phase compensating current and switching state of capacitor. This product adopts RS485 communication with maximum 20 sets HY series combination low-voltage power capacitors of our company linked.

2 Introduction of Functions

1. Measurement
   1.1 When in state of “Measurement”, the product can measure and display: active power, reactive power and compensating current;
   1.2 When in state of “Auto-control”, the product can measure and display: distribution voltage, distribution current and power factor.

2. Parameter Setup
   2.1 Setup of delay time
   2.2 Setup of overvoltage protection value
   2.3 Setup of transformation ratio of distribution CT
   2.4 Setup of transformation ratio of compensating CT
   2.5 Setup of upper limit of power factor
   2.6 Setup of lower limit of power factor
   2.7 Setup of overvoltage protection value

3 Control
   3.1 Automatic control function: Switch power capacitor automatically based on reactive power and power factor with the switching through circulation for the ones having the same capacity and through reactive power vacancy for those having different capacities depending on its capacitance.
   3.2 Manual control function: Carry out switch control manually for an intelligent capacitor as required.

4 State Display
   4.1 Display of capacitors’ switching state
   4.2 Display of measuring data
   4.3 Display of set parameters

5 Protection
   5.1 Protection of overvoltage, undervoltage and loss-of-voltage
   5.2 Protection of overharmonic
3 Technical Data

<table>
<thead>
<tr>
<th>Working Environment</th>
<th>Ambient temperature: -25 ~ +55°C</th>
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<tbody>
<tr>
<td></td>
<td>Relative humidity: 20% ~ 90% at 40°C</td>
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<tr>
<td>Working Power Supply</td>
<td>Working voltage: 220V ± 20%; frequency: 50Hz; voltage distortion rate ≤ 20%;</td>
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<td></td>
<td>Power consumption: ≤ 5VA.</td>
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<tr>
<td>Measuring Accuracy</td>
<td>(1) Voltage: ± 0.5%  (2) Current: ± 0.5%  (3) Active power: ± 0.5%</td>
</tr>
<tr>
<td></td>
<td>(4) Reactive power: ± 1%  (5) Power factor: ± 0.01</td>
</tr>
<tr>
<td>Control Accuracy</td>
<td>Power factor: ± 1%, Reactive power</td>
</tr>
<tr>
<td>Control Capacity</td>
<td>(1) Number of three-phase compensation capacitor: ≤ 20  (2) Number of phase-splitting compensation capacitor: ≤ 20  (3) Number of hybrid compensation capacitor: ≤ 20</td>
</tr>
</tbody>
</table>

4 Dimension and Mounting Dimension

<table>
<thead>
<tr>
<th>External dimension</th>
<th>Dimension of mounting hole:</th>
</tr>
</thead>
<tbody>
<tr>
<td>156mm(W) × 166mm(H) × 110mm(D)</td>
<td>150mm(W) × 160mm(H)</td>
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</table>
5 Wiring Description

(1) The description of connecting terminal on the back panel is shown in Fig. 1 below.

5.1 Terminal 1, 2, 3 & 4 are the power input ends for distribution UA, UB, UC and N

5.2 Terminal 9 & 10 are the signal input ends for A-phase primary distribution CT; Terminal 11 & 12 are the signal input ends for B-phase primary distribution CT; Terminal 13 & 14 are the signal input ends for C-phase primary distribution CT.

5.3 Terminal 15 & 16 are the signal input ends for A-phase primary compensation CT; Terminal 17 & 18 are the signal input ends for B-phase primary compensation CT; Terminal 19 & 20 are the signal input ends for C-phase primary compensation CT.

5.4 Terminal 5&6 are the ends for R485 communication interfaces A & B.

6 The wiring of product is shown in the figure below.
7 Capacitor ID and Operation Method

Display Interpretation on Switching State of Capacitor

The serial numbers 1-20 show the ID intelligent combination power capacitor in compensation cabinet.

Note: Set the communication ID within the scope of ID code 1-20 of intelligent combination power capacitor in compensation cabinet when linking and all ID are unique.

Two groups of compensation capacitor show the state of capacitor C1 & C2 with “two LED indicators”.

LED indicator ①: capacitor C1  LED indicator ③: capacitor C2

One group of compensation capacitor shows the state of capacitor C with “one LED indicator” ②.

Phase-splitting compensation type shows the state of A, B & C phase capacitors with “three LED indicators”.

LED indicator ①: A-phase capacitor  LED indicator ②: B-phase capacitor  LED indicator ③: C-phase capacitor

Display Interpretation on Electric Parameter Zone

Distribution Parameter (Auto-control state)  Power, Capacitive Current Parameters (Measuring state)
8 Functional Operation and Display Interpretation on Operation

1. Distribution of Function Selection on Keyboard

(2) Introduction of Functions:
① Press the key “Menu” to select the functions of ① ~ ⑧ as requested.
② When “①” indicator is on, the measuring state is entered. “electric parameter zone” LED shows “active power, reactive power and compensating current”.
“function display zone” LED shows the “number of linked capacitor”.
③ When “②” indicator is on, the auto-control state is entered. “electric parameter zone” shows “distribution voltage, current and power factor”.
“function display zone” shows the “number of slaves in searching”. After searching, it will show the “actual power factor”.
④ When “③” indicator is on, the manual control state is entered. Press the key “Enter” to add the serial number of capacitor in “function display zone” with “short press” to add 1; “long press” to add “01-20” in circulation automatically.
The meaning of “E □□ / C □□ / F □□” indicated in function display zone are as follows:
E □□: This ID capacitor has no communication.
C □□: This ID capacitor is the compensation type capacitor.
F □□: This ID capacitor is the phase-splitting compensation type capacitor.
Press the key “up” to switch on the indicated capacitors in function display zone; while press “down” to switch off them.
⑤ When “④” indicator is on, the setup state of delay time is entered. Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the delay time for “switched capacitor”. The parameter scope: 10-300 seconds.
⑥ When “⑤” indicator is on, the setup state of over voltage is entered. Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the protective value for “overvoltage”. The parameter scope: 225-265V.
⑦ When “⑥” indicator is on, the setup state of transformation ratio is entered. Function display zone show “006” Group 1: the primary transformation ratio setup for distribution CT: Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the value of “transformation ratio”. The parameter scope: 1-999.
when show “007”, Group 2: the primary transformation ratio setup for compensation CT: Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the value of “transformation ratio”. The parameter scope: 1-999.
⑧ When “⑦” indicator is on, Function display zone show “009” the setup state of power factor is entered. Group 1: the setup of upper limit of power factor: Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the value of “upper limit of power factor”. The parameter scope: 0.95-0.99.
when show “010” Group 2: the setup of lower limit of power factor: Press the key “Enter” to carry out the setup and the keys “up” & “down” to increase and decrease the value of “lower limit of power factor”. The parameter scope: 0.85-0.99.
⑨ When “⑧” indicator is on, show “011” the setup state of THDV, factory default is 5%, setting range: 0-20%.
⑩ When “⑧” indicator is on, show “012” the setup state of THDI, factory default is 20%, setting range: 0-40%.

9 Schematic diagram of compound connection
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