3-phase AC Current Transducer

Istructions

CE - IJ31 - **BSK - 0.5

1 Overview

This device is a 3-phase AC current isolation transducer. Using the principle of electromagnetic isolation, can measure three-phase AC current sinusoidal alternating signal RMS, isolate and linearly output standard voltage or current signal. The product is widely used in communications, electricity, railways, industrial control and other areas of the AC current signal real-time detection and monitoring.

Features:

- Ø Measuring 3-phase current without interfere with each other;
- Ø High precision, low temperature drift;
- Ø can rail and screw mounting, easy installation on site;
- Ø High reliability, can be more than 2KV surge.

2 Case Style

Figure 1, BSK product outline

3 Part Number

CE—I J 3 1—# # B SK—0.5

- Brand
- IJ: AC current
- 3-phase double isolation
- Output: 3: 0-5V, 4: 0-20Ma, 5: 4-20Ma, 8: 0-10V
- Power supply: 1: 12V, 3: +15V, 4: 24V, 9: 85-265VAC/DC
- Case style
- Aperture: Φ6.5 mm
- Accuracy

4 Specifications

Test conditions: auxiliary power: +24 VDC,

room temperature: 25 ℃.

Input range: 0~0.5AAC~30AAC;

Output: 0~5VDC, 0~10VDC, 0~20mA, 4~20mA;

Power supply: 12VDC, 15VDC, 24VDC, 85~265VAC/DC;

Accuracy: 0.5,

Load capacity: load ≥ 2KΩ (voltage output), load ≤250Ω (current output)

Temperature drift: ≤350ppm/℃;

Isolation voltage: ≥2500 VDC;

Response time: ≤350 mS;

Rated power consumption: 1W (voltage output); 2W (current output);

Output ripple: ≤10mV

Frequency range: 45~65Hz (up to 5K, please specify when ordering);

Surge impact immunity:

Power port level ± 2KV (L-N/2Ω/integrated wave)

Analog I/O port level ±2KV (L-N/40Ω/integrated wave);

Impulse immunity: input / power port ± 2KV

Analog I /O port ± 1KV;

Input overload capacity: 20 times the nominal value of the measured current (maximum 500A), apply a second (repeat 5 times, interval 300S).

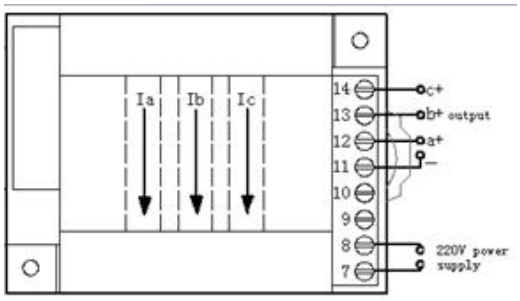
Operating temperature: -10~ 60°C; humidity: ≤95% (no dew);

Storage temperature: -55 ~+65°C; humidity: ≤95% (no dew).

5 Connections Diagram

(For reference only, the actual application to the product wiring diagram shall prevail)

Figure 2, CE- IJ31-3*BSK/CE- IJ31-8*BSK voltage output and CE-IJ31-4*BSK/CE-IJ31-5*BSK current output connections diagram



6 Mounting Diagram

DIN35 rail mounting or screw mounting, the installation size shown in Figure 3 (in mm).

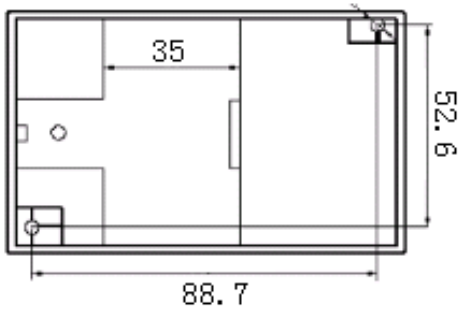


Figure 3, SK outline installation dimensions

7 Product's Service

1 Installation

1.1 Installation

①The transducer fixed on the side of the card slot and hook on the mounting rail;

②Pull the spring pin down;

③Clip the transducer mount on the mounting rail;

④Release the spring pin and clip the transmitter on the mounting rail.

1.2 Screw mounting method:

①3mm diameter hole in the fixed plate according to the screw hole position shown in Fig. 3;

② Use the screw Φ3 to insert into hole and secure it.

2 Products factory has been accurately set according to the "product standard". Apply power after determine the correct wiring.

3 The maximum wire diameter of the terminal block is 2mm (16-26AWG). Remove the 4mm ~ 5mm insulation layer from the end of the mounting wire and insert it into the terminal block, then tighten the screw.

4 Product supply power requires the isolation voltage ≥ 2000VAC, AC ripple <10mV. Multiple transducers can share a common set of power supplies, but the power circuit can no longer be used to drive relays and other can produce spikes in the load, in order to avoid interference signal transmission to the transducer.

5 The transducers output 0-20mA (or 4-20mA), the RL standard is ≤250Ω, and 0-5V voltage output RL standard is ≥ 2KΩ, can guarantee the output accuracy and linearity over the entire rated input range.

8 Example of product accuracy level verification

1 According to the transducer terminal definition to connect the circuit as shown in figure 4 and 5.

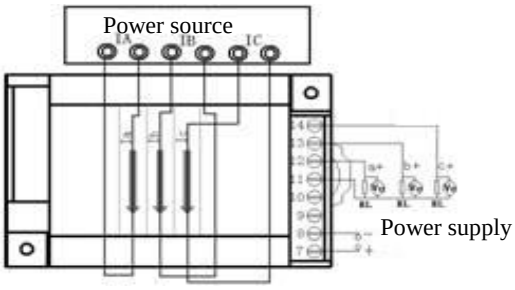


Figure 4 IJ31 accuracy test wiring diagram of current output

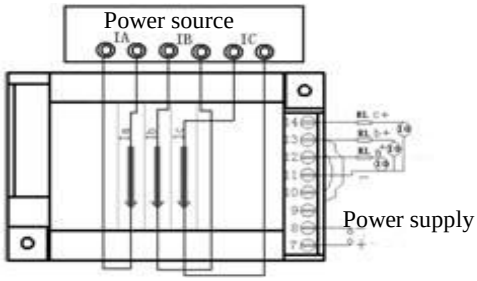


Figure 5 IJ31 accuracy test wiring diagram of voltage output

Note: The voltage output is measured with a voltmeter and the current output is measured with an Io meter.

2 The test shall be carried out under the following environmental conditions:

- Power supply: nominal ± 5%, ripple ≤ 10mV;
- Ambient temperature: 25 ℃ ± 5 ℃;
- Relative humidity: RH (45 ~ 80)%;
- The accuracy of the signal source and measurement instrument is 0.05 class above.

3 Power preheat 2min;

4 Current I input and monitoring methods

①A high-precision high-current meter calibrator can directly input AC current I, and record the display data of the meter calibration instrument.

②No high-current high-precision instrument calibrator, but t there is a ordinary high-precision instrument calibrator. Use ampere-turn method to output small current (5A, 10A or higher), and input it to the transducer input coil. The precision ammeter is tandem connection to the calibrator output end to detect input current, and convert the input current I value according to the ampere-turn method.

5 Assuming that the transducer input is 0-30A AC, the output is 4-20mA, give an input value I, within the range of the transducer, , he expected theoretical output (Vy) of the transducer is calculated as follows:

$$Iy = 4+I\div30\times16mA;$$

If the output is 0-20mA, then $Iz = I\div30\times20mA$;

If the output is 0-5V DC, then $Vz = I\div30\times5V$;

If the output is 0-10V, then $Vz = I\div30\times10V$.

6 Measure the DC voltage output value Vo or current output Io with the output monitoring table. And calculate the error between them and the standard value according to the following correspondence formula:

| Vo-Vz | ≤25mV is normal, or excessive (0-5V output, 0.5);

| Vo-Vd | ≤50mV is normal, or excessive (0-10V output0.5);

| Io-Iy | ≤80uA is normal, or excessive(4-20mA output, 0.5);

| Io-Iz | ≤100uA is normal, or excessive(0-20mA output, 0.5);

7 Repeat 5 and 6 two operations, the resulting error in each phase point value are within the specified accuracy range, the accuracy of the transducer level is qualified.

Note: The Other technical indicators of the verification methods detailed consultation with our company.

9 Notes

1 Please pay attention to the power supply information on the product label, and the power supply used grade of the transducer, otherwise it will cause the product to be damaged.

2 Transducer for the integrated structure, not removable, and should avoid collision and fall.

3 The transducers are used in environments with strong electromagnetic interference. Standard precaution such as shielding the input and /or output lines should be observed. All lines should be as short as possible. If a group of transducers are mounted together, keep a space more than 10mm between adjacent units.

4 The input value given on the transducer label refers to the RMS value of the ac signal.

5 Only use the effective terminal of the transducer. The other terminals may be connected with the internal circuit of the transducer, and can’t be used for other purposes.

6 Transducer has a certain anti-lightning ability, but when the transducer input and output feeders exposed to extreme bad environments, must be taken lightning protection measures.

7 Don’t damage or modify the product label and logo. Don’t disassemble or modify the transmitter, otherwise the company will no longer provide the product "three guarantees" (replacement, returns, repair) services.

8 The transducers use flame-retardant ABS plastic shell package. which limit temperature is +75 ℃. The shell will be deformed with high-temperature baking, and will affect product performance. Do not use or save the product near the heat source. Do not bake the product in a high-temperature oven.

9 When measuring the voltage or current with the multi meter pen, please screw the terminal screw in the end, otherwise it may not measure the voltage or current output value.