

## Split Core 1-phase AC Current Transducer

### Instructions

#### CE-IJ03-##GS4-0.5

#### 1 Overview

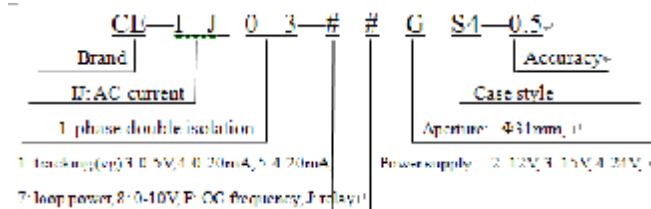
This device is a split core 1-phase AC current electrical isolation transducer with principle of electromagnetic isolation. It is designed to measure and monitor average RMS AC current, then produce a standard signal such as 4-20mA DC, 0-5VDC and so on. The products are widely used in telecommunications, electricity, railways, industrial industries and other fields.

#### 2 Case style



Figure 1

#### 3 Part Number



#### 4 Specifications

Test conditions: auxiliary power: +24 VDC  
room temperature: 25 °C.

Input range: 0~10AAC~500AAC

Output: voltage, current, switch, frequency, tracking

Power supply: 12VDC, 15VDC, 24VDC

Accuracy: 0.5class

Load capacity: load  $\geq 2K\Omega$  (voltage output Vz)

load  $\leq 250\Omega$  (current output Iy, Iz)

Temperature drift:  $\leq 400\text{ppm}/^\circ\text{C}$

Isolation voltage:  $\geq 2500\text{ V DC}$

Response time:  $\leq 300\text{ ms}$

Quiescent Current:  $\leq 10\text{mA}$

Rated power consumption:  $\leq 0.4\text{W}$ ,  $\leq 0.5\text{W}$

Output ripple:  $\leq 10\text{mV}$

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

Surge impact immunity:

Power port level  $\pm 2\text{KV}$  (L-N/2 $\Omega$ /integrated wave)

Analog I/O port level  $\pm 2\text{KV}$  (L-N/40 $\Omega$ /integrated wave);

Input overload capacity: 20 times the nominal value of the measurement current (maximum 500A)

(Applying a repetition of five times a second, interval 300S);

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

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

#### 5 Connections Diagram

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

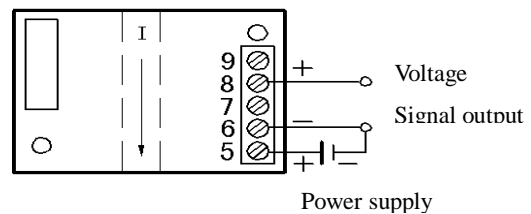


Figure 3 the voltage output wiring diagram

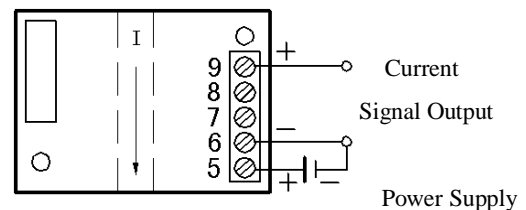


Figure 4 the current output wiring diagram

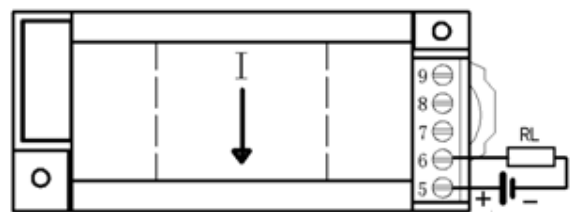


Figure 5 the two-wire output wiring diagram

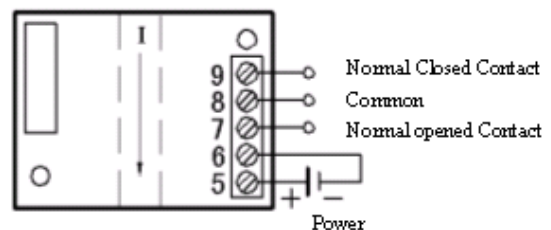


Figure 6 the switch output wiring diagram

#### 6 Mounting diagram (mm)

DIN35 rail mounting or screw mounting, the installation size

shown in Figure 7 (in mm)

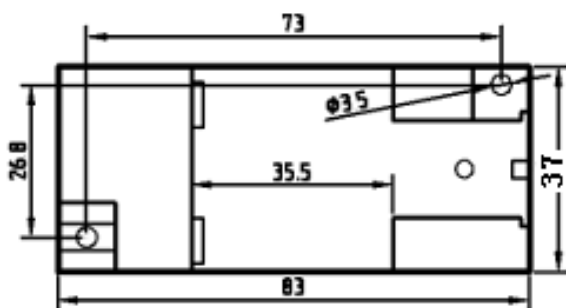


Figure 3, installation Dimensional Drawing

## 7 Product Service

### 1 Installation

#### 1.1 DIN rail installation method:

- ① The transducer fixed on the side of the card slot and hook on the mounting rail;
- ② Pull the spring pin down;
- ③ Clip the transducer mount on the mounting rail;
- ④ Release the spring pin and clip the transmitter on the mounting rail.

#### 1.2 Screw mounting method:

- ① 4mm diameter hole in the fixed plate according to the screw hole position shown in Fig. 7;
- ② Use the screw smaller than Φ3.5 to insert into hole to 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 1.3mm (16-26AWG). Remove the 4mm ~ 5mm insulation layer from the end of the mounting wire and insert it into the terminal block. Tighten the screw.

4 Product no special requirements on the auxiliary power, you can use the ordinary 7800 series three-terminal regulator. Multiple transducers can share a common set of power supplies. Such as the purchase of commercially available power supply, which is required the isolation voltage  $\geq 2000\text{VAC}$ , AC ripple  $< 10\text{mV}$ .

5 The transducers output 0-20mA (or 4-20mA), the RL standard is  $\leq 250\Omega$ , and 0-5V voltage output RL standard is  $\geq 2\text{K}\Omega$ , 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, connect the experimental circuit as shown.

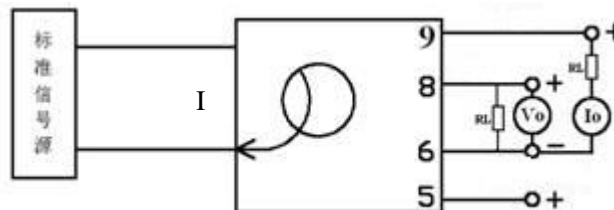


Figure 8, accuracy test wiring diagram of the voltage/current output product

**Note:** The voltage output is measured with a  $V_o$  meter and the current output is measured with an  $I_o$  meter.

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

- ◆ Power supply: nominal  $\pm 5\%$ , ripple  $\leq 10\text{mV}$ ;
- ◆ Ambient temperature:  $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ ;
- ◆ Relative humidity: RH (45 ~ 80)%;
- ◆ The accuracy of the signal source and measuring instruments is 0.05 class above.

3 Power preheat 2min;

4 Current I input and monitoring methods:

- ① A high-precision high-current meter calibrator can directly input AC current I, and record the display data of the meter calibration instrument.
- ② No high-current high-precision instrument calibrator, but 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 0-300 AAC, the output is 0-5VDC, Give an input value I, within the range of the transducer, the expected theoretical output ( $V_z$ ) of the transducer is calculated as follows:

$$V_z = I \div 300 \times 5\text{V}$$

If the output is 4-20mA, then  $I_z = 4 + I \div 300 \times 16\text{mA}$ ;

If the output is 0-20mA, then  $I_z = I \div 300 \times 20\text{mA}$ ;

6 Measure the DC voltage output value  $V_o$  or the current output value  $I_o$  with the output monitoring table.

$|V_o - V_z| \leq 25\text{mV}$  for normal, or excessive (0-5V output; 0.5);

$|I_o - I_z| \leq 80\mu\text{A}$  for normal, or excessive (4-20mA output; 0.5);

$|I_o - I_z| \leq 100\mu A$  for normal, or excessive (0-20mA output, 0.5) :

7 Repeat 5 and 6 two operations, the resulting point error values are within the specified accuracy range, the transmitter accuracy level pass.

**Note:** please consult with our company for the verification method of other technical indicators.

## 9 Notes

- 1 Please pay attention to the power supply information on the product label, the power supply grade use 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 transducers, 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 °C. 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.