

## Split core single phase AC current transducer

### CE-IJ01-\*\*-GS4-\*

#### 1 Overview

This device is a split core single phase AC current transducer. Using electromagnetic isolation principle and open-close mode, easily achieve the current measurement. Its input, output and power supply are isolation from each other, input signal and output signal for a good linear relationship. It can be widely used in real-time detection / monitoring of AC current signals, communications, power, railways, industrial control and other fields.

#### Features:

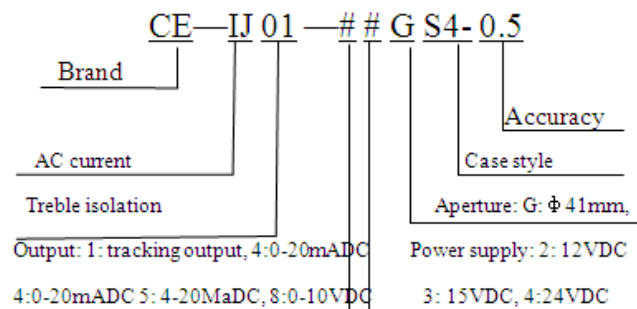
- Ø High precision, better than 0.5
- Ø Low temperature drift, temperature drift does not exceed the accuracy range, and stable;
- Ø Measurement with opening and closing mode, with self-locking protection, easy installation.

#### 2 Case style



Figure 1

#### 3 Part Number



#### 4 Specifications

Test conditions: power supply: +24V, room temperature: 25°C.

<http://www.ce-transducer.com>  
[sales@ce-transducer.com](mailto:sales@ce-transducer.com)

Input range: 0-20A~500A AC (0.5 class)

0-5A~20A AC (1.0 class)

Output: 0-5V/1-5V/0-20mA/4-20mA and so on.

Power supply: 12VDC, 15VDC, 24VDC

Accuracy: 0.5 class/1.0 class

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

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

Temperature drift:  $\leq$ 400ppm/°C

Isolation voltage:  $\geq$ 2500V DC

Response time:  $\leq$ 300mS

Quiescent Current:  $\leq$ 10mA

Rated power consumption:  $\leq$ 0.4W

Output ripple:  $\leq$ 10mV

Frequency range: 45~65Hz (the highest is 5K, need to specify when ordering)

Surge impact immunity:

Power port three-level 2000V (L-N/2 $\Omega$ /integrated wave)

Analog I/O port two-level 2000V (L-N/40 $\Omega$ /integrated wave)

Input overload capacity: 20 times of the measured current nominal value (Maximum 500A) (Apply one second repeat 5 times, interval 300S)

Operating condition: Temperature: -10~60°C; Humidity:  $\leq$ 95% (no dew)

Storage condition: Temperature: -55~65°C; Humidity:  $\leq$ 95% (no dew)

#### 5 Connections Diagram

(For reference only, in the event of actual application, the wiring diagram on the product shall prevail)

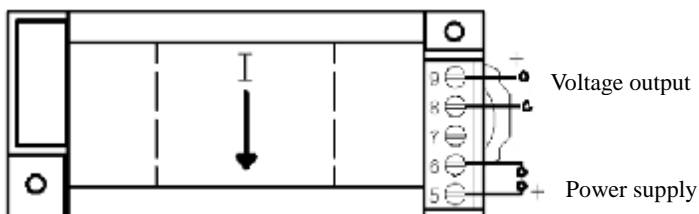


Figure 2, wiring diagram of voltage output

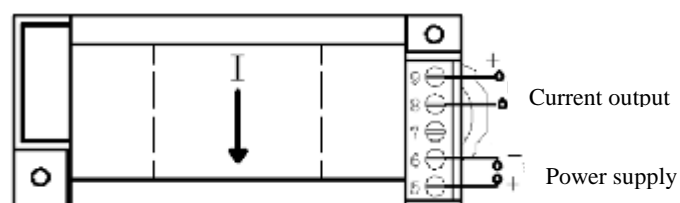


Figure 3, wiring diagram of current output

## 6. Mounting Diagram

DIN35 rail mounting or screw mounting, the installation size is shown in Figure 4.

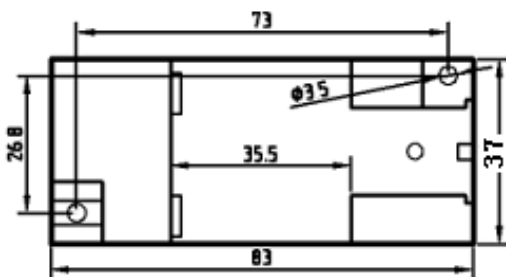
Figure 4, installation dimension

## 7 Product's 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 According to the screw hole position shown in Figure 6 to play the hole diameter of 4mm on the fixed plate;
- ② Use a screw smaller than  $\Phi 3.5$  to insert into the hole and fix it.

2 Products has been accurately calibrated according to the "product standard" before delivery. 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  $\geq 2000\text{VAC}$ , AC ripple  $< 10\text{mV}$ . Multiple transducers can share a common set of power supply, 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 transducer's output is 0-20mA (or 4-20mA),  $R_L \leq 250\Omega$ ; voltage output is 0-5V,  $R_L \geq 1\text{K}\Omega$ ; under this

output condition 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:

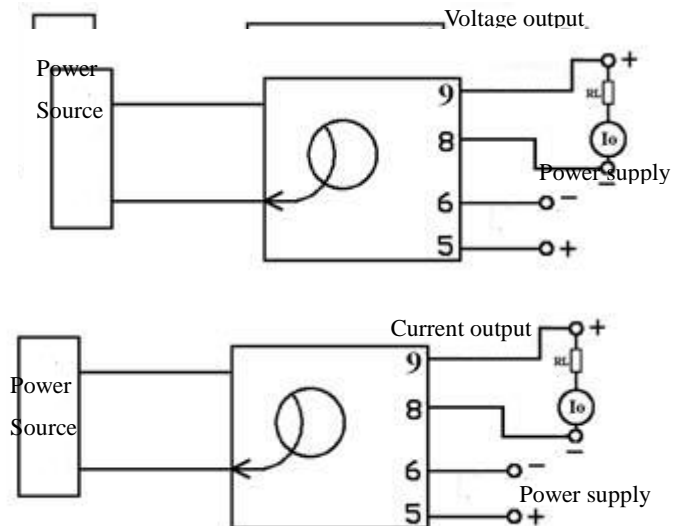


Figure 8, current output products connection diagram

**Note:** Use meter  $V_o$  to measure the voltage output, use meter  $I_o$  to measure the current output.

2 The test shall be carried out under the following environment 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 instrument 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 an 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 Suppose transducer's input is 0-300AAC, output is 0-5VDC, given any input value I within the range of the transducer, then the expected theoretical output value of the transducer ( $V_z$ ) is calculated in the following formula:

$$V_z = I \div 300 \times 5V$$

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

If the output is 0-20mA, then  $I_z = I \div 300 \times 20mA$ .

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

$|V_o - V_z| \leq 25mV$  is normal, otherwise exceeding (0-5V output, 0.5class);

$|I_o - I_z| \leq 90\mu A$  is normal, otherwise exceeding (4-20mA output, 0.5class);

$|I_o - I_z| \leq 100\mu A$  is normal, otherwise exceeding (0-20mA output, 0.5class);

7 Repeat operations 4 and 5, the resulting point  $|V_o - V_z| \leq 25mV$  or  $|I_o - I_z| \leq 90\mu A$ , the transducer's accuracy grade is qualified.

**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, and the power supply grade used by the transducer, otherwise it will cause damage to the product.

2 Integrated structure of the transducer, non-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 is the RMS value of the ac signal.

5 Can 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 tolerance is  $+75^\circ C$ . The shell will be deformed with high-temperature baking, and will affect product performance. Do not use or store 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.