

## 1-phase Self Power AC Current Transducer

### Instructions

#### CE-IJ03-#0ES3-1.0

#### 1 Overview

This device is a self-powered 1-element ac current transducer. The input and outputs are electrically isolated from each other. It needs no external power supply. Its ac current input is achieved by passing through the aperture of the case. The output is 0-5V dc or 0-10V dc voltage. It can be applied widely to various measuring and controlling systems such as communication system, electrical power system, railway and various industrial control systems.

#### Features:

- Ø High accuracy, better than 1.0;
- Ø Low drift, high reliability;
- Ø Through the built-in toggle switch in the product, it can convert three ranges.

#### 2 Case Style

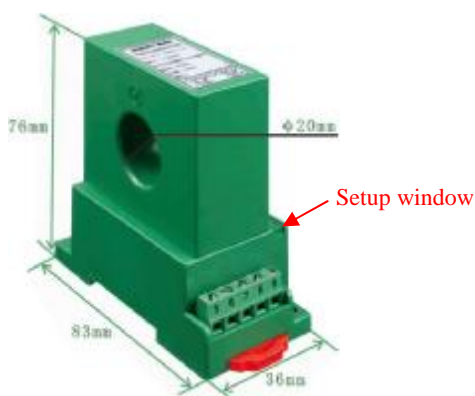


Figure 1

#### 3 Part Number

CE	I	J	0	3	#	0	E	S	3	—	1.0
Brand											Accuracy
AC current											Case style
1-phase double isolation											Aperture: Φ20mm
3:0-5VDC											power supply: 0 passive
8:0-10VDC											

#### 4 Specifications

Input Range: 0~2AAC~200AAC

Frequency: 50Hz~60Hz

Rated output: 0-5V/0-10V

Accuracy: 1.0%

Load capability:  $\geq 1M\Omega$

Temperature drift:  $\leq 100\text{ppm}/^\circ\text{C}$

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

Response time:  $\leq 200\text{ ms}$

Rated power consumption: none

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

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

Surge impact immunity:

Power port level  $\pm 0.5\text{KV}$  (L-N/2 $\Omega$ /integrated wave)

Analog I/O port level  $\pm 0.5\text{KV}$  (L-N/40 $\Omega$ /integrated wave);

Impulse immunity: input / power port  $\pm 2\text{KV}$

Analog I/O port  $\pm 1\text{KV}$ ;

Overload: 20 times of full span and  $\leq 500\text{A}$  anyway;

Apply a second (repeat 5 times, interval 300S);

Operating temperature: 0 ~ 50 $^\circ\text{C}$ ; humidity:  $\leq 95\%$  (no dew);

Storage temperature: -55 ~ +85 $^\circ\text{C}$ ; humidity:  $\leq 95\%$  (no dew).

#### 5 Connections Diagram

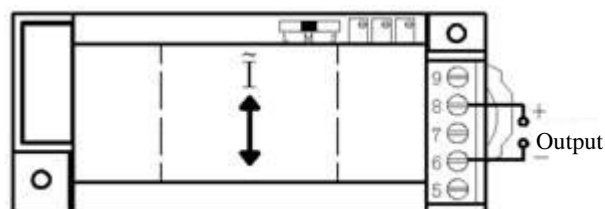


Figure 2, Connections diagram with voltage output

#### 6 Mounting Diagram

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

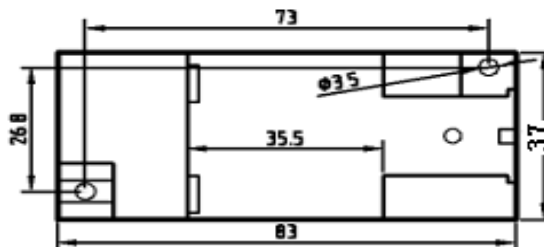
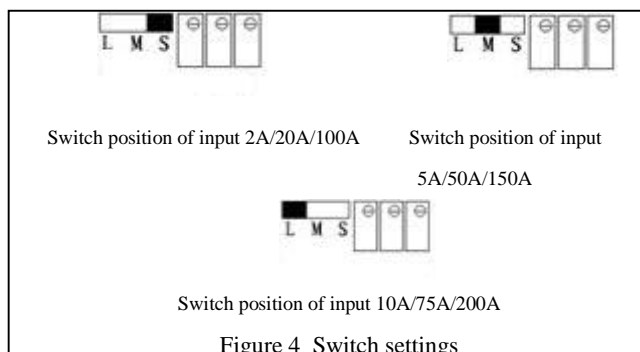


Figure 3, Installation Dimensional Drawing

#### 7 Input range setting

Figure 1, open the settings window of product shell, there is a third gear pull switch. Switch to the S-bit is the minimum range, the switch to the M-position is the middle range, and switch to the L-position is the maximum range. Example CE-IJ03-80ES-1.0 / 200A range setting, as shown in Figure 4. The switch to S-bit represents the minimum input range of 100A, switch to the middle of M represents the middle input range of 150A, switch to the left L-bit represents the maximum the input range is 200A. Other range setting methods are similar with the example. See the following table for details.



	CE-IJ03-30ES-1.0/75A	
	input	output
Switch to the right S-bit	20A	0~5V
Switch to the median M-bit	50A	0~5V
Switch to the left L-bit	75A	0~5V

	CE-IJ03-30ES-1.0/200A	
	input	output
Switch to the right S-bit	100A	0~5V
Switch to the median M-bit	150A	0~5V
Switch to the left L-bit	200A	0~5V

	CE-IJ03-80ES-1.0/75A	
	input	output
Switch to the right S-bit	20A	0~10V
Switch to the median M-bit	50A	0~10V
Switch to the left L-bit	75A	0~10V

	CE-IJ03-80ES-1.0/200A	
	input	output
Switch to the right S-bit	100A	0~10V
Switch to the median M-bit	150A	0~10V
Switch to the left L-bit	200A	0~10V

	CE-IJ03-30ES-1.0/10A	
	input	output
Switch to the right S-bit	2A	0~5V
Switch to the median M-bit	5A	0~5V
Switch to the left L-bit	10A	0~5V

## 8 Product's Service

### 8.1 Installation

#### 8.1.1 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.

#### 8.1.2 Screw mounting method:

- ① 3mm diameter hole in the fixed plate according to the screw hole position shown in Fig. 3;
- ② Insert the screw smaller than  $\Phi 3$  to insert into hole to secure it.

8.2 Product has been accurately set according to the "product standard". Apply power after determine the correct wiring.

8.3 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. Tighten the screw.

8.4 RL standard for 0-5V voltage output  $\geq 1M\Omega$ , can guarantee the output accuracy and linearity of entire rated input range.

## 9 Example of product accuracy level verification

9.1 According to the transducer terminal definition to connect the circuit as shown.

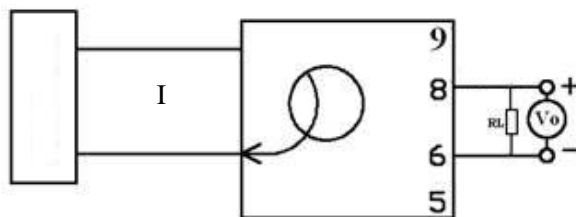


Figure 5 voltage output product accuracy test wiring diagram

**Note:** The voltage output is measured with the voltmeter.

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

- ◆ Ambient temperature:  $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ ;
- ◆ Relative humidity: RH (45 ~ 80)%;
- ◆ The signal source of the accuracy 0.05 above and measuring instruments

#### 9.3 Current I input and monitoring methods:

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

9.4 Assume that the transducer's input is 0-300 AAC and the output is 0-5VDC. Given an input value I within the range of the transducer, the expected theoretical output (Vz) of the transducer is calculated as follows:

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

9.5 Measure output Vo of DC voltage value with output monitor meter:  $|V - V_z| \leq 50mV$  for normal, or excessive (0-5V output, 1.0);

9.6 Repeat 4,5 two operations, the resulting points  $|V_o - V_z| \leq 25mV$ , the accuracy of the transducer level is qualified.

**Note:** Please consult with our company for the verification methods detailed of other technical indicators

## 10 Notes

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

10.2 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.

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

10.4 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.

10.5 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.

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

10.7 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.

10.8 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.