

1 -element DC current transducer

Instructions

CE-IZ (B) 01-MS*.***

1 Overview

This product is three isolated DC current isolation transducer. Using the electromagnetic isolation principle to detect DC current signal, output linear standard signal (0 ~ 5V, 0 ~ 20mA or 4 ~ 20mA optional) after isolation. The product provides complete isolation of input and output, input and power supply. The transducer has the advantages of high precision, fast response, high isolation voltage, low temperature drift, simple installation and so on. It can be widely used in computer field data acquisition, industrial control, PLC and other automatic control systems.

Features:

- 1 **Strong stability:** the product with the internal temperature compensation circuit to compensate for the impact of ambient temperature on the product;
- 2 **Three isolation:** input, output, and power supply complete isolation from each other, high anti-interference ability;
- 3 **High precision:** linearity and long-term stability guarantee in the accuracy range;
- 4 **Easy installation:** using standard rail mounting and screw mounting;

2 Case Style

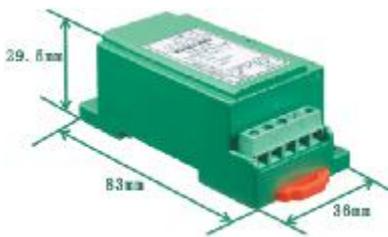


Figure 1 MS1 case

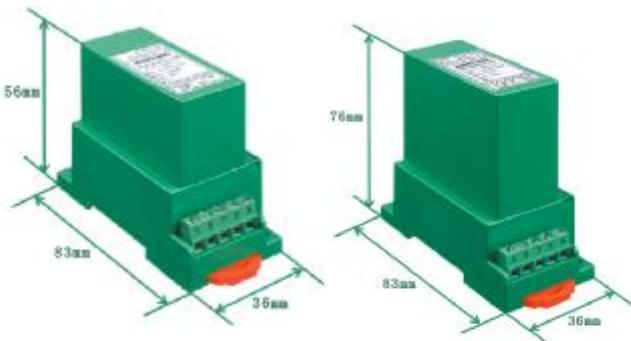


Figure 2 MS2 case

Figure 3 MS3 case

3 Part Number

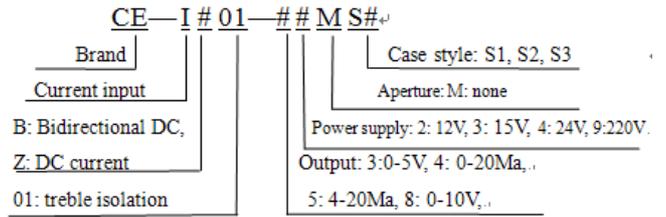


Figure 4 Product Selection Guide

- Note: 1 the input less than 50mA of DC current products using MS1 shell;
- 2 The auxiliary power supply is 220VAC, the shell with MS3 type;
- 3 other special output, please contact our technical staff.

4 Specifications

- Test conditions: auxiliary power: +24 V, room temperature: 25°C;
- Input range: 0~5A DC;
- Output: 0~5VDC, 4~20Madc, 0~10VDC, 0~20mADC;
- Power supply: 12V/15V/24V DC; 110V/220V AC/DC; (Can be customized 48V power supply)
- Rated power consumption: <0.8W(+12V) 、 <1.5W(+24V);
- Accuracy: 0.2, 0.5 (input less than 1mA or greater than 2A is 0.5 class);
- Load capacity: load ≥ 2KΩ (voltage Vz output), Load ≤ 250Ω (current Iy, Iz output);
- Temperature drift: ≤300ppm/°C;
- Isolation voltage: 2500 V DC;
- Output ripple: ≤10mV;
- Response time: ≤300 mS;
- Frequency range: none;
- Input overload capacity: 2 times the rated input value, 1 second 10 times;
- Surge impact immunity:
 - Power supply port three 2000V (L-N / 2Ω / integrated wave),
 - Analog I / O port three 2000V (L-N / 40Ω / integrated wave);
- Impulse immunity: None;
- Storage temperature: -40~70°C;
- Operating temperature: -10~60°C.

5 Connections Diagram

(For special products, please refer to the wiring diagram on the product)

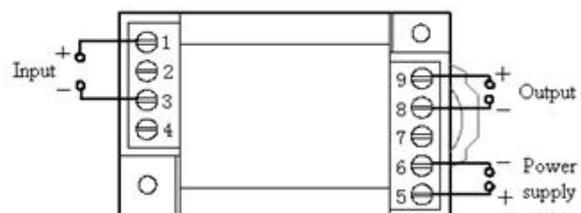


Figure 5 output product wiring diagram

6 Installations

DIN35 rail mounting or screw mounting installation, the installation size is shown in Figure 6 (in mm).

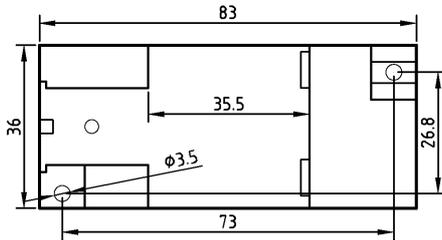


Figure 6 installation dimensions

7 Product's Service

1 Installation

1.1 DIN rail installation method:

- ① Fix the transducer 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. 5;
- ② Use the screw $\phi 3.5$ 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 $\geq 2000\text{VAC}$, AC ripple $< 10\text{mV}$. 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.

8 Example of product accuracy level verification

8.1 According to the definition of the transmitter terminal to connect the test circuit as shown.

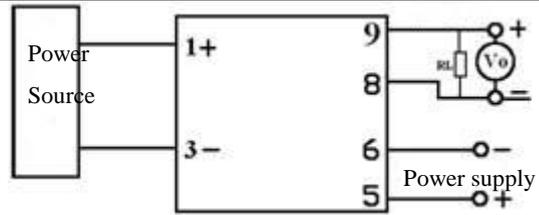
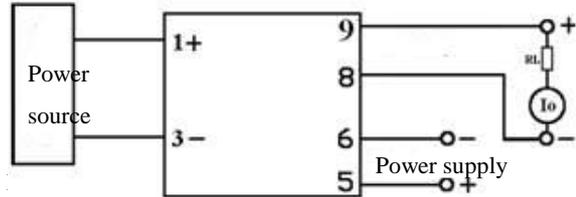


Figure 7 accuracy test wiring diagram of voltage output



Note: The voltage output is measured with the V_o meter, and the current output is measured with the 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 is 0.05 above. of the signal source and measurement instrument.

3 Power preheat 2min;

4 Current I input and monitoring methods

Using the standard signal source to directly input current I, and record the standard signal source display data;

5 Assuming the transducer input is 0-300ADC, the output is 0-5VDC, given any input value I he transducer range, the theoretical output value (V_z) of the transducer is calculated as follows:

$$V_z = I \div 3 \times 5\text{V}$$

If the output is 4-20mA, then $I_z = 4 + I \div 3 \times 16\text{mA}$;

If the output is 0-20mA, then $I_z = I \div 3 \times 20\text{mA}$;

6 The monitoring table measures the DC voltage output value V_o or current output value I_o :

$|V_o - V_z| \leq 10\text{mV}$ is normal, or excessive (0-5V output, 0.2);

$|I_o - I_z| \leq 32\text{uA}$ is normal, or excessive (4-20mA output, 0.2);

$|I_o - I_z| \leq 40\text{uA}$ s normal, or excessive (0-20mA output, 0.2);

7 Repeat the 8.4 and 8.5 operations, the resulting point value $|V_o - V_z| \leq 10\text{mV}$ or $|I_o - I_z| \leq 40\text{uA}$, the transducer accuracy level is qualified.

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

9 Notes

- 9.1 Please pay attention to the wiring on product label and the output contact capacity.
- 9.2 Transducer for the integrated structure, not removable, and should avoid collision and fall.
- 9.3 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.
- 9.4 The input value given on the transducer label refers to the rms value of the ac signal.
- 9.5 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.
- 9.6 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.
- 9.7 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.
- 9.8 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.
- 9.9 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.