

## One input two output DC current signal isolator

## One input two output DC voltage signal isolator

### Instructions

#### CE-S\*18-\*\*4MD4-0.5

### 1 Overview

The main function of the signal isolator is to isolated transmit the input DC voltage (current) signal into the standard current or voltage signal. The product contains an efficient micro power isolated power supply that provides an isolated power supply to the pre-stage primary sensor while powering the internal signal processing circuitry. The products are widely used in analog signal isolation conversion of industrial field, such as communications, power rail, industrial control and other automation and control fields

#### Features:

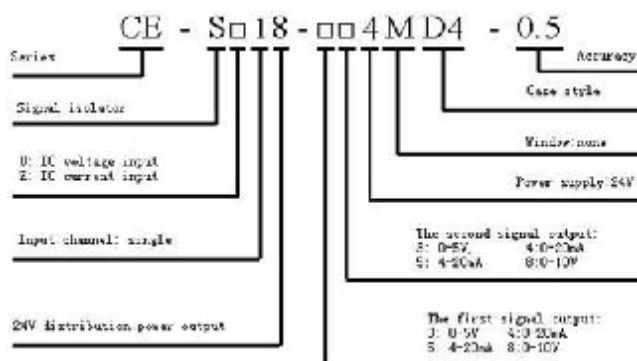
- Ø Fully isolated circuit structure;
- Ø The two outputs are isolated from each other; the signal input, output and power input are isolated from each other;
- Ø Using electromagnetic isolation technology, stable and reliable performance;
- Ø The output port and power port can withstand 2KV surge impact;
- Ø The accuracy is better than 0.5;
- Ø Provides the isolated 24V distribution power output, facilitates a sensor power supply;
- Ø Using 18mm thin shell guide rail installation, space utilization is high;
- Ø Wiring using plug terminals, easy wiring and maintenance.

### 2 Case style



Figure 1, MD4 case

### 3 Part number



### 4 Specifications

#### Input range:

Voltage range: 75mV~300V DC

Current range: 10mA~5A DC

Output: 0-20mA, 4-20mA, 0-5V, 0-10V, 0-15V(special)

Note: When input signal is 1-5V or 4-20mA, it is not allowed to output a negative signal. Please specify the requirements of "shielding negative signal" when ordering, as described in section IX.1.

Power supply: +24VDC(-15%~+20%);

Power distribution output: 24VDC±3.6V/25mADC;

Accuracy: 0.5;

Load capacity: current output ≤500Ω; voltage output ≥2kΩ;

Temperature drift: ≤200ppm/°C;

Isolation voltage: 2500 V DC;

Response time: ≤100 mS;

Rated power consumption: <2.5W;

Output ripple: ≤10mV;

Frequency response range: none;

Surge immunity:

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

Output port three±2KV (L-N/40Ω/ integrated wave);

Impulse immunity:

input/power port ± 2KV, analog I/O port ± 1KV;

Input overload capacity:

2 times nominal value for the measured voltage(apply a second, repeat 10 times, interval 10S);

20 times nominal value for the measured current apply a second, repeat 5 times, interval 300S);

Operating temperature: -20~70°C, humidity: ≤95%(no dew);

Storage temperature: -40~+70°C.

### 5 Connections Diagram

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

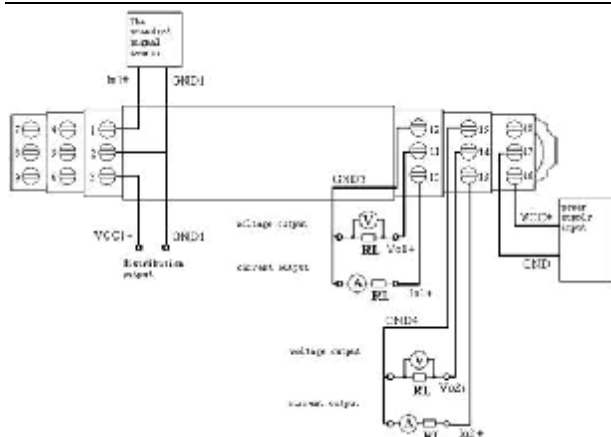


Fig. 2 wiring reference map of CE-S\*18-\*\*4MD4

## 6 Installations

DIN35 rail-mounted or screw-mounted installation, the installation size is as shown in figure 3(in mm).

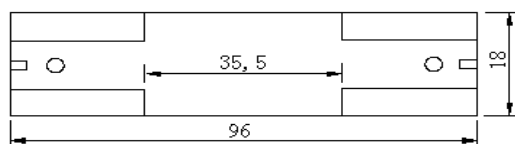


Fig.3

## 7 Product's Service

### 1 Installation

#### 1.1 DIN rail installation method:

- 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:

- ①4mm diameter hole in the fixed plate according to the position of the screw hole shown in Fig. 9;
- ② Use the screw Φ3.5 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.

5 The transducers output 0-20mA (or 4-20mA), the RL standard is  $\leq 500\Omega$ , 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 definition of the transducer terminals to connect the test circuit.

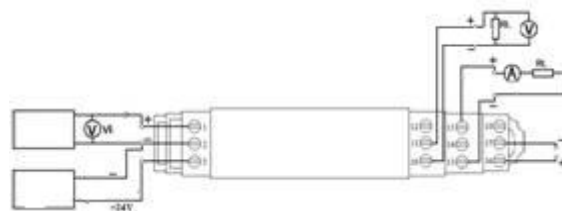


Figure 4, test wiring diagram of accuracy of one input two outputs isolator

(Take the CE-SU18-344MD4-0.5 as an example)

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

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

3 Power preheat 2 mins;

4 Voltage U and Current I input and monitoring methods:

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

5 Assuming that the isolator input range is 0-10VDC, one output is 0-5VDC, other one output is 0-20mADC, give an input value Ii within the range of the isolator, the expected theoretical output Vz and Iz of the isolator is calculated as follows:

$$V_z = V_i \div 10\text{VDC} \times 5\text{VDC}$$

$$I_z = V_i \div 10\text{VDC} \times 20\text{mADC}$$

6 Measure current output Io and voltage output Vo with the output monitoring table.

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

$|I_z - I_o| \leq 100\mu\text{A}$  is normal, or excessive (0-20mADC output, 0.5);

7 Repeat NO.5 and NO.6 operations, the resulting phase error in each point are within the specified accuracy, the transducer accuracy level 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 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, return, 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.