

## 1-phase DC Voltage Transducer

### Instructions

#### CE-VZ02-\*\*MS\*-0.2

#### 1 Overview

This device is a three isolated DC voltage isolation transducer, Using the principle of photoelectric isolation to detect the DC voltage signal, and linearly output the 0 ~ 5V, 0-10V, 0 ~ 20mA or 4 ~ 20mA and other standard signals after isolation. The product is complete isolation between input and output, input and power supply, and with the advantages of high precision, fast response, high isolation pressure, low temperature drift, easy installation and so on. It is widely used in computer field data acquisition, industrial control, PLC control and other automatic control system.

#### Features:

- Ø High isolation voltage, the isolation voltage between input and output can reach 2500Vdc;
- Ø Using electromagnetic isolation technology, stable and reliable performance, small temperature drift;
- Ø The output port and power port can withstand 2KV surge impact;
- Ø High accuracy, better than 0.2;
- Ø Using rail installation, easy to install, in line with international standards.

#### 2 Case Style



Figure 1 MS1 type, MS3 type product shape

#### 3 Part Number

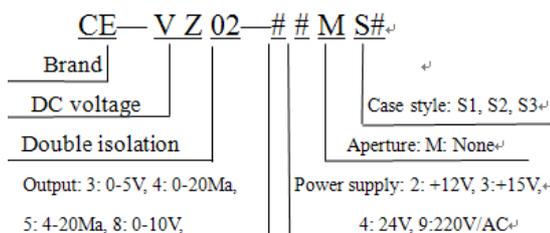


Figure 2 Product Selection Guide

Note: When the auxiliary power supply is 220VAC, the shell is MS3 type.

#### 4 Specifications

Test conditions: auxiliary power: +12 V, room temperature: 25°C.

Input range: 0~500VDC;

Output: 0~5VDC, 4~20mA, 0~10VDC, 0~20mA;

Power supply: 12VDC, 15VDC, 24VDC, 220VAC optional;

Accuracy: 0.2;

Load capacity:  $\geq 2K\Omega$  (voltage output);  $\leq 250\Omega$  (current output);

Temperature drift:  $\leq 300\text{ppm}/^\circ\text{C}$ ;

Isolation voltage: 2500 V DC;

Response time:  $\leq 300$  ms;

Rated power consumption: voltage output  $\leq 400\text{mW}$ , current output (4~20mA)  $\leq 800\text{mW}$ ;

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

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

Surge impact immunity:

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

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

Impulse immunity: none;

Input overload capacity: 2 times the rated input value, 1 second 10 times;

Operating temperature: -10 ~ 60°C;

Storage temperature: -40 ~ +70°C.

#### 5 Connections Diagram

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

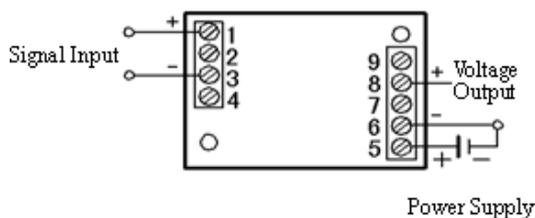


Figure 3 voltage output product wiring diagram

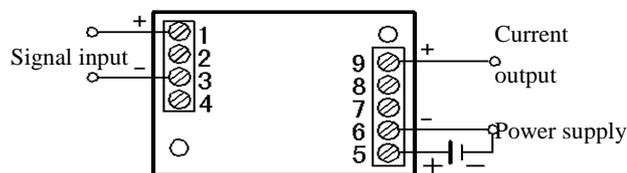


Figure 4 current output product wiring diagram

#### 6 Installations

DIN35 rail mounting or screw mounting, the installation size as shown in figure 5(in mm).

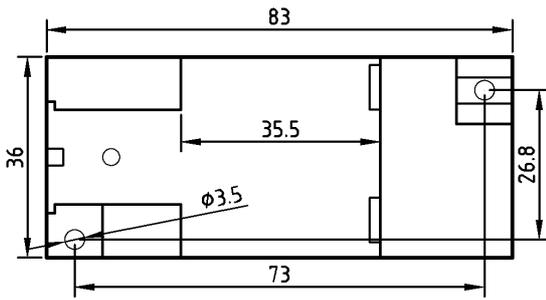


Figure 5 installation dimensions

## 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  $\phi 3$  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  $\leq 250\Omega$ , 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 definition of the transducer terminal to connect the test circuit as shown.

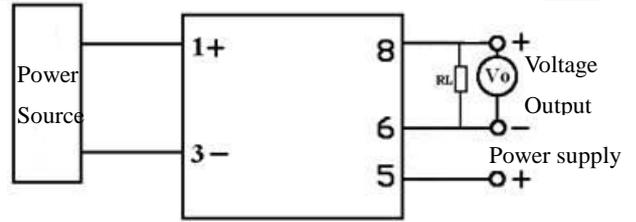


Figure 6 accuracy test wiring diagram of voltage output

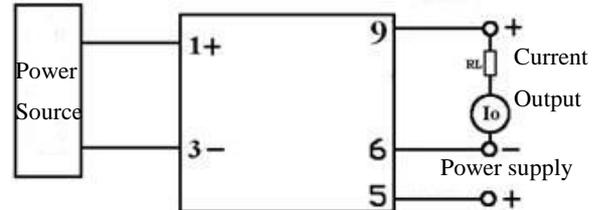


Figure 7 accuracy test wiring diagram of current output

**Note:** The voltage output is measured with a voltmeter 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 is 0.05 above. of the signal source and measurement instrument.

3 Power preheat 2min;

4 Voltage V input and monitoring methods:

Using the standard signal source to directly input voltage V, and record the standard signal source of the display data.

5 Assuming the transducer input is 0-300VAC, the output is 0-5VDC, given an input value V in the transducer range, the theoretical output value ( $V_z$ ) of the transducer is calculated as follows:

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

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

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

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

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

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

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

7 Repeat the 4 and 5 two operations, the resulting point value is

$|V_o - V_z| \leq 10\text{mV}$  or  $|I_o - I_z| \leq 40\mu\text{A}$ , the transducer accuracy

level qualified.

**Note:** Please consult with our company about the verification method detailed of other technical indicators

## 9 Notes

- 1 Please pay attention to the wiring on product label and the output contact capacity.
- 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 transducer, 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.