

## Single phase DC voltage transducer

### Instructions

#### CE-VZ05-\*\*-MS\*-0.2

#### 1 Overview

The output signal of the tracking transmitter can quickly track changes in the input signal. This product is used a new type of isolation chip and optoelectronic isolation principle, the input of the AC and DC voltage signal is converted into linear AC and DC voltage signal after isolation. This product is three isolated products, which's input, output and auxiliary power are isolation between each other, and with the advantages of high precision, fast response, high isolation pressure, low temperature drift and so on. It solves the problems of common mode interference, electrical isolation and signal standardization in the process of high-speed transmission of sensors, transmitters or instruments. It is especially suitable for high-speed transient waveform acquisition, harmonic analysis and fast monitoring and alarming. It is widely used in computer field data acquisition, industrial control, PLC control and other automatic control system.

#### Features:

- Ø High accuracy, better than 0.2;
- Ø fast response  $\mu$ S level;
- Ø The output port and power port can withstand 2KV surge impact.

#### 2 Case Style



Figure 1, MS1 case



Figure 2, MS3 case

#### 3 Part Number

CE—VZ05—##MS#—0.2	
Brand	Accuracy
DC voltage	Case style: S1, S3
1-phase tracking output	Aperture: M: none
Output: 3: 0-5V, 4: 0-20Ma, 5: 4-20Ma, 8: 0-10V,	Power supply: 2: +12V, 3: +15V, 4: 24V, 9: 220V/AC/DC

#### 4 Specifications

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

Input range: voltage: 0-75mV~500V DC;

Output: 0-5V, 1-5V, 0-20mA, 4-20mA, 0-10V (only power supply 24VDC);

Power supply: 12VDC, 24V DC, 85-265V AC/DC (MS3 case) ;

Accuracy: 0.2;

Load capacity:  $\geq 2K\Omega$  (voltage output),  $\leq 500\Omega$  (auxiliary power 24VDC current output),  $\leq 250\Omega$  (auxiliary power supply 12VDC, 85-265V AC / DC current output);

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

Input impedance:  $1M\Omega$  ( $\leq 150\text{mV}$ ),  $20*U K\Omega$  ( $150\text{mV} < U < 50\text{V}$ ),  $1M\Omega$  ( $\geq 50\text{V}$ );

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

Response time:  $\leq 20\text{ }\mu\text{s}$ ;

Rated power consumption:  $< 1.1\text{W}$ ;

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

Impulse immunity: none;

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: input/power port  $\pm 2\text{KV}$ , analog output  $\pm 1\text{KV}$ ;

Input overload capacity: 2 times the rated input value;

Operating temperature:  $-10\sim 60^\circ\text{C}$ , Humidity:  $\leq 95\%$  (no dew);

Storage temperature:  $-40\sim +70^\circ\text{C}$ .

#### 5 Connections Diagram

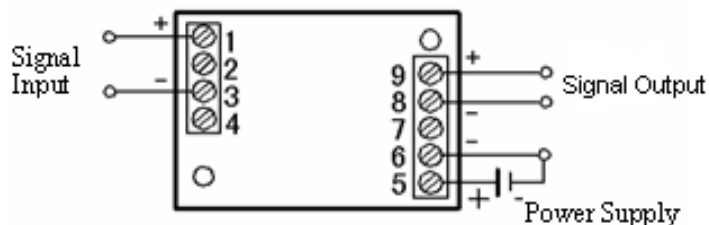


Figure 3, CE-VZ05-3\*MS1/MS3 voltage output,

CE-VZ05-6\*MS1/MS3 voltage output,

CE-VZ05-8\*MS1/MS3 voltage output,

CE-VZ05-4\*MS1/MS3 current output,

CE-VZ05-5\*MS1/MS3 current output product wiring diagram

#### 6 Installations

DIN35 rail mounting or screw mounting, the installation size as shown in figure 4(in mm).

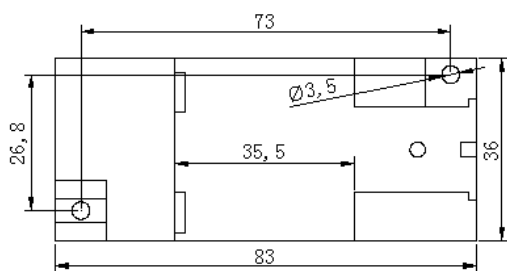


Figure 4 installation dimensions

## 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:

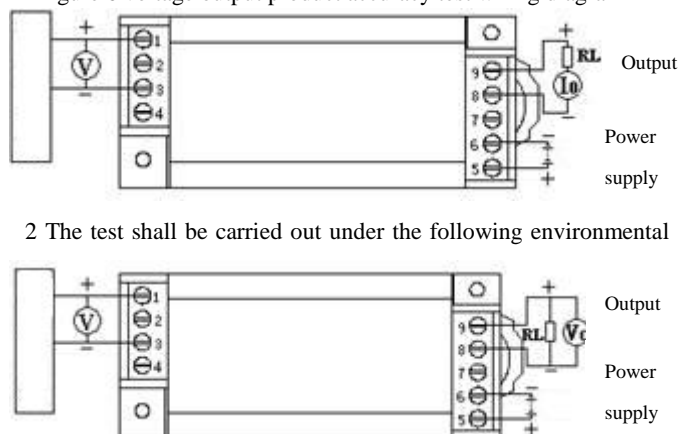
- ① 4mm diameter hole in the fixed plate according to the screw hole position shown in Fig. 5;
- ② Use the screw  $\Phi 3.5$  to insert into hole and secure it.
- 2 Products factory has been accurately set according to the "product standard". Apply power after determine the correct wiring.
- 3 The maximum 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.
- 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 transmitter terminal to connect the test circuit as shown.

Figure 5 current output product accuracy test wiring diagram

Figure 6 voltage output product accuracy test wiring diagram



### 2 The test shall be carried out under the following environmental

conditions:

- Ø Power supply: nominal  $\pm 5\%$ , ripple  $\leq 10\text{mV}$ ;
- Ø Ambient temperature:  $25^\circ\text{C} \pm 5^\circ\text{C}$ ;
- Ø Relative humidity: RH (45 ~ 80)%;
- Ø 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 transmitter input is 0-500VAC, the output is 4-20mA, given any input value V in the transducer range, the theoretical output value ( $I_y$ ) of the transducer is calculated as follows:

$$I_y = 4\text{mA} + U \div 500\text{V} \times (20 - 4)\text{mA};$$

If the output is 0-20mA, then  $I_z = U \div 500\text{V} \times 20\text{mA}$ ;

If the output 0-5V, then  $V_z = U \div 500\text{V} \times 5\text{V}$ ;

If the output 0-10V, then  $V_d = U \div 500\text{V} \times 10\text{V}$ ;

If the output 1-5V, then  $V_y = 1\text{V} + U \div 500\text{V} \times (5 - 1)\text{V}$ .

6. Measure the output value  $I_o$  ( $V_o$ ) with the data monitoring table and compute the error value between it and the standard value as follows:

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

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

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

$$|V_o - V_d| \leq 20\text{mV} \text{ is normal, or excessive (0-10V output, 0.2) ;}$$

$$|V_o - V_y| \leq 8\text{mV} \text{ is normal, or excessive (1-5V output, 0.2) ;}$$

- 7 Repeat the 4 and 5 two operations, the resulting point of the error values are within the specified accuracy, the transducer accuracy level is qualified.

**Note:** and other technical indicators of the verification method

detailed consultation with our company.

## **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.