

## Single phase DC voltage transducer

### CE-VZ02-\*\*-MH2 - 0.2

#### 1 Overview

This product is a pin type single-phase DC voltage transducer. It adopts the principle of electromagnetic isolation, which can sample the DC voltage and isolated output standard industrial signal. Electrical isolation between input and output, and there is a complete linear relationship between the output signal and the input signal. It can be widely used in real-time detection /monitoring of DC voltage signals, communications, power, railways, industrial control and other fields.

#### Features:

- I Pin type is easy to install on the PCB;
- I High precision and low temperature drift;
- I High product reliability

#### 2 Case style

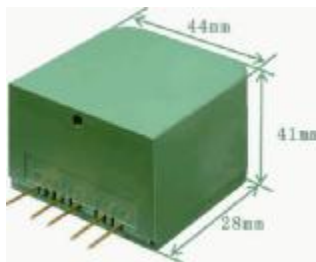
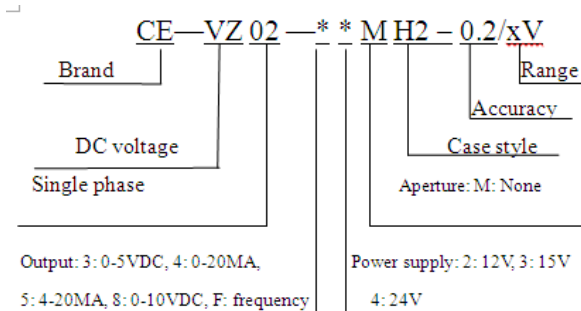


Figure 1, MH2 case style



#### 3 Part Number

Figure 2 Product Selection Table

#### 4 Specifications

Test conditions: power supply: +12VDC, room temperature: 25°C.

Input range: 0~0.1V~300VDC;

Output: 0~5VDC, 0~10VDC, 0~ 20mADC, 4-20Madc;

Frequency output (0~5KHz, 0~10KHz)

Power supply: +12VDC, +15VDC, +24VDC;

Accuracy: 0.2class;

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

Temperature drift:  $\leq$ 200ppm/°C;

Isolation voltage:  $\geq$ 2500 VDC;

Response time:  $\leq$ 15 mS;

Rated power consumption: 0.4W (voltage output), 0.8W (current output);

Output ripple: <10mV;

Surge impact immunity:

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

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

Pulse group immunity: Input/power port  $\pm$ 2KV

Analog port I/O $\pm$ 1KV

Input overload capacity: 2 times the nominal value of the measured voltage;

Operating temperature: -10~60 °C ,humidity: $\leq$ 95%(no dew);

Storage condition: -40~+70 °C , humidity:  $\leq$ 95% (no dew).

#### 5 Connections Diagram

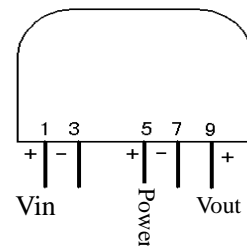


Fig. 3, Wiring diagram of CE-VZ02-3\*MH2、CE-VZ02-8\*MH2 with voltage output

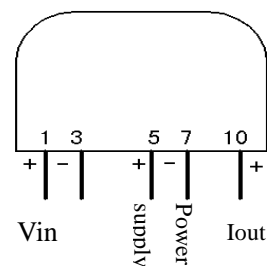


Fig. 4, Wiring diagram of CE-VZ02-4\*MH2、CE-VZ02-5\*MH2 with current output

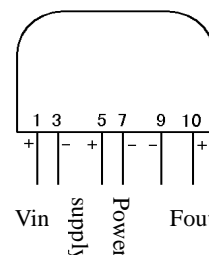


Fig. 5, Wiring diagram of CE – VZ02 – F\*MH2 with frequency output

## 6 Mounting Diagram

Pin type PCB board soldering installation

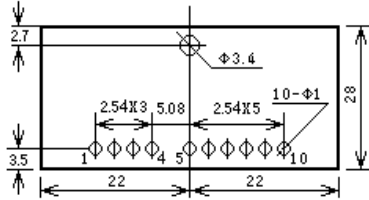


Figure 6, MH2 installation dimension drawing

## 7 Product service

7.1 Installation method on PCB board: Insert the pins of the transducer into the PCB corresponding pads and solder firmly.

7.2 Products have been accurately calibrated according to the "product standard" before delivery. Apply power after determine the correct wiring.

7.3 The auxiliary power supply required isolation voltage  $\geq 2000\text{VAC}$  and AC ripple voltage  $< 10\text{mV}$ , Multiple transmitters can share a set of power supplies. However, this power supply can no longer be used to drive spikes such as relays to prevent the transmission of interference signals to the transducer.

7.4 The transducer's output is 0-5V,  $R_L \geq 1\text{K}\Omega$ . Under this output condition can guarantee the output accuracy and linearity over the entire rated input range.

## 8 Example of product accuracy level verification

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

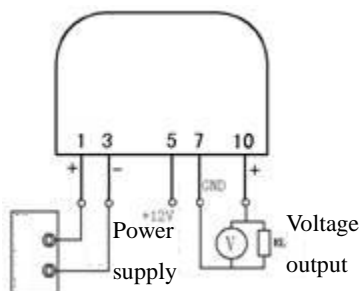


Figure 7, product accuracy test wiring diagram with voltage output

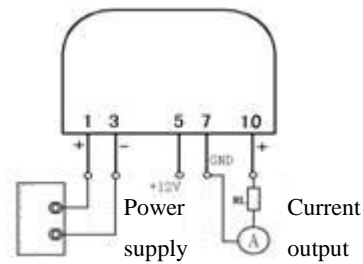


Figure 8, product accuracy test wiring diagram with current output

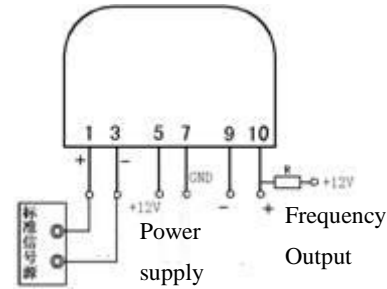


Figure 9, product accuracy test wiring diagram with frequency output

**Note:** The voltage output is measured with a V meter and the current output is measured with the A meter; when the output is frequency, R is a pull-up resistor,  $R = 5\text{K}$ .

8.2 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 is 0.05 above. of the signal source and measurement instrument.

8.3 Power preheat 2min;

8.4 Voltage V input and monitoring methods:

- ① Using the standard signal source to directly input voltage U, and record the standard signal source of the display data.
- ② If there is no high-precision voltage meter calibrator but an ordinary meter calibrator, use a high-precision multi meter to monitor the output voltage U of the normal meter calibrator.

8.5 Assuming the transducer input is 0-100VAC, 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:

$$V_z = V \div 100 \times 5\text{V}$$

If output is 0-10V, then  $V_d = V \div 100 \times 10\text{V}$ ;

If output is 4-20mA, then  $I_y = 4 + V \div 100 \times 16\text{mA}$ ;

If output is 0-20mA, then  $I_z = V \div 100 \times 20\text{mA}$ ;

If output is 0-5KHz, then  $F = V \div 100 \times 5\text{KHz}$ ;

If output is 0-10KHz, then  $F = V \div 100 \times 10\text{KHz}$ ;

8.6 The monitoring meter measures the DC voltage output value  $V_o$  or the current output value  $I_o$ , and calculates the error between it and the standard value according to the following formula:

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

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

$|I_o - I_y| \leq 32\mu\text{A}$  is normal, otherwise excessive (4-20mA output, 0.20);

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

$|F_o - F| \leq 10\text{Hz}$  is normal, otherwise excessive (0-5KHz output, 0.2);

$|F_o - F| \leq 20\text{Hz}$  is normal, otherwise excessive (0-10KHz output, 0.2);

8.7 Repeatedly performed 4, 5 two operations, the linear point error value of each range is within the accuracy range, the transducer's accuracy level is qualified.

Note: For verification of other technical indicators, please contact us.

## 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 effective 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  $+75^\circ\text{C}$ . 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.