

Single-phase DC power isolation transducer CE-P03-**MS3-0.5

Instructions

1 Overview

This device is an electrical isolation transducer of DC power measurement. By converting the measured input voltage and current into DC power to transmit output, Through the internal switch can switch a variety of output types, while with polarity switching function can be unipolar or bipolar measurement, The product can be widely used in DC power supply cabinet and DC power supply system detecting..

Features: (Note: This product output is not isolated):

- Ø Good stability, accuracy better than 0.5;
- Ø Output 0-5V/1-5V/0-20mA/4-20mA can be chosen freely
- Ø With unipolar, bipolar measurement settings selection function;
- Ø Wide power supply, with 12V/24V power supply;
- Ø Built-in function switch can be set freely;

2 Case Style



Figure 1 Appearance of the product

3 Part Number

CE—P03—##MS3—0.5	
Brand	Accuracy
Active power	Case style: S3
41:3-phase 4-wire	Aperture: M: none
Output: 3: 0-5V; 4: 0-20mA,	Power supply: 4: 24VDC (11V-28V)+
5: 4-20mA; 8: 0-10V	9: 85-265VAC/DC

4 Specifications

Test Conditions:

Power supply: DC +11V~+28V, AC/DC 85V-265V;

Input range: voltage: 0~500V DC, current: 0~5A DC;

Output: 0-5V/1-5V/0-20mA/4-20mA or 2.5±2.5V/3±2V/

10±10mA/12±8mA (bipolarity measurement) can be set freely;

Output ripple: <14mV;

Working temperature: -20~60°C;

Accuracy class: 0.5;

Rated power consumption: <0.8W;

Temperature drift: <200ppm/°C;

Isolation voltage: no isolation;

Load capacity: voltage output ≥ 1KΩ, current output ≤ 300Ω;

Response time: ≤ 250 Ms;

Frequency range: none;

Output ripple: ≤ 14mV;

Input overload capacity:

Continuous overload: 120%; short-term overload,

2 times the rated voltage input value, the application of 1 second;

20 times the rated current input, the application of 1S;

Impulse immunity: none;

Surge immunity: none;

Storage conditions: none.

5 Connections Diagrams

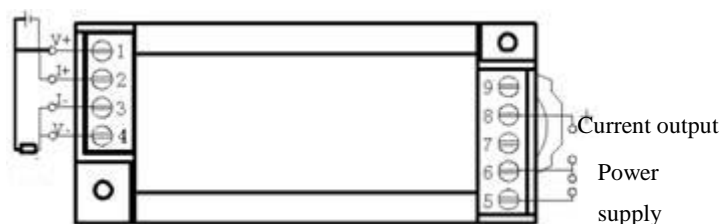


Figure 2, wiring diagram of voltage output of CE-P03-34MS3/CE-P03-84MS3

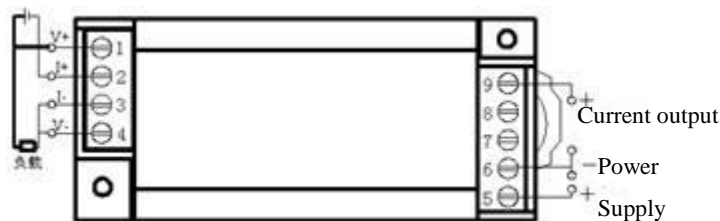


Figure 3, wiring diagram of current output of CE-P03-44MS3/CE-P03-54MS3

(Note: voltage and current input are in common ground, the current signal can only be taken from the negative pole)

6 Function Settings

As shown in Figure 1 to open the product shell on the settings window, here is a four-digit DIP switch, the bit 1 and 2 set the output of transmitter function, bit 3 sets the output zero to 0V (0mA) or 1V (4mA), bit 4 sets for nonpolar and polarity measurement. Switch status function specific settings are as follows:



Fig 4, Power factor
output (default)



Fig 6, Reactive power factor

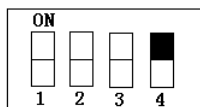


Fig 5, Active power output



Fig 7, the zero is set as 1V or 4mA,
when the zero is off, it is 0 output.

← **Fig 8, Capacitive measurement, when**
unplug. It is nonpolar nature

7 Installations

DIN35 rail-mounted or screw-mounted installation, the installation size is as shown below.

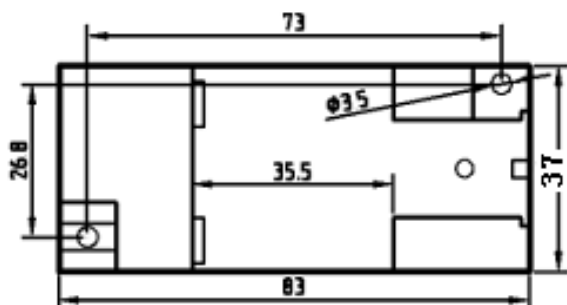


Figure 9, Mounting dimensions

8 Product's Service

1 Installation

1.1 DIN rail installation method:

- ① The transducer fixed 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 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 $\leq 250\Omega$, and 0-5V voltage output RL standard is $\geq 1\text{K}\Omega$, can guarantee the output accuracy and linearity over the entire rated input range.

9 Example of product accuracy level verification

1 According to the definition of the transducer terminals to connect the test circuit.

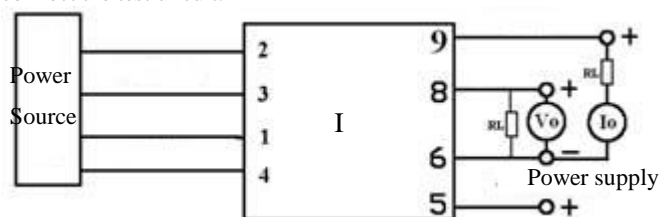


Figure 10, test wiring diagram of accuracy of voltage or current output

Note: The voltage outputs 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: $25^\circ\text{C} \pm 5^\circ\text{C}$;
- ◆ Relative humidity: RH (45 ~ 80)%;
- ◆ The accuracy of the signal source and measurement instrument is 0.05% above.

3 Power preheat 2min;

4 Using high-precision power signal source to input the value of voltage and current and the corresponding phase, and record the display data of calibrator, in order to ensure the veracity of the accuracy, please enter voltage and current signals more than 20% of the product rang. The current can be input using the ampere-turn method.

5 Example for conversion relationship of output and measured value: (V_o is voltage output, P is power, V is voltage range, I is current range)

If the output is 0-5V, then $P = (V_o \div 5V) * V * I$;

If the output is 4-20mA, then $P = (I_o - 4 \text{ mA}) \div 16\text{mA} * V * I$;

If the output is $2.5 \pm 5V$, $P = (V_o - 2.5V) \div 2.5 * V * I$;

6 The monitoring meter measures the DC voltage output value V_o

or the current output value I_o .

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

$|I_o - I_z| \leq 80\mu\text{A}$ is normal, or excessive (4-20mA output, 0.5);

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

7 Repeat the NO.4 and NO.5 operations, the resulting point value

$|V_o - V_z| \leq 25\text{mV}$ or $|I_o - I_z| \leq 80\mu\text{A}$ (100 μA), the accuracy level of transducer is qualified.

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

10 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 $+75\text{ }^{\circ}\text{C}$. 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.

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.