Mianyang Weibo Electronic Co.,Ltd

Designing, Manufacturing and Supplying WB Series Electric Isolated Sensor and Digital Electrical Transducer since 1989

USER MANUAL

WBV334U01-S DC Voltage Sensor

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Technical Service: 86 816 2278271
Quality Complain: 86 816 2278273
Fax Line: 86 816 2281934

ISO9001 ISO14000 ISO18000
Certified

Quality Warranty

Any quality problem found in WB series products, we offer Three years free charge of repair the products, and six months guaranteed free charge of change and return the products.

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Safety claim

The information in the safety claim of the equipment documentation is intended to ensure that equipment is properly installed in order to maintain it in a condition.

It is assumed that everyone who would be associated with the equipment should be familiar with the contents of that safety section, or this safety guide.

When electrical equipment is in operation, dangerous voltages will be present in certain parts of the equipment (e.g. the input terminal). Failure to obverse warning notices, incorrect use, or improper use may endanger personnel and equipment and course personal injury or physical damage.

Before working in the terminal strip area, the equipment must be isolated.

Proper and safe operation of the equipment depends on appropriate shipping and handling, proper storage, installation and commissioning, and on careful operation, maintenance and servicing.

The operating manual for the equipment gives instructions for its installation, commissioning, and operation. However, the manual cannot cover all conceivable circumstances or include detailed information on all topics. In the event of questions or specific problem, do not take any action without proper authorization. Contact the appropriate WB technical sales office and request the necessary information.

Standard application

1. Accuracy

   Accurate degree is conformed to IEC688:1992

2. Safety

   2.1 Overload capability

   Overload capability is conformed to IEC688:1992

   2.2 Isolation voltage

   Can be endured testing voltage is conformed to Q/72085584-0.1-2004

   2.3 Insulation impedance

   The insulation impedance is no less than 20M Ohm, is conformed to Q/72085584-0.1-2004

3. Electromagnetic Capability

   3.1 RF-Electromagnetic field immunity test according to EN61000-6-2:2005, EN61000-6-4:2001

   3.2 Power frequency magnetic field immunity test according to EN61000-6-2:2005, EN61000-6-4:2001

   3.3 Electrostatic discharge immunity test according to EN61000-6-2:2005, EN61000-6-4:2001

   3.4 Surge immunity test according to EN61000-6-2:2005, EN61000-6-4:2001

   3.5 Electrical fast transient/burst immunity test according to EN61000-6-2:2005, EN61000-6-4:2001

   3.6 Conducted disturbance voltage according to EN61000-6-2:2005, EN61000-6-4:2001

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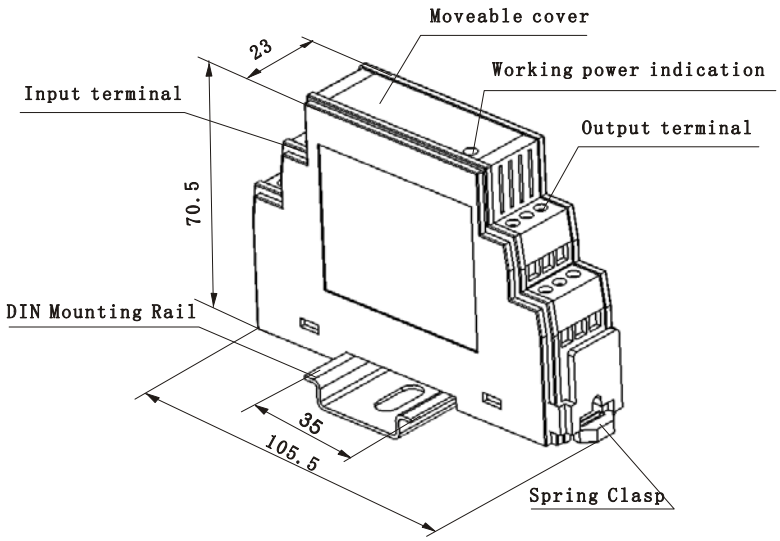
3.7 RF continuous conducted immunity according to EN61000-6-2:2005, EN61000-6-4:2001
3.8 Radiated Electromagnetic disturbance according to EN61000-6-2:2005, EN61000-6-4:2001
3.9 Voltage dips/interruptions immunity according to EN61000-6-2:2005, EN61000-6-4:2001

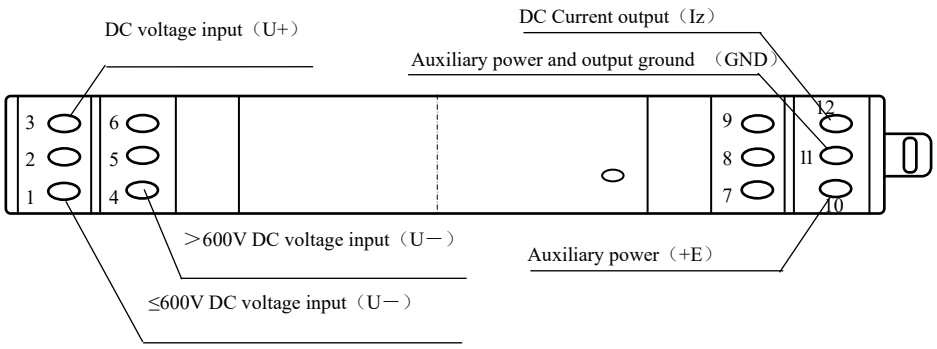
Product Description and Application

WBV334U01-S adopts the principle of modulation and demodulation isolation to measure the pulsating DC voltage in the power grid or circuit in real time and convert it to a standard DC current (Iz) output. It has the characteristics of high precision, high isolation, low drift, and wide temperature range. The input and output circuits are completely isolated, the output signal and the power supply share the same ground, and they can be directly connected to various types of A/D converters to form a centralized data collection system. The product is suitable for real-time detection of power systems, post and telecommunications systems, railway monitoring systems, etc.

Product Dimensional Drawing (unit: mm)



Product Terminal Identification Drawing



Non identified terminals can’t be used

Terminal definition table

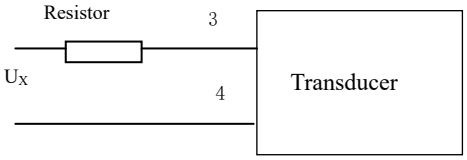
1/4	U-
3	U+
10	+E
11	GND
12	Iz

Key Technical Data:

1. Input: DC 0~75mV, 0~1000V;
2. Output: DC 0(4)~20mA;
3. Accuracy class: 0.2%;
4. Input Impedance (R): when U_x＞1V, R_i＝U_x×10kΩ/V,
   when U_x≤1V, R_i≥1MΩ;
5. Linear Range: 0-120% of nominal input;
6. Responding Time: ≤350ms;
7. Over Load Capacity: 2 times of nominal input, hold for 1s, interval of 10s, repeat 10 times;
8. Load Capacity: ≤250Ω（DC 24V power supply can be customized to 500Ω）;
9. Auxiliary Power: DC +12V，+24V;
10. Static Current: 0mA～20mA output：≤16mA，4mA～20mA output：≤20mA;
1. Isolation Voltage: DC 2.5kV, 1mA, 1minute;
11. Output Ripple: ＜20mV;
12. Drifting by Temperature: 200×10^{-6}/℃;
13. Ambient Temperature: -25℃～+70℃;
14. **EMC** (Electro Magnetic Compatibility): Surge: 2kV, ESD: 6kV/8kV,
    Electric fast transient pulse group: 2kV;
15. Mounting : DIN Rail 35mm Mounting.

Instruction of Installation and Use

1. The product has adopted structure compliance with EN50022; suitable for DIN rail mounting NS35/7.5, NS35/15. Installation steps are as following (please reference to dimensional drawing):
   Step 1: Immobilize one side of product‘s mounting trough to the DIN mounting rail;
   Step 2: Pull out the spring clasp;
   Step 3: Place whole mounting trough to the DIN mounting rail properly;
   Step 4: Release spring clasp to make sure the installation.
2. The product has calibrated before out of factory. After correctly wiring, it can be powered and used immediately. But for further precise signal sampling, user needs to warm-up the product for 3 minutes before use.
   a) The auxiliary power requires isolation voltage≥2000V_{AC}, DC current output ripple ＜10mV, and multiple converters can share with one set auxiliary power together.
   b) When measuring dc voltage exceeds 1000volts, the circuit needs adding a resistor to divide the input dc voltage. The resistor is provided by Weibo Electronic, and only for each type of transducers special use only.



C) When measuring DC voltage less than 600V, uses terminals 3 and 1 for connection; when measuring DC voltage bigger than 600V, uses terminals 3 and 4 for connection

3. Basic testing method for accuracy

(1) According to the terminal definition table to connect the testing circuit;

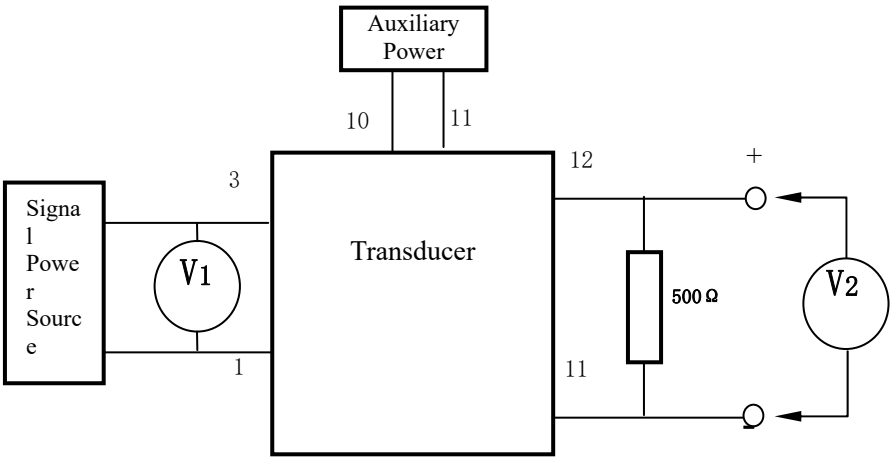
(2) The testing must to be done by under the following conditions;

Auxiliary power: 24V±1%, ripple≤5mV

Ambient temperature: 25℃±2℃

Relative humidity: RH(45～75)%

Accuracy for Signal Power Source instrument: 0.05



(3) Warming up the transducer for 3 minutes

(4) Using output monitoring meter V1 to measuring the output of signal power source instrument, set any input value which is within the measuring range of the transducer Vr.(e.g. if input range is 100V, the output is 4-20mA). the expected output value Iz should be calculated as:

$$Iz = (20mA - 4mA) \times Vr/100V + 4mA$$

(5) Using output monitoring meter V2 to measuring the output voltage V0 of the transducer, the basic introduced error γ of the transducer should be calculated as:

$$\gamma = (Vo - Iz \times 250\Omega)/[(20mA - 4mA) \times 250\Omega] \times 100$$

(6) Repeating step (4) (5), if calculated absolute value is less than the given accuracy value of the transducer, it shows the transducer's accurate grade is qualified.

Caution:

1. Pay attention to the auxiliary power information, especially the auxiliary power grade, and polarity, other wise will damage the product.
2. Pay attention to the wire connection; wrong terminal connection will cause malfunction of the product and even damage the product;
3. Don't dismantle the product, and carry with care to avoiding bump and fall of the product;
4. If the product has been using under the environment with strong magnetic field interference, please pay attention to the shield of input wire, and the output signal wire should be as short as possible. For product intensive installation, the space between each product should not be smaller than 10mm.
5. Only use identified terminals.
6. There is no lightening strike prevention circuit design in this product. For out door and hazardous environment using, please add protective alternatives.
7. This product uses fire prevent ABS crust, its temperature withstand is only limited as +85℃, higher than this limitation will cause the product deformation. Please use and store carefully.
8. This product can't be used to measure the pulse DC voltage signal, otherwise there will be more errors or no output.