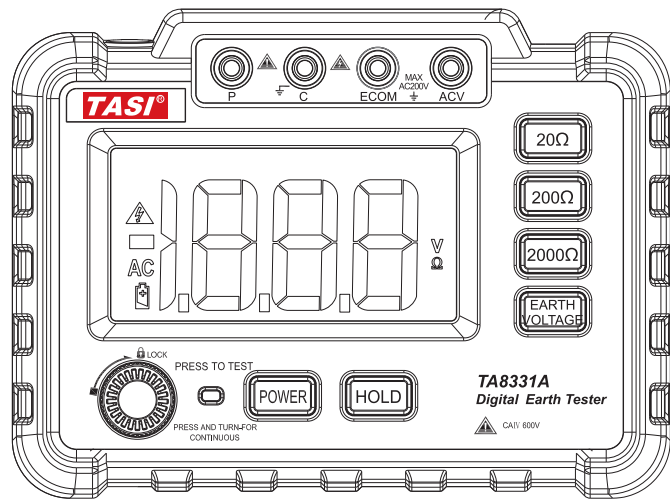


DIGITAL EARTH TESTER User Manual



SUZHOU TASI ELECTRONICS CO.,LTD.

Thank you very much for choosing this product.
The wire tracker (the equipment) is for circuit identification. With careful use, the equipment will provide years of reliable service.



Overview









The grounding resistance tester is a professional instrument for testing the grounding resistance of electrical equipment. It improves the circuit, structure and process of the traditional grounding resistance tester, in addition, the style is beautiful and practical, the function is more complete, the accuracy is higher, the operation is more convenient and reliable, the dust-proof and moisture-proof structure is more suitable for field use. It can be used for grounding resistance values of various power systems, power equipment, lightning protection equipment and other grounding systems, as well as AC voltage.

Unpacking Inspection

- 1 ground resistance meter
- 1 canvas bag
- 2 grounded steel brazing
- A set of auxiliary tests (including: red 15 m - strip, yellow 10 m - strip, green 5 m - strip)
- A set of simple test lines (including: red 1.6 m - strip, green 1.6 m - strip)
- 5# alkaline battery (LR6 AA) (1.5V) * 8
- 1 instruction manual
- 1 product certificate

Safety Precautions

- This series of instruments is designed in accordance with IEC1010 (Safety Standards promulgated by the International Electrotechnical Commission), please read the safety precautions before use.
- Do not use if the appearance of the grounding resistance meter or measuring line is damaged.
- Do not touch the live DC60V, AC36V RMS or higher conductor to avoid electric shock, this voltage has reached the standard of electric shock.
- Before measuring the resistance, it must be completely isolated from the power circuit to ensure accurate reading and personal safety.
- The meter should not be stored at a high temperature to avoid direct sunlight, so as not to affect the life of the liquid crystal display.
- If the battery energy is insufficient, the symbol "  " is displayed, please replace the battery in time. Remove the battery during long-term storage in time to avoid damage to the battery fluid meter.
- Be especially careful when measuring bare wires.
- When the external adapter is powered, the internal battery is disconnected and the battery cannot be charged at this time.
Note: Please select (+  -) power supply mode.
- Grounding resistance test requirements:
 - AC working grounding, grounding resistance should not exceed 4Ω;
 - Safe working grounding, the grounding resistance should not be greater than 4Ω;
 - DC working grounding, grounding resistance should be determined according to the specific requirements of the computer system;
 - The grounding resistance of the lightning protection ground should not exceed 10Ω;
 - For jointed grounding of shielded systems, the grounding resistance should not exceed 1Ω;

	Caveat!		Resistance
	High Pressure Danger!		AC
	Earth		Battery under voltage
	Double insulation		Conforms to the European Union Directive

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Characteristics

- General Characteristics
 - Display: 90mm*48mm window LCD display, the maximum display "1999".
 - Over-range indication: When the upper limit is exceeded, only the highest digit displays "1".
 - Power supply: 5# alkaline battery LR6 (1.5V) * 8 (optional external power adapter option) Under-voltage indication when there is insufficient voltage.
 - Power consumption: The power consumption is <=800mw when testing no load.
 - Use environment: temperature 0 ° C -40 ° C, relative humidity 30%-85% RH.
 - Dimensions: 175 (L) * 110 (W) * 70 (D) mm.
 - Weight: about 750g (including battery).
 - Streamline design and anti-earthquake requirements.

Technical indicators

1. Grounding resistance

Range	Basic accuracy	Resolution
20Ω	± (2%+0.1Ω)	0.01Ω
200Ω	± (2%+3d)	0.1Ω
2000Ω		1Ω

2. Ground voltage (50Hz-200Hz)

Range	Basic accuracy	Resolution	Input impedance	Overload protection
AC200V	± (2%+6d)	0.1V	1MΩ	200Vrms

Operation principle

The grounding resistance measurement principle is based on the law of resistance. Using four electrodes E1, P1, P2, and E2, insert a certain depth of the ground electrode at a distance of about 20 meters, as shown in Figure 1:

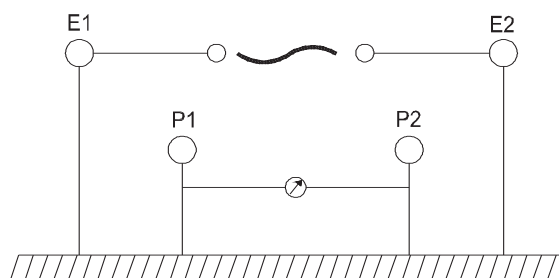


figure1

The AC signal acts on the electrodes E1 and E2, and the current flowing through the earth is measured on the electric meter through the electrodes P1 and P2. If the current is constant, the measured voltage is proportional to the earth resistance. The display value depends on the extended resistance in the machine, so the corresponding range is selected according to different resistance measurements to get the best reading. The AC signal is generated by the built-in converter.

Operation panel instructions (Figure2)

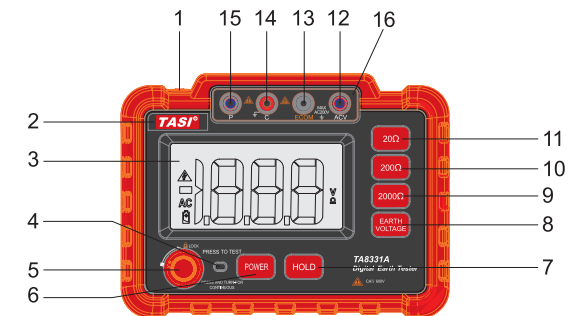



Figure2

- Power adapter jack (+  -)
- Model face card
- LCD display window
- test work instructions: the wiring is correctly connected when testing, this light is on
- with a lock test button
- Self-locking power switch (POWER)
- Digital hold switch (HOLD)
- voltage test selection switch
- 2000Ω range resistance selection switch
- 200Ω range resistance selection switch
- 20Ω range resistance selection switch
- ACV port: voltage pole
- E port: grounding pole
- C port: current pole
- P port: potential pole
- Input jack face card instructions

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Resistance measurement

1. Battery voltage check

After the power is turned on, if the battery symbol is not displayed on the display, it indicates that the current power is sufficient. If the display flashes or the logo appears, please replace the battery.

2. Test line connection

Make sure the test lead plug is fully inserted into the test end before measuring. If the connection is not tight, the measurement results will be inaccurate.

3. Test Methods

DANGER: When measuring the grounding resistance, a maximum of 50V AC voltage will be generated between the terminals of E-C or E-P. Do not touch the test leads to avoid electric shock.

A. Conventional resistance measurement method

1) Test wire connection

As shown in Figure 3 below, connect the auxiliary grounding rods P and C to the ground at a distance of 5 to 10 meters from the grounding object to be measured, connect the green wire to the instrument terminal E, connect the yellow wire to the terminal P and connect the red wire to the terminal C.

Note: Please insert the auxiliary grounding rod on the land with high water content. In case of dry land, depression or gravel, water must be added to keep the grounding hole wet. When the concrete is encountered, please put the grounding rod flat and add water, and cover the grounding with a wet towel and measure it.

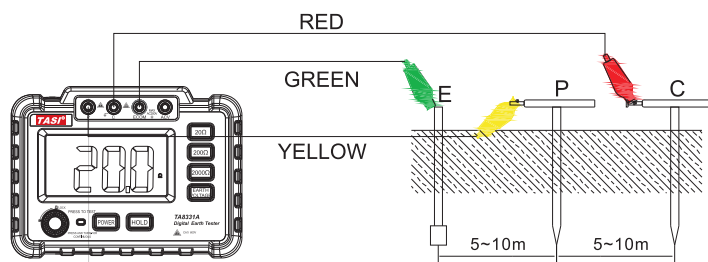


Figure3

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Note:

- The measuring current is about 2mA. Even if an earth leakage circuit breaker is connected, the circuit breaker will not be operated.
- The true grounding resistance value RX shall be calculated by the following formula:

$$RX = RE - re$$

Re: grounding resistance of common ground terminal such as commercial power system

Re: Instrument grounding resistance reading

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2) Ground voltage measurement (Figure 4)

Please adjust the range selector switch to the ground voltage (EARTH VOLTAGE). If the display shows the voltage value, it means that there is grounding voltage in the system. Please confirm that the voltage value is below 10V. If the voltage value is above 10V, the grounding resistance measurement value may cause an error. In this case, please use the first The grounding device is powered off, and the grounding voltage is lowered before measurement.

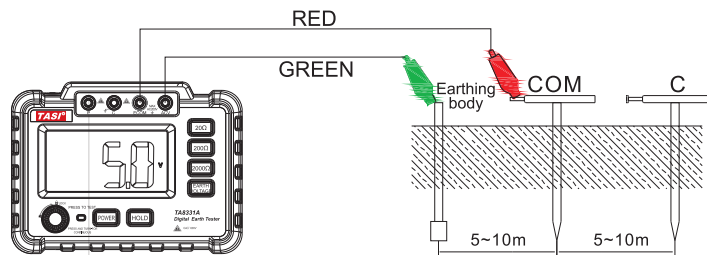


Figure4

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3) Ground resistance measurement (Figure 3)

Start with the 2000 Ω file and press the PRESS TEST button. The backlight will illuminate to indicate that it is in the test. If the displayed value is too small, switch in the order of 200Ω and 20Ω. The displayed value at this time is the measured ground resistance value.

Note: If “ \pm ” is displayed, the auxiliary grounding impedance of the auxiliary grounding rod C is too large. In this case, check if the wiring is loose, or increase the ground moisture around the auxiliary grounding rod to reduce the grounding impedance.

Note: Make sure that the wires are separated when wiring. If the test leads are entangled with each other and tested in the imaginary state, the mutual induction reading will be generated. The auxiliary grounding impedance is too large and the displayed value will produce an error. Make sure that the auxiliary grounding rod P.C is driven into the damp land and the connecting parts are in full contact.

Troubleshooting

If your meter is not working properly, the following methods can help you quickly resolve common problems. If the problem is still not resolved, contact your service center or dealer.

Failure phenomenon	Inspection site and method
Not shown \pm	● Battery not connected ● Replace the battery
Symbol appears	● Replace the battery
Large display error	● Replace the battery

This manual is subject to change without notice; The contents of this manual are considered correct. If the user finds any errors, omissions, etc., please contact the manufacturer; The company does not bear the accidents and hazards caused by the user's wrong operation; The functions described in this manual are not intended to reasons of the product for special purposes.

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B. Simple grounding resistance measurement

This measurement method is a convenient test method set for the case where the auxiliary ground rod cannot be used. In this measurement method, use a ground electrode with a small grounding impedance, such as a metal water pipe, a common grounding of a commercial power system, or a grounding terminal of a building to replace the auxiliary grounding straps C and P. Use a simple test lead.

1) Test the connection of the wires. Please wire as shown in Figure 5.

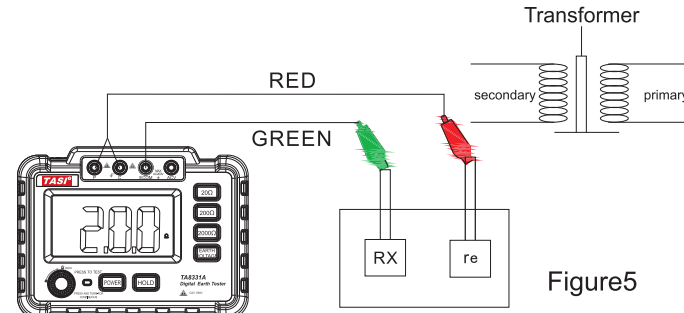


Figure5

2) Ground voltage measurement (Figure 4)

Please adjust the range selector switch to the ground voltage (EARTH VOLTAGE). If the display shows the voltage value, it means that there is grounding voltage in the system. Please confirm that the voltage value is below 10V. If the voltage value is above 10V, the grounding resistance measurement value may cause an error. In this case, please use the first The grounding device is powered off, and the grounding voltage is lowered before measurement.

3) Ground resistance measurement (Figure 5)

Start with the 2000 Ω file, press the PRESS TO TEST button. The backlight lights up to indicate that it is being measured. If the displayed value is too small, please switch to the 200Ω/20Ω file for measurement. The value displayed at this time is the ground resistance value. After completing the test, turn off the power switch to save power.

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Special Statement

- Used batteries must be in accordance with local laws and regulations to deal with!
- The Company reserves the right to update and modify the design of the product specifications and manual contents are subject to change without prior notice!



TASI

Suzhou TASI Electronics Co.,Ltd.
Tel: 0086-512-68057436 / Fax: 0086-512-82175063
Add.:No.588, Binhe Road, High-tech Zone, Suzhou City,
Jiangsu Province, China.
http://www.china-tasi.com
E-mail: susie.wang@china-tasi.com
Version: TA8331A series -EN-01

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