

Dear Client

Thank you for Purchasing our **HTDT-10A Ground Continuity Tester**. Please read the manual in detail prior to first use, which will help you use the equipment skillfully.



Our aim is to improve and perfect the company's products continually, so there may be slight differences between your purchase equipment and its instruction manual. You can find the changes in the appendix. Sorry for the inconvenience. If you have further questions, welcome to contact with our service department.



The input/output terminals and the test column may bring voltage, when you plug/draw the test wire or power outlet, they will cause electric spark. PLEASE

CAUTION RISK OF ELECTRICAL SHOCK!

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◆ **SERIOUS COMMITMENT**

All products of our company carry one year limited warranty from the date of shipment. If any such product proves defective during this warranty period we will maintain it for free. Meanwhile we implement lifetime service. Except otherwise agreed by contract.

◆ **SAFETY REQUIREMENTS**

Please read the following safety precautions carefully to avoid body injury and prevent the product or other relevant subassembly to damage. In order to avoid possible danger, this product can only be used within the prescribed scope.

Only qualified technician can carry out maintenance or repair work.

--To avoid fire and personal injury:

Use Proper Power Cord

Only use the power wire supplied by the product or meet the specification of this produce.

Connect and Disconnect Correctly

When the test wire is connected to the live terminal, please do not connect or disconnect the test wire.

Grounding

The product is grounded through the power wire; besides, the

ground pole of the shell must be grounded. To prevent electric shock, the grounding conductor must be connected to the ground.

Make sure the product has been grounded correctly before connecting with the input/output port.

Pay Attention to the Ratings of All Terminals

To prevent the fire hazard or electric shock, please be care of all ratings and labels/marks of this product. Before connecting, please read the instruction manual to acquire information about the ratings.

Do Not Operate without Covers

Do not operate this product when covers or panels removed.

Use Proper Fuse

Only use the fuse with type and rating specified for the product.

Avoid Touching Bare Circuit and Charged Metal

Do not touch the bare connection points and parts of energized equipment.

Do Not Operate with Suspicious Failures

If you encounter operating failure, do not continue. Please contact with our maintenance staff.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in Explosive Atmospheres.

Ensure Product Surfaces Clean and Dry.

— **Security Terms**

Warning: indicates that death or severe personal injury may result if proper precautions are not taken

Caution: indicates that property damage may result if proper precautions are not taken.

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I. Overview

The electrical integrity of earthing device is the electrical connectivity among all kinds of electrical devices that should be grounded or the electrical connectivity between ground equipment all parts and devices, it is DC resistance value; it is also known as electrical conductivity. Ground down lead and earth mat of electrical equipment reliable and effective connection is the fundamental guarantee of instrument safety operation. Ground down lead is the connection part of electrical equipment and earth mat. In the long-term running, the connection part may be rusty even ruptured due to moisture and other factors, which will cause the resistance increases which at connection point of ground down lead and the main earth mat, and thus cannot meet the requirements of electrical power regulations and standard. It also cause the instrument hides danger in work, seriously even cause the instrument run in lost ground status. Underground ground electrode and its connection parts may rusty, and even ruptured. Therefore, it is necessary to regularly do the electrical integrity test of grounding devices.

Electric Power Industry Standard PRC-DL/T475-2006
“Earthing Device Characteristic Parameters Measurement Guide”

provides that the electrical conductivity should use special instruments to measure. The instrument resolution is $1\text{m}\Omega$; accuracy is not less than 1.0 class. Based on this standard, our company designed this high degree of automation and portable tester. It is specially used to test the electrical integrity of earthing device; its technical specification has reached or exceeded the relevant standards. The instrument is characterized by simple operation, high accuracy, fast test speed, good reproducibility, and intuitive readings. It is an ideal special instrument that meets the requirements of regulations and standard.

II. Functions

The instrument is suitable for measuring on-resistance value between electrical equipment grounding down-lead and earth mat (or adjacent devices). It also applies to measure low-value resistor.

III. Features

(1) Power technology: For latest power supply technology, the instrument outputs 10A current and can continuously work for a long time which overcomes the weakness of instantaneous current produced by pulsed power. It can effectively puncture the oxide layer of the switches and then get precise results.

(2) Strong anti-interference ability: The last number of test data will stably show in the LCD screen only with ± 1 error even in strong Interference situation.

(3) Long service life: All the precise resistances used in the instrument can reduce the temperature's impact on the measurement results and military connectors can enhance vibration resistance.

(4) Simple operation: just pressing "test" key, you can get the measured result. The $3\frac{1}{2}$ LED display is easy for reading and has good reproducibility.

(5) Convenience: Small size, light weight, and easy to carry. Panels and chassis is an organic whole that having good shock resistance.

IV. Specifications

(1) Measurement Range: 1~1999m Ω

(2) Resolution: 1m Ω

(3) Test Current: DC 1A, 2A, 5A, 10A. Four fixed current input selections.

(4) Measurement Accuracy: $\pm(0.5\%+2d)$

(5) Measuring Radius: 50 m

(6) Display: $3\frac{1}{2}$ LED display

(7) Work Mode: Continuous

(8) Power Supply: AC220V±10% 50Hz

(9) Work Environment:

Temperature: -10°C~40°C Humidity: ≤80 %RH

(10) Dimension: 300×270×200 mm³

(11) Weight: 5kg (Accessories excluded)

V. Panel Layout

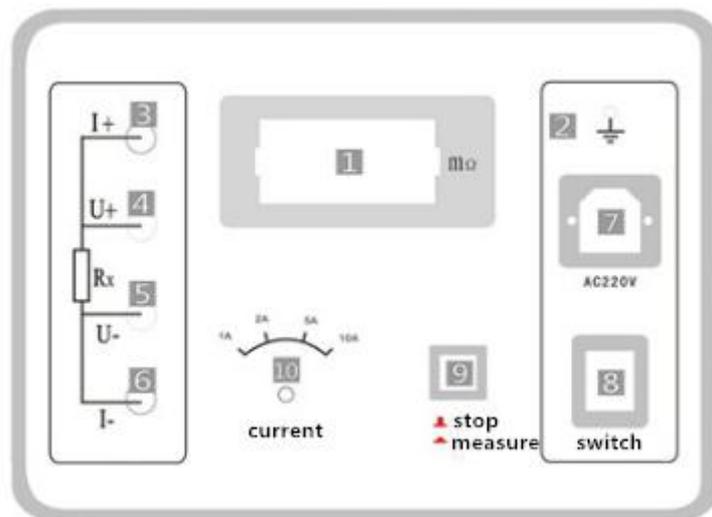


Figure 1 Panel Layout diagram

1、Resistance Display (mΩ)	2、Grounding	3、Current Output I+
4、Measurement Input U+	5、Measurement Input U-	6、Current Output I-
7、220V Power Outlet	8、Power Switch	9、Stop/Measure
10、Current Selection		

VI. Work Principle

The instrument bases on the current-voltage testing principle

that also known as Four-line method testing technology. More details show in Figure 2.

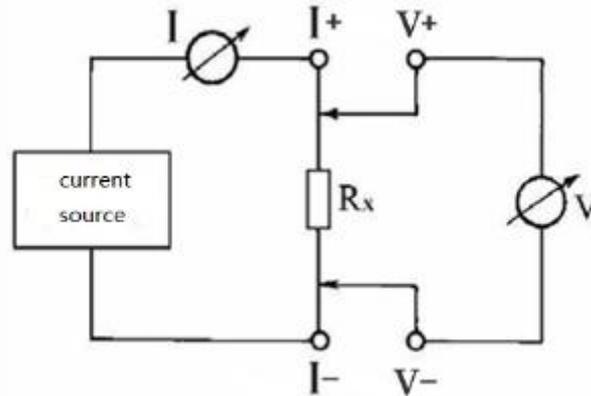


Figure 2 Schematic diagram

The current goes through I+ and I- ports to the resistance R_x , current value can be got from the ammeter I, and the voltage between V+ and V- will be shown in the voltmeter V. Based on data I and V, the resistance value can be calculated.

From the above diagram we can know that using four-terminal measurement can eliminate the error caused by lead resistance and contact resistance.

VII. Operation Methods

- 1、Wire as shown in the Figure 3.

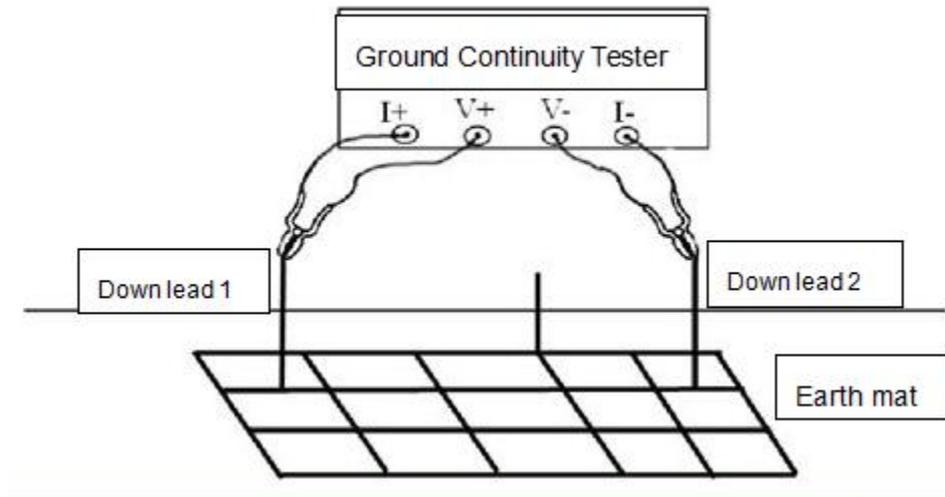


Figure 3 Four-terminal Wiring diagram

The instrument has two test lines: a 50-meter red line on the plate, please connect the large fork to the red terminal I +, and connect the small fork to the red terminal U +; let the large fork of 5-meter black line connect to black terminal I-, and the small one to the black terminal U-.

2、 First find out the down lead well connected with ground mat as a reference point.

3、 The two test lines (50 m, 5 m) , connect two ends of them to wire holder; Connect other two ends with test clips to the reference point and measured point (among which, the black test line clips the reference point, the red test line clips all tested points).

4、 In order to get accurate measured data, please keep contact surface of the measured point clean.

5、 After confirmed the wiring is well connected, access to 220V

AC power supply, turn on power switch, the instrument enter into the starting up state. Press "test" key to begin test, the middle of the display screen shown measured resistance is the on-resistance values, its unit is mΩ.

Please refer to the following table to check the test result is normal or not.

on-resistance	150mΩ	500mΩ	1Ω
Status	Good	Abnormal	Severely abnormal

6 、 Completed measurement, please disconnect the power switch and put the test lines into accessories bag.

VIII. Problems and Solutions

Problems	Solutions
No respond after powering on; on the LCD no display	Check if AC power is on
	Check the power cables
	Check if the Fuse is Blown out.
Under test resistance value is evidently larger or 1 (beyond range)	Check if measured resistance value is too large
	Check if voltage input lines places on the inner side of current output lines.
	Check if voltage output lines have poor contact or the port connected to the test object is oxidized.

IX. Notes

(1) Please read the manual carefully before using this tester and wire properly as recommended in this manual.

(2) During testing, please make sure power supply of measured device turn off and it disconnects from other energized equipment.

(3) The instrument should be firmly grounded during testing.

(4) Replacing the fuse and accessories, please use the same model with the instrument.

(5) The instrument should be put in ventilated, dry, cool and cleaning place. Pay attention to humid or erosive gas that may damage this equipment.

X. Packing List

1. Instrument host	1
2. Test line (50m red line and 4m black line)	1
3. AC three-wire power cord	1
4. Earth lead	1
5. Test line accessory bag	1
6. Fuse (2A)	2
7. The instruction manual	1
8. Certificate	1
9. Inspection report	1

