Huazheng®

HZ-3310E-I
Portable DC Winding Resistance Tester

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Dear user:

Thank you for choosing HZ-3310E-I Portable DC Winding Resistance Tester.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life. "Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

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I.Important Hint

If the instrument is not in use, please turn off the power in time.

If the instrument is not used for a long time, please charge and discharge regularly. Batteries should be charged and discharged at least once a month.

It is strictly forbidden to use power shortage, which will severely shorten the battery life and even make the battery scrap. When the instrument is short of power, the power supply should be switched off and charged immediately. Avoid battery failure due to excessive battery discharge time.

Charging lamp: the charging lamp on the charger is bright red during charging and bright green after charging.

Users must not disassemble the instrument and replace the battery without authorization. When the instrument or battery fails, please return to the factory.

II. Introduction

Portable DC Winding Resistance Tester is an innovative product with compact size, hand-held operation, more portable and easy to carry.

The product is not only suitable for the measurement of transformer, mutual inductor, reactor and other inductive test products, but also suitable for the measurement of copper bars, conductors, switch contacts and other resistive test products. The instrument has fast testing speed and high accuracy.

III. Packaging Content

After receiving the packing box, open the packing box and check if there is any damage. If the freight packing box is damaged or the liner material is indented, please inform the freight company or our salesman immediately.

Please check if you have received the following items in the product package：

Standard accessories：

√1 Hand-held transformer winding resistance tester

√1 sets of test lines (yellow, green, red and black lines each)

√1 external printer (with printing cable attached）

√1 charger（16.8V）

√1 wrist band (attached to a hand-held tester)

√1 printed user manual

√1 copy of certificate and factory test report

Optional：

√1 wireless temperature measurement module (with 2 rubber rod antennas)

√1 charger（4.2V）

IV. Functional Characteristics

- Adaptive lithium batteries or 220 v ac supply. After a single charge, the DC resistance of hundreds of transformers can be tested continuously. The test process is simple and convenient;
- The output current is six grades, the maximum output current is 10A, the maximum output voltage is 25V, and the current can be automatically selected, which is convenient and fast.
- Wide range and high accuracy，500uΩ～50KΩ.
- Three-phase automatic testing can be carried out and the three-phase unbalance rate can be calculated automatically.
- It has the function of resistance temperature conversion, and can be equipped with wireless temperature measurement module, which can measure the field test temperature in real time to ensure the accuracy of resistance commutation value.
- It has many kinds of protection functions, such as back EMF protection, broken line protection, power-off protection and over heating alarm.
- 5.6-inch super industrial high-brightness color LCD screen, still visible under strong sunlight
- Equipped with external printer, facilitate data printing
- It can be stored locally and on USB memory.

V. Technical Indicators

DC resistance test			
Current gear	Measuring range	Current gear	Measuring range
10A	500μΩ~200mΩ	100mA	10Ω~200Ω
5A	10mΩ~1Ω	10mA	50Ω~2KΩ
1A	100mΩ~20Ω	1mA	500Ω~50KΩ
Technical index			
Accuracy	±（Reading×0.2%+2 words）	Maximum resolution	0.1μΩ
Conditions of use and appearance			
Working power supply	Built in lithium battery or external charger, charger input 100~240VAC，50HZ/60HZ		
Charging voltage	16.8V	Charging current	≤3A
Charging time	About 4 hr	Use time	More than 8 hr
Host weight	1.6kg（Test line is not included)）	Dimension	246mm（L）×156mm（W）×62mm（H）
Use of temperature	-10℃~50℃	Relative humidity	≤90%，No dew

VI. Adjust the Wristband

For better grip, strip the belt and adjust the adhesive tape as shown in the following figure.

VII. Battery Charging

When the battery is low after long storage or before the first use of the hand-held device, please use the charger attached to it to charge the battery for at least 2 hours, and continue to use the hand-held tester when charging. When the battery is fully charged, the charger light changes from red to green.

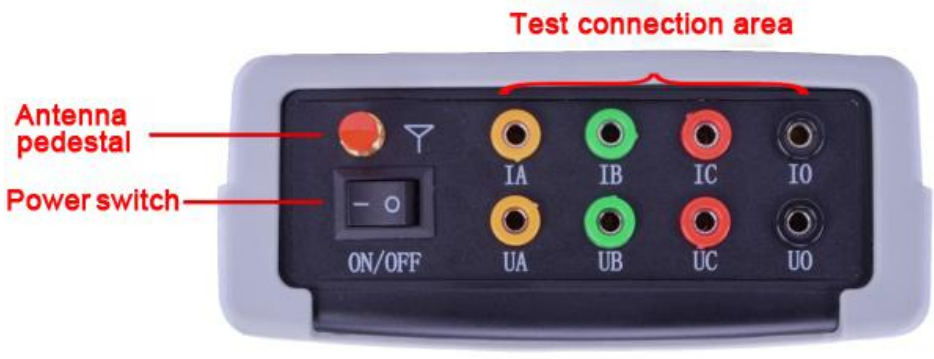
VIII. Tilt Hand-held Tester

In order to take the instrument or expose the side interface during operation, the hand-held tester can be tilted, as shown in the figure below.

Lift the tilt seat and pull outward

IX. Product Appearance

Top view



Front view

Side view

Function module	Instructions
Test connection area	Yellow, green, red and black four-color junction seats correspond to three-phase A, B, C and neutral point O respectively, and correspond to the test line (yellow, green, red, black). The other end of the test line has yellow, green, red and black four-color test pliers, which correspond to the tested transformer A, B, C, O bushing (if there is no neutral point O bushing, the black test pliers can be suspended).
Antenna seat	Please connect special rubber rod antenna for wireless temperature measurement signal reception.
Display	5.6 inch large industrial high brightness color LCD screen, display operation menu and test results.
Button	Operate instruments. “↑↓” is the "up and down" key, select to move or modify data; “←→” is the "left and right" key, select to move or modify data; "Enter" key, confirm the current operation; "Cancel" key, abandon the current operation.
Power switch	The power switch of the whole machine is switched to the open position when it is switched on. Switch to the close position when it is switched off.
Function module	**Instructions**
RS 232 interface	Connect external printer.
Charging interface	Use instrument charger to recharge
USB interface	External USB disk is used to store test data, please use FAT or FAT32 format U disk; in the storage process, it is strictly prohibited to dial out the USB disk.

X. Operation Instructions

◆ **Three-phase tested product test wiring**

The yellow, green, red and black clamp of the test line shall be connected with the A, B, C and O sleeves of the tested product respectively (if there is no neutral O casing, the black clip can be suspended). At the other end of the test line, connect the yellow, green, red and black terminals of the meter by color.

◆ **Single-phase tested product test wiring**

The red and black test clamp of the test line connects the two ends of the tested product; the other end of the test line connects the red and black terminal of the

instrument according to the color.

◆ **Intelligent power management**

When the instrument is not operated for a long time, the LCD backlight is automatically dimmed to save power; the instrument has the function of charging prompt with low power and over-discharge protection; when the instrument is low power, the charger can be plugged in to charge, and the instrument can be used normally in the charging process.

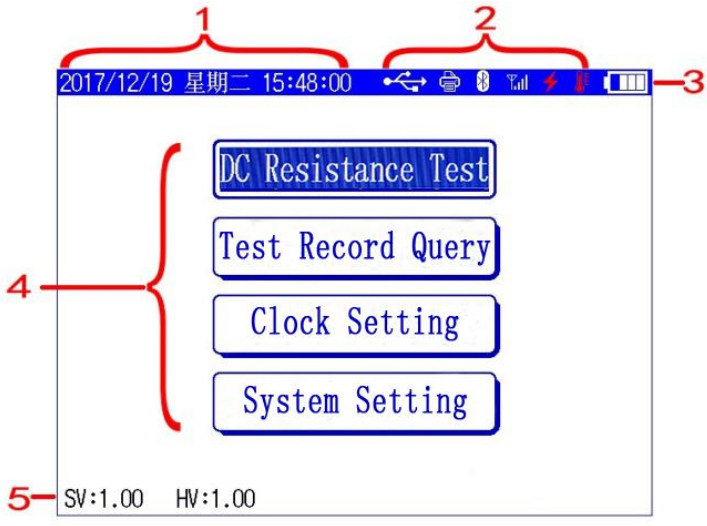
◆ **Instructions for use of printer**

The key of the printer and the indicator of the printer are integrated. When the printer is powered on, the indicator light is normally on, and it flashes when the paper is missing. Press the button once and the printer passes the paper.

Printer change paper: take out the rotating spanner and open the paper cover; Load the printer paper and pull out a piece of printer paper (tear the teeth out a little bit). Close the cover and press the print head to the print head. Press the print head back to the print head. Press the print head back to the print head with a bit of force.

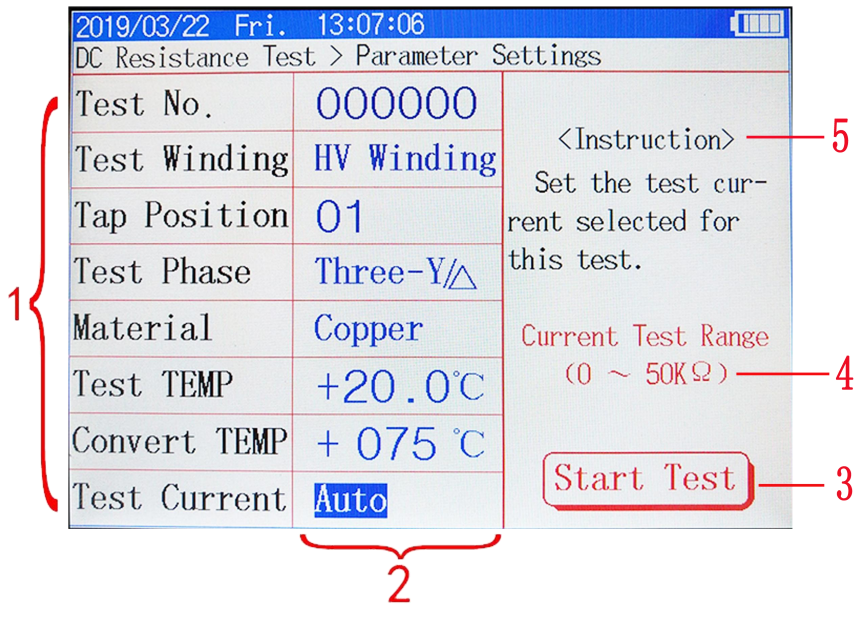
◆ **Operation instruction**

After all the test wires are connected, turn on the power switch and enter the "main menu" screen after the instrument is initialized, as shown in the figure below.



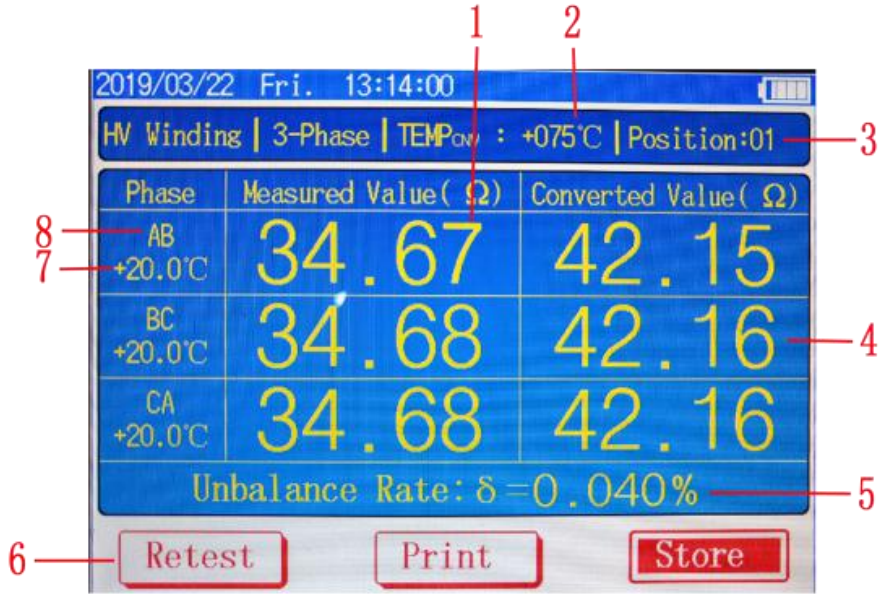
No.	Instruction
1	Display date and time.
2	Displays the peripheral and current operation status.
	This icon is displayed when you insert a USB drive.
	This icon is displayed when the printer is inserted.
	This icon is displayed when the temperature measurement module is connected.
	This icon is displayed during testing.
	Temperature overheating inside the meter display this icon
3	Power display. This icon flashes when the power is low.
No.	Instruction
4	The main menu operation area of the instrument, select corresponding functions through "←"→" keys, and press "Enter" to enter the corresponding menu.
DC Resistance Test	DC resistance test function, can measure transformer, mutual inductor, reactor and other inductive test products and copper bars, conductors, switch contacts and other resistance test products.
Test Record Query	In the process of query and test, each group of data can be saved; in the storage query screen, data can be printed and transferred to the USB disk.
Clock Setting	Set the date and time of the instrument.
System Setting	Password operation is required, not available to the user.
5	SV：Displays the current software version number of the instrument； HV：Displays the current hardware version number of the instrument.

Select the "DC Resistance Testing" menu to enter the DC resistance parameter settings screen, as shown below.



No.	Instruction
1 Start Test	First-level operation directory, through the "↑↓" key to select these functions, when these functions are selected, press the "←"→"" key to select the parameters of the corresponding functions. Tip: The cursor can quickly jump to the button by pressing the "Enter" button under the first-level operation directory at "Start Test".
No. of tested product	Set the number of tested product.
Test winding	Set the test winding of the tested product.
No.	**Instruction**
Tapping position	Sets the current tap position.
Test phase	Set the phase of the tested product，can select"single phase AO"、"single phase BO"、"single phase CO"、"single phase AB"、"single phase BC"、"single phase CA"、"three phase Yn"、 "three phase Y/△"； **Note:** Three-phase unbalance rate can be calculated automatically when three-phase testing.
Winding materials	Set the winding material of the tested product, copper and aluminum are optional. The winding material relates to the conversion coefficient used for the resistance conversion value.
Test temperature	Set the current temperature of the tested product, and the temperature value is from - 99℃ to + 99℃. The device can monitor the oil temperature inside the test product in real time through an external wireless temperature measuring probe, or set the temperature value manually. When the external wireless temperature probe is connected, it can't be set manually, so it needs to close the probe to set manually.
Convert temperature	Setting the measured resistance value needs to be converted to the temperature value. The converted temperature value is from 0℃ to + 255℃, which is related to the accuracy of the converted resistance value.
No.	**Instruction**
Testing current	Select the test current gear，Choose 1mA、10mA、0.1A、1A、5A、10Aand automatic.
2	The secondary operation directory corresponds to the setting parameters of the primary operation directory, and the parameters are modified by "←"→" key to move the cursor and "↑↓" key. Tip: the cursor in the second level of operation directory, you can press the "Enter" or "Cancel" key to jump the cursor to the first level of operation directory.
3	When the cursor is here, press "Enter" to start the measurement.
4	The range of current selected for testing.
5	An explanation of the selected function.

The " Three phase DC resistance test results" screen is shown below.



No.	Instruction
1	Measured resistance values
2	Temperature values needed to be converted to
3	The current measured tap position
4	Resistance after temperature conversion
5	Automatic calculation of three-phase unbalance rate.
6	Menu selection area. Press the “←”→” button to move the cursor to select the appropriate function, press the "Enter" button to execute the currently selected function, and press the "Cancel" button to return to the previous screen.
No.	**Instruction**
Retest Print Store	Retest according to the current settings parameters. Print the current test results by connecting the external printer. Save the current test results to the local computer or save it to the external USB disk. Tip: the data saved to the USB is in WORD format, and can be directly edited or printed with OFFICE.
7	When testing the phase winding, the temperature of the tested product.
8	Test phase

XI.Matters Needing Attention

- When testing the no-load tap-changer winding, it is not allowed to switch off the no-load tap-changer during the testing process or when the power is not fully discharged.
- It is not allowed to dismantle the test line and cut off the power switch during the test or discharge process.
- In the process of testing transformers, the unmeasured side winding must be opened.

XII.Packing List

No.	Item	Qty
1	Main engine	1
2	Power line	1
3	Red test line	1
4	Black test line	1
5	Yellow test line	1
6	Green test line	1