Kingrun Instrument Co.,Ltd.

JYR-9310

Transformer DC Winding Resistance Tester

Kingrun Transformer Instrument Co., Ltd
2024

Contents

Kingrun Instrument Co.,Ltd.

Overview

KRI 9310 adopt Kelvin four-wire testing method, which effectively eliminates the influence of the resistance of the test line on the test results. It can be able to increases the current to 10A by which can test extremely low resistance to 0.01 Ω(such as amorphous alloy, Copper-nickel, nickel-chromium-iron, iron-chromium-aluminum etc). For the tested objects with high resistance value (CT/PT), the instrument can extend the range to 20 kΩ， so the wide resistance test range enables KRI9310 can cover 80% of the power transformer products on the market and switchgear bus-bar cable etc. The power of the tester use the built-in rechargeable lithium battery that can test hundreds of transformers by one time charging.

KRI 9310 DC winding Resistance Tester Application Objects:

Transformer winding test

CT/PT/VT Winding test

Motor winding test

Cable resistance test

Kingrun Instrument Co.,Ltd.

Transformer Winding Resistance Tester JYR9310 :

A 6 Output Current Settings (Max.10A)

B Test range 0 ~ 20kΩ, cover all type of transformers, motors, cables, switch contacts, PT's and CT's

C Accuracy can reach to ± 0.2%

D Features automatic temperature conversion (20℃/75℃/120℃)

E One charge can test hundreds of transformers

F Features discharge warning and overheating warning protection

JYR9310 Technical Specification:

Tester type	KRI 9310					
Scope of application	10A	3A	1A	0.3A	0.1A	5mA
Test range	0Ω~0.1Ω	0.01Ω~2Ω	0.03Ω~6Ω	0.1Ω~20Ω	0.3Ω~60Ω	30Ω~20KΩ
Accuracy	0.2%±0.5μΩ					
Minimum resolution	0.1μΩ					
Built in battery	11.1V ; Capacity:4500mAh					
Standard conversion temperature	20℃/75℃/120℃					
Temperature test range	-99.9~199.9℃; Accuracy: ±0.5℃(option)					
Volume	Length 155mm Width 210mm Height 68mm					
Net weight	1.66KGS					

Kingrun Instrument Co.,Ltd.

JYR9310 Operation Panel Instruction:

Item	Function	Item	Function
1	Built-in Battery Charging Port	12	USB Port
2	Test cable output/input ports (V+, I+, V-, I-)	13	Test Current Display
3	Resistance Value	14	Cu/Al Display
4	TP1 Object Temp. Input	15	Temperature Input Selection Button
5	TP2 Standard Temp. Input	16	Cu/Al Material Selection Button
6	Memory Data/Test Time	17	Backlight Control Button
7	Resistance Value under Standard Temp.	18	Test / Lock Button
8	Return Button		Discharge Icon
9	Save/Read Button		Overheating Protection Icon
10	Right / Up / Down Key		USB Flash Connection Icon
11	Current / Resistance Selection/Power off &on		Test Type Icon

Security

1.It is important to read this manual carefully before using this instrument.

2.The operator of the instrument should have general knowledge of the use of electrical equipment or instruments.

3.The instrument can be used inside and outside, but should avoid rain shower, corrosive gas, Dust is too rich, high temperature, direct sunlight, etc. The meter should avoid severe vibration.

4.The maintenance, care and adjustment of the instrument should be carried out by professional personnel.

5.After the test must wait for the discharge alarm sound to stop, then switch off the power, remove the test wire.

6.Measure no-load voltage regulation transformer, be sure to wait for the discharge indicator alarm to stop after switching gears. Do not move the test clamp and power supply line during the test.

7.The instrument built-in rechargeable lithium battery should be regularly charged maintenance, long-term storage should be at least 3 months of charge maintenance.

*** Do not use chargers other than those approved by the Company to charge the battery, as this may cause an explosion ***

8. This instrument can only use the special lithium ion polymer battery (type: JY186X2), replace with other battery, may cause safety hazard.

Operating instructions

1.Power on and off

● Power on

Turn the current range switch to any position except “**OFF**”.

● Stand by

No measurement has been performed for 10 minutes and the instrument enters standby. If the switch is switched on again, turn the current range switch to the “**OFF**” position before starting the switch.

*** Standby also consumes a small amount of power, do not use for long periods of time please turn off ***

● Power off

Turn the current range switch to the “**OFF**” position.

2.Wiring Connection

Wiring of test object:

● Red cable marked "I" plug, connect the instrument "I+" port;

● Red cable marked "V" plug, connect the instrument "V+" port;

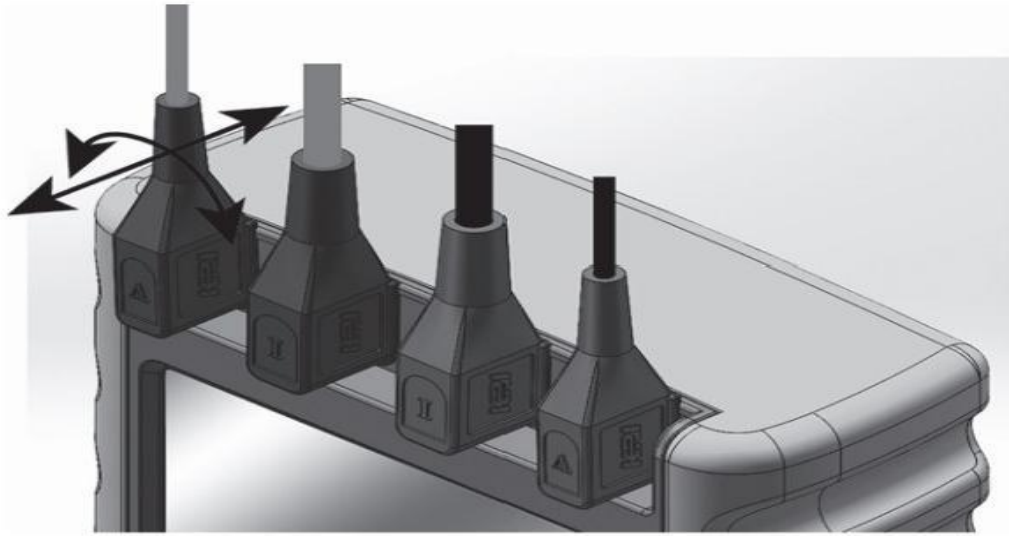
● Black cable marked "I" plug, connect the instrument "I-" port;

● Black cable marked "V" plug, connect the instrument "V-" port;

Correct wiring of instrument terminals:

First, insert the special test cable vertically into the appropriate port against the appropriate plug, then press down to lock.

To remove the plug from the instrument. Remove by first applying upward pressure (As shown below):



The special red and black test pliers are clamped to the lead-out end of the item under test. Check that the pinched surface of the sample lead-out is not in the oxide layer. If present, clean the oxide layer first and clamp it again. Make sure that the connections are secure to prevent the clips from falling off during the test.

3.Test button position check

If the “**TEST**” button is in the “**LOCK**” position when the machine is turned on, the “**TEST**” button function will be invalid. At this time, you need to rotate the “**TEST**” button 90° counterclockwise and pop it up to restore the “**TEST**” function so that you can proceed to the next test.

4.Select the current range

The selection of the current range can be done by turning the current range selection switch.

The selection of the range can be based on the test resistance value and the corresponding current range (refer to "Resistance Measurement Range and Accuracy"). When resistance values are met, try to select a large current for testing. The trial power should also be taken into account.

5.Check the battery charge

Power on the system first, with the battery level indicator in the upper left corner of the display. The battery must be fully charged during normal testing procedures. (See Battery Maintenance Instructions for details)

Temperature Conversion Options

● No temperature conversion is required

Cycle the 

key to set the “Cu, Al, Blank” selection to “Blank”.

●Temperature conversion is required

Cycle 

key to set “Cu, Al, Blank” selection to “Cu” or “Al” (Aluminium).

If Cu (Copper) or Al(Aluminium) is selected, the temperature conversion will be performed according to the following formula.

Temperature conversion formula: Rx=(Ra(T+tx))/(T+ta)

Where: Ra—Resistance value (ohm) at temperature ta (Celsius).

Rx - Converts to the resistance value in ohms at the standard temperature of tx (Celsius).

T—Coefficient. Copper (235); Aluminium (225).

The system memorizes the test object temperature (**TP1**) and the standard temperature (**TP2**). If you need to change it, please follow the steps below.

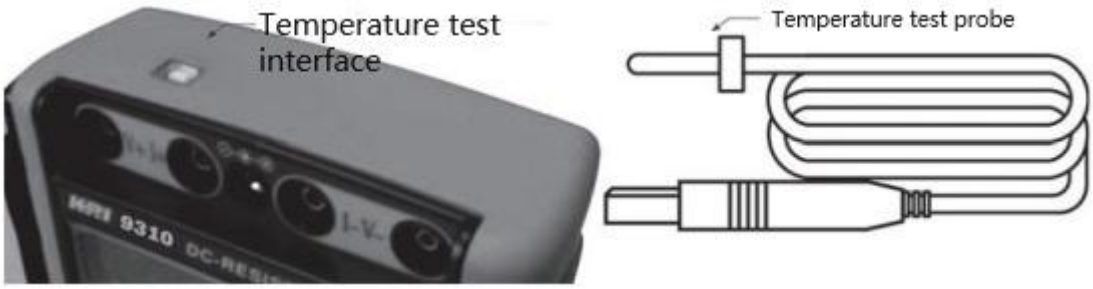
Press the “**TEMP**” key, and TP1 and the input bit will flash at the same time, allowing the input of the test temperature (TP1).

Press the  key to change the input bit, press the  key or  key to change the input value, after entering, press “**TEMP**” again, **TP2** flashes to allow selection of standard temperature. Press the  key or

key to select the required standard temperature. (among 20°C, 75°C, 120°C). After selection, press the **TEMP** key again to complete the input. When the test starts, the system will display the temperature conversion at the set temperature.

JYR9310 enables real-time testing of **TP1** temperatures for temperature conversion (optional). Here's how to use it:

● Connect the special cable for temperature measurement (shown as below)



Simply insert the USB end of the temperature test cable into the **temperature test port** of the instrument.The instrument automatically detects the cable connection status before the test begins. Connect the temperature cable securely and the instrument will use the measured temperature first, the input **TP1** temperature will not be valid. To use the input **TP1** temperature, simply unplug the USB plug from the instrument.

● Test **TP1** temperature

The **TP1** temperature is the ambient temperature of the object.

The ambient temperature of the test sample requires the temperature probe to be inserted into the test sample temperature hole. Press the "**TEST**" knob and turn it 90° clockwise to indicate the "**LOCK**" position, which is to start the temperature and resistance test. Perform temperature conversion.

No material selection and temperature testing not valid

Resistance Testing

Verify that the wiring is correct and the setup is complete before the test operation can be carried out.

Press the "**TEST**" knob and turn 90° clockwise to indicate the "**LOCK**" position and the test begins.

The instrument starts the test at the set current and displays the current current. The system stopwatch starts to display from zero.

The resistance measurement is performed when the current is determined to be stable automatically and at rated value, the test resistance value is displayed in the main display area and the converted resistance value is displayed if temperature conversion is set. The test start resistance data is constantly refreshed. Once the observed resistance data is stable, the data can be read or saved.

***If no test results are available for an extended period of time, the test current loop is open or the current range selection is too large. ***

Save data

Press the SAVE LOAD key to save the data.Displays the stored groups for two seconds in the stopwatch display

After, the stopwatch display is restored. The instrument supports 500 sets of data storage, full data will prompt "OVER" and the preservation is not complete. Memory records need to be cleared manually

End of test

To end the test, turn the "TEST" knob 90° counterclockwise, the "TEST" knob pops up, and the test is over. The inductive test instrument automatically discharges, the discharge symbol flashes and an audible alarm sounds. The discharge is finished and the instrument returns to its original state.

View memory data and import USB drives

The instrument supports 500 sets of data storage. The lower right-hand corner of the display shows the number of groups stored in the data after power-up.

Clear memory data method:

● Press the SAVE LOAD key for more than three seconds, hear a "tick", memory record is cleared, display memory

The number of storage groups is zeroed.

Memory data is not recoverable after clearing, please record or import USB drives before clearing.

To view memory data:

Press SAVE LOAD Key to display memory data if memory has stored data in the stopwatch display

Show the stored groups, press the ▲ key or ▼ key to select and view each group of data.

The number of storage groups is zero, indicating that there is no data in the memory, and the viewing function is invalid at this time.

Memory data is imported to USB drive

- First plug the USB disk into the instrument USB interface, the instrument automatically recognizes the USB disk, after completion, display the USB connection mark.

- Press once SAVE LOAD Key to enter the View Memory Data screen.

- Press again SAVE LOAD key, the memory data will be imported into the USB drive. The data is imported from the first set and displayed

Groups that are currently being imported, memory data is imported, and groups display the groups that are restored to the current view.

The data imported to the USB drive is stored in the root directory DT9310 folder, file name: DATA.TXT.

It can be opened with software such as Word Pad and Microsoft Word to generate a data list.。

Do not unplug the USB drive or power off without completing the export. This may damage the USB drive or file errors.

Alert message

- Discharge indicator flashes 

The discharge indicator flashes to indicate that the instrument is in a discharge state and the buzzer sounds. Wait until the discharge is complete and the indication disappears.

- Overheat indicator flashes 

The overheat indicator flashes to indicate that the internal temperature of the instrument is too high. May be induced by prolonged high current testing. The instrument will not be able to perform test operations if it is too hot. You can now switch off and wait for the temperature to decrease and then switch on the measurement again.

- Test numeric flashes

The test numeric flashes to indicate that the test data is outside the range of the gear selected by the instrument, and can be read at this time but only as a reference for gear changes. Because the overrange test error is large.

- The battery symbol is not indicated 

The battery is almost empty, so charge the charger as soon as possible to maintain the battery. Overdischarging the battery may cause permanent damage to the battery.

Battery maintenance

This instrument is equipped with a special rechargeable battery (model: JY186X2).When the battery is low, the battery should be charged in time, please refer to the table below.

Display	Battery voltage	Battery estimation
	10.1V or less	The battery is almost empty
	10.2 V to 11.0V	20% charge remaining
	10.7V~11.1V	50% charge remaining
	11.2V or greater	The battery is full

● Battery Charging

The instrument is equipped with a charging port and a matching dedicated charger (JS-126300).

When the charger indicator lights up red to indicate charging, lit green to indicate charging is complete. When the battery is low and an emergency test is required. The charger can be plugged in for emergency testing.

● Replace the battery

Step 1: Shut down and remove the charger.

Step 2: Unscrew the battery cover screw at the back of the instrument and remove the battery cover Replace the special rechargeable battery of the model JY186X2. Secure the connector and secure the battery.

Step 3. Replace the back cover, replace the battery cover, and make sure to tighten the screws.

***Do not replace rechargeable batteries other than those approved by the company, as this may cause safety hazard ***

Considerations

1. Before measuring the reverse tap of the no-load voltage-regulating transformer, the "**TEST**" knob must be rotated 90° counterclockwise. The "**TEST**" knob pops up and the test stops. After the discharge is completed and the alarm stops, the tap point can be switched.

2.Wait until the discharge is finished, the alarm tone stops before disconnecting the cable.

When selecting current, refer to the range in the specification bar, do not exceed the range and under-range.

As the current does not reach the pre-set value, even if the test is forced to continue with poor stability. Under-range current is too small and unstable for large-capacity transformer data. To confirm the range when both states occur, select the appropriate range to test.

Tester Maintenance

Cleaning the canopy: Wipe the surface with clean water and a soft cloth or sponge.

To avoid damaging the instrument, never immerse the instrument in water. When the tester is wet, dry it before storing it.

When it is necessary to verify or repair the instrument, refer the instrument to a qualified service professional or a designated service department for service.

The instrument should charge the batteries regularly and generally at least once a month.

Kingrun Transformer Instrument Co.,Ltd.

Address: Building2# torch high-tech park baoding city,China

Post code: 071000

Website:www.kritester.com

Tel: 0086-312-5959618. Fax:0086-312-5926968

Mobile: +86-18631228466

Inquiry Mail: info@kritester.com

Technical Support :support@kritester.com