Know your transformers more accurately.

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Insulation Resistance Tester

Operation Manual

JYM 5KV 10KV

For safe and correct operation, please read the instructions carefully.

The Company is not responsible for any damage or loss other than the instrument itself.

The patent right and software copyright of this instrument belong to the company, and any infringement will be pursued.

Catalog

1. characteristics and performance

The JYM insulation resistance tester is used for insulation resistance measurement in the field. The instrument has a built-in negative high-voltage power supply, large output power and strong load capacity, which is suitable for the measurement of insulation resistance of test products with large capacitance such as power transformers and cables. Using digital filtering technology, automatic intelligent measurement, the measurement data is very stable under strong interference. The measurement results are displayed by a large LCD screen with a microprinter that can be printed. The instrument is available in two power supply modes: an external adapter and an internal battery for easy testing.

1.2 Main technical indicators

Test voltage: 500V, 1000V, 2500V, 5000V, 10000V (optional) five output voltage levels.

Voltage accuracy: ± (set value×2%+10V) (when the resistance under test is below 10MΩ, the output voltage will decrease,down to 45% of the set value).

Short circuit current: not less than 30mA (this index far exceeds the traditional megohmmeter, direct short circuit or short circuit test voltage during measurement may cause instrument protection, special attention should be paid to safety).

Measuring range:	100kΩ~10TΩ
Measurement accuracy:	5% at 100kΩ~10GΩ (test voltage is not less than 250V). 5% at 10GΩ~100GΩ (test voltage not less than 2500V) 10% at 100GΩ~5TΩ (test voltage not less than 5000V) 10% at 100GΩ~10TΩ (test voltage not less than 10000V)
Anti-interference:	power frequency 5mA
Measurement method:	insulation resistance / absorption ratio / polarization index
Wiring method:	grounded or non-grounded
Fast discharge:	Yes
Measurement time:	insulation resistance automatic measurement (press the Run/stop button to stop), absorption ratio 60 seconds, polarization index 10 minutes
Input power:	external adapter (180V~270VAC).
Computer interface:	standard RS232 interface, optional wireless Bluetooth or wireless WIFI communication
Printer:	Optional Bluetooth printer.
Ambient temperature:	-10°C~50°C
Relative humidity:	<90%, no condensation

1.3 Main functional features.

1.3.1 Strong anti-interference ability

Using digital filtering technology, it can still accurately measure under the power frequency 5mA interference current, and the test data is stable, which is suitable for insulation resistance test in the field.

1.3.2 Built-in positive or negative high voltage output power supply.

The user can choose to configure the positive or negative high voltage output according to the needs.

1.3.3 The short-circuit current is large.

Not less than 30mA (this index far exceeds the traditional megohmmeter, direct short circuit or short circuit test voltage during measurement may cause instrument protection, special attention should be paid to safety)..

1.3.4 High load capacity

The current output of the high-voltage power supply is not less than 6 mA at the 5000V voltage level.

The high voltage power supply has a current output of not less than 3 mA at a voltage level of 10000V.

1.3.5 Rapid discharge

The instrument is equipped with an independent discharge circuit, and when testing capacitive test products, the instrument can automatically and quickly discharge the test products.

Note: In order to ensure safety, the test should still be shorted with a short-circuit rod after the measurement.

1.3.6 Multi-level security protection to ensure the safety of people and equipment

High voltage protection: short circuit, breakdown or high voltage current fluctuation of the test product, cutting off the output at high speed.

1.3.7 Chinese and English menus are optional, and large screen backlit LCD display

1.3.8 Optional thermal printer, print data clear, fast, noiseless

1.3.9 With USB interface.

1.3.10 With computer interface

Through this interface, measurement, data processing and report output are realized. One computer can control 32 instruments and can be integrated into the integrated high-voltage test vehicle.

1.4 Special Tips

1.4.1Security warnings

● Before use, read through and understand the operating instructions in the manual.

● **For the safety of operators and instruments, the instrument should be reliably grounded when used**.

● The instrument must be used as directed.

● Do not test in an unsuitable test type environment, and cannot exceed the rated voltage of the instrument and test line.

● Do not test in flammable places, sparks may cause explosion.

● Do not use when hands or instrument surfaces are wet.

● When testing the voltage, pay attention to avoid short circuit between the metal part and the test wire, which may lead to personal injury accidents.

● The maximum range allowed by the range cannot be exceeded when measuring.

● When the test wire is connected to the instrument, do not press the test switch.

● Do not touch the circuit under test during insulation measurement or immediately after the test is completed. This may result in electric shock.

● If the instrument is abnormal, please stop using it. For example: the instrument is broken or the metal part is exposed.

● Make sure that all test lines are firmly connected to the test port of the instrument.

● When replacing the battery, make sure the instrument is turned off.

● Do not expose to high temperature and humidity. Places where condensation is possible and placed in direct sunlight for a long time.

● When the instrument is wet, please dry it first and store it.

● Use a damp cloth or detergent to clean the instrument housing, do not use abrasives or solvents.

● This instrument can be used indoors and outdoors, but should avoid using in harsh environments such as rain and corrosive gases.

● The maintenance, care and adjustment of the instrument should be carried out by professionals.

● Understand and follow safe operating instructions. The above operating instructions must be strictly observed. Failure to comply may result in personal injury and instrument damage during measurement.

1.4.2 Power supply

This instrument provides two power supply modes, external adapter (180V~270VAC mains power or generator power supply), internal power supply for lithium battery. When the external power

supply is turned on, the instrument automatically selects the AC power supply mode for testing, and when no external adapter is connected, the instrument uses internal battery power supply.

1.5 Scope of supply

(1) Instrument host (2) Instruction manual and product certificate

(3) Special test cable (4) adapter and grounding wire

(5) See "Packing List" for details

2. **Panel description**

Description of the panel interface:

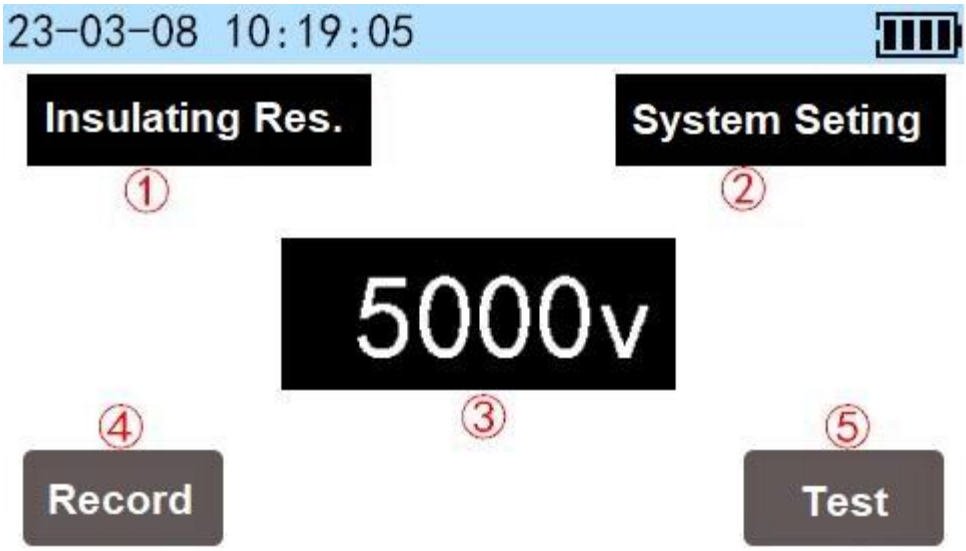
① **L** High voltage port (**LINE**).
② **G** shielded port (**GUARD).**
③ **E** Ground Port (**EARTH**).
④ Grounding post
⑤ Charger jack
⑥ Power switch
⑦ U disk interface
⑧ RS485 interface

3. **Operating instructions**

3.1 Menu

After turning on the main power switch, the power on screen is displayed first, and then the main test interface is displayed.

3.2 Select the insulation resistance measurement method



The cursor can now be moved ① ② ③ ④ ⑤

3.2.1 At ①, press ↑↓ to select "Insulation Resistance", "Absorption Ratio", "Polarization Index".

"Insulation resistance" means measuring insulation resistance. The measurement time is not limited, press the "Run/stop button" to stop.

"Absorption ratio" indicates the measured absorption ratio (DAR equal to the ratio of insulation resistance for 60 seconds to insulation resistance for 15 seconds R60S/R15S). The measurement time is 60 seconds, which cannot be adjusted.

"Polarization Index" indicates the measured polarization index (PI equal to the ratio of insulation resistance for 10 minutes to insulation resistance for 1 minute R10M/R60S). The measurement time is 600 seconds, which cannot be adjusted.

If the measurement process is artificially aborted (pressing a button or turning off the internal high voltage), the instrument displays the acquired data.

3.3.2 Select the high voltage output polarity

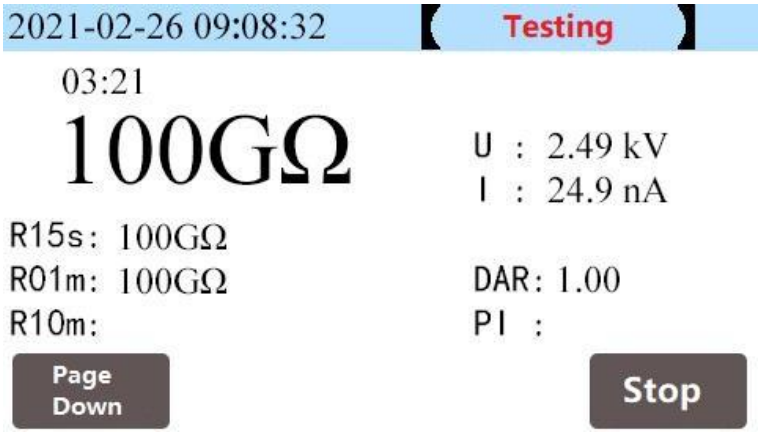
At ②，Press ↑↓ to select "System Settings/Parameter Settings".

3.3.3 Select the test voltage

At ④，Press the ↑↓ key to cycle through the test high voltage **"500V /1000V /2500V /5000 /10000V"**. The test high voltage should be selected according to the high voltage test procedure.

3.3.4 Start the measurement

At ⑦，Press "Run/Stop" for more than 1s to start the measurement and enter the test interface as shown below：



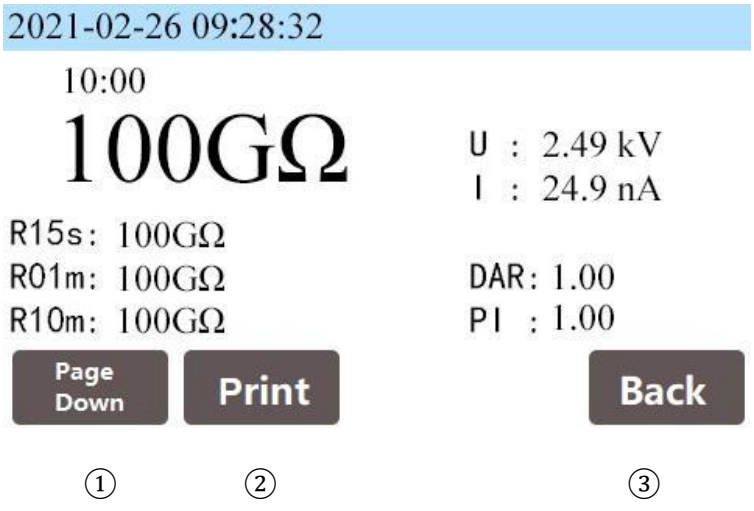
After starting the measurement, the instrument issues an audible and visual alarm and displays the measurement time. After the measurement, the instrument automatically depressurizes and discharges the test product, and displays the measurement data.

During the measurement, you can press "Run/stop" to stop the measurement, and immediately turn off the total power in case of emergency.

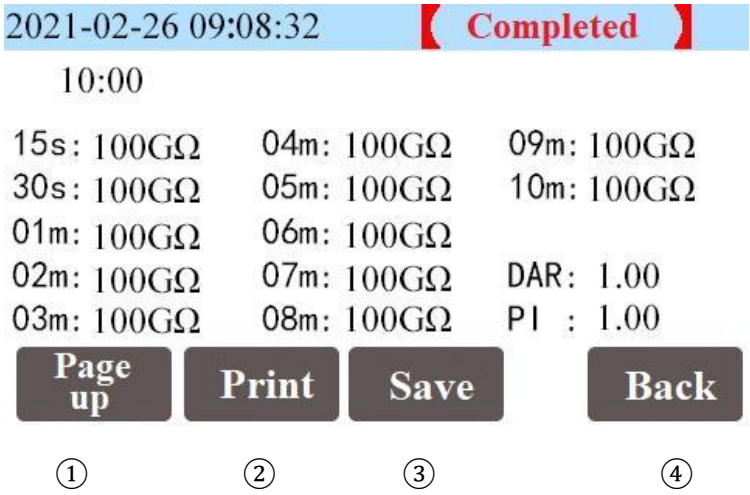
The test voltage is displayed during the measurement process, and the test product current is used for reference.

3.4 Complete testing.

After the test completed, enter the following figure：

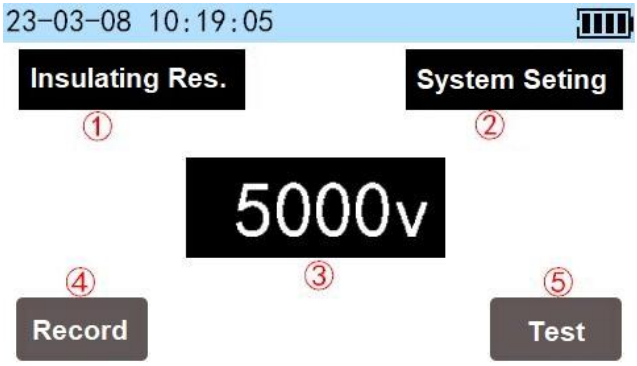


At ①,Press ↓ to enter the following interface.At ②,Press the "Enter" key to print.At ③Press the "Enter" key to return to the main menu.

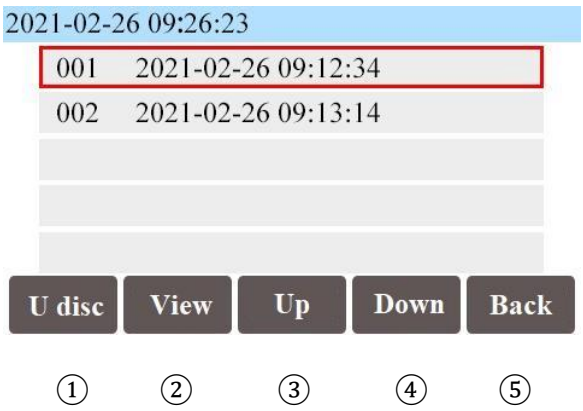


At ①,Press ↑ to enter the previous interface.At ②,Press the "Enter" key to print， At ③,Press the "Enter" key to save the test data results.At ④,Press the "Enter" key to return to the main menu.

3.5 View the datas



At ④,Press the "Enter" button to enter the following interface to save test data results.

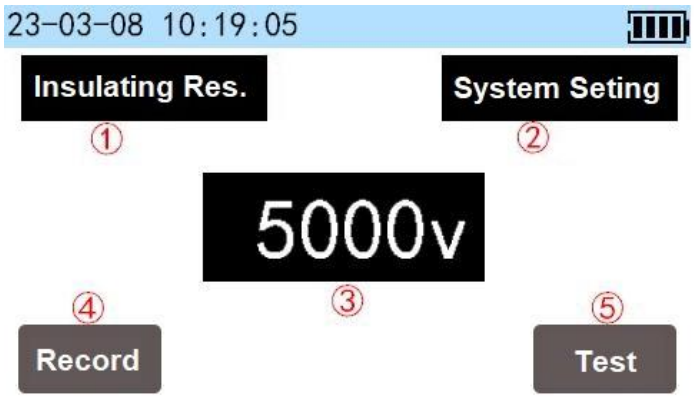


At ①， Press the "Enter" key to export the stored data to the USB flash drive.At ②， Press the "Enter" key to view the data stored in the current directory.At ③， Press the "↑" key to move the cursor to the previous storage directory.At ④， Press the "↓" key and the cursor moves to the next

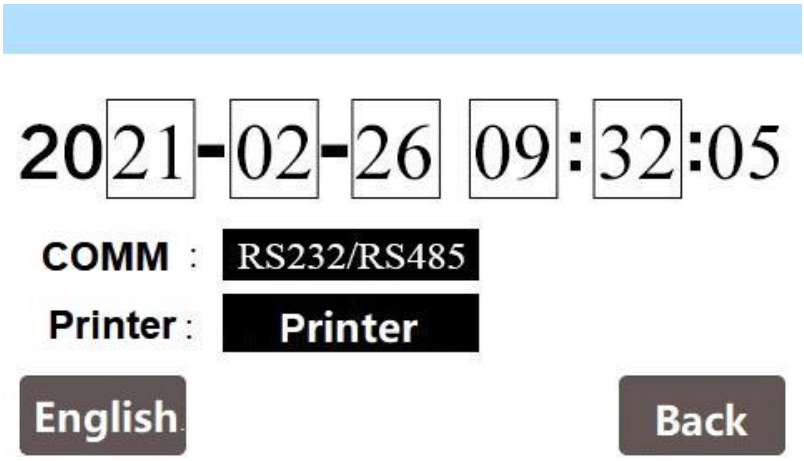
storage directory.

At ⑤,Press the "Enter" key to return to the main menu.

3.6 Set the date and switch between Chinese and English interfaces



cursor at ②,Press the "Enter" button to enter the date, Chinese and English switching setting interface

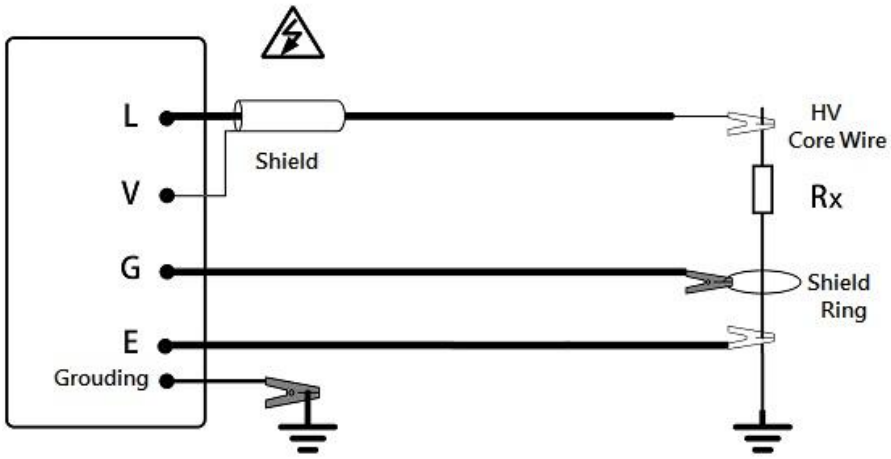


3.7 Insulation resistance test reference wiring

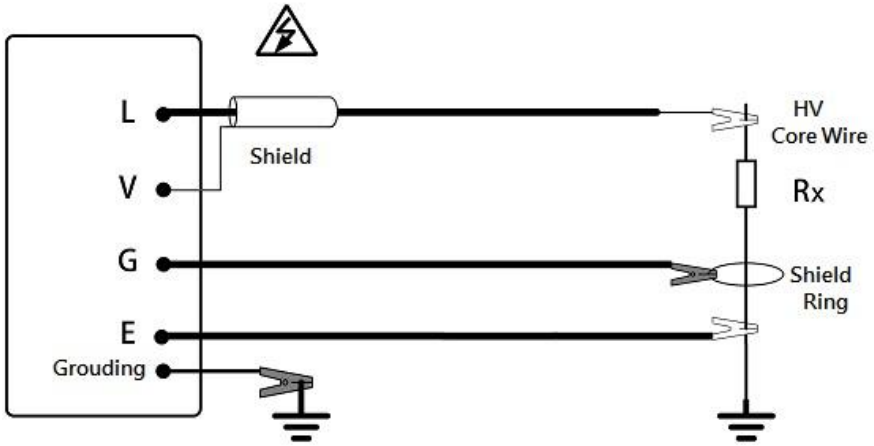
Insert one end of the red high-voltage test wire (red) into the L port, and the red clip at the other end is connected to the high-voltage end of the test. Plug one end of the black test wire into the E port, and connect the other end to the low-voltage end (housing) or ground of the test product. If the tested product needs to be shielded during testing, insert one end of the green test wire into the G port, and connect the other end to the shielding ring of the test product, which has eliminated the influence of leakage current on the surface of the test product.

Note: When wiring, pay special attention to the connection between the LINE test line (red) and the GUARD shielded wire (green), and do not short-circuit it.

3.7.1Non-grounded test objects：



3.7.2 Grounded test objects：



4. **Error messages and handling**

Error messages are displayed in the upper-right corner of the screen:

Serial number	Screen display	Illustrate	Causes and Treatment
1	RANGE ERROR！ Or: Input short circuit!	Range switching failure	The test product is short-circuited, please check the wiring of the test product.
2	Save-Data Error！ Or: Storage parameter error!	The internal parameters are wrong, there may be a hardware failure	Find a manufacturer technician to deal with
3	Er-Io	The output current of the high-voltage power supply is too large	The load of the test product is too heavy, please check whether the test product is short-circuited, Or lower the voltage and try again
4	Er-Pi	High voltage power supply hardware protection	Retry, if still unable to resume,ask the manufacturer's technician to deal.
5	Er-ZX	The output current of the high-voltage power supply fluctuates in the voltage	Check whether the high-voltage line and signal line of the test product are reliably connected,and whether the measurement settings are correct

5. **Field test considerations**

If the test data is obviously unreasonable in use, please find the cause from the following aspects：

5.1 Poor hook contact

When using a hook to connect the test product in on-site measurement, the hook must be in good contact with the test product, otherwise the discharge of the contact point will cause serious fluctuations in the data! Especially the oxide layer of the drainage line is too thick, or the wind blowing line swings, which is easy to cause poor contact.

5.2 Poor contact between the test line and the test product.

Poor contact between the test line and the test product can cause instrument protection or serious fluctuations in data. Paint and rust should be scraped off the contact points.

5.3 Excessive air humidity

Air humidity ambassador insulation resistance measurements are abnormally reduced and unstable, and shielding rings can be added if necessary.

5.5 The temperature varies greatly

The insulation resistance value test results are different at different temperatures.

5.6 Test line

Due to long-term use, it is easy to cause hidden circuit breaking of the test line, or short circuit of the core wire and shield, or poor contact of the plug, and the user should maintain the test line frequently.

5.7 Environmental interference

Different interference environments have an impact on the test results.

5.8 The impact of repeated testing

Repeated measurements of the same test product have a great impact on the test results.

6.After-sales service

The instrument is granted with free repair and replacement for problems arising from product quality within 2 years from the date of purchase, and lifetime warranty and technical services. For any abnormality or fault of the instrument, please contact us in time for the most convenient solution.