Dear Client,

Thank you for Purchasing our FC-2G Lightening Protection Components Tester. Please read the manual in detail prior to first use, which will help you operate the equipment skillfully.

Our aim is to continually improve and perfect the company's products, 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 in/pull out test line or power outlet, they will cause electric spark. PLEASE CAUTION RISK OF ELECTRIC SHOCK! To avoid risk of electric shock, be sure to follow the operating instructions!

◆ 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 personal injury and to prevent the product or any other attached products being damaged. In order to avoid possible danger, this product can only be used within the scope of the provision..

Only qualified technician can carry out maintenance or repair work.

--**To avoid fire hazard or personal injury**:

Use Proper Power Cord

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

Connect and Disconnect Correctly

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

Grounding

The product is grounded through the power cord; besides, the ground pole of the shell must be grounded. To prevent electric shock, the grounding conductor must be connected to earth ground.

Before making connections to the input or output terminals of the product, please do check that the product is properly grounded.

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 Wire and Charged Conductor

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

Do Not Operate with Suspicious Faults

If you encounter operating faults/suspect there is damage to this product, 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.

Contents

I. Performance characteristics

1. Applies to test the DC parameters of Oxide Zinc arrester (voltage dependent resistor), cermet second, third electrode discharge tube, vacuum lightning tube and others over voltage protection components. It also can be considered as regulated power supply and constant current power supply.

2. With HV short circuit protection, over current protection, high voltage preset, range adjustment functions, HV self discharge time less than 0.5 second.

3. With self calibration function.

4. LCD display, high precision, strong reliability.

5. Pre-set the measurement range when testing, there will be sound alarm if exceed the measurement range.

6. Choose continuous measurement can make continuous test for mass measured equipments.

7. Panel function is simple, easy to operate.

8. Light in weight, easy to carry.

II. Main technical parameters

1. Voltage dependent resistor measurement

Technical Specifications	Measurement range	Maximum error	Test Conditions
Voltage (U 1mA)	(0 ~ 1700)V	≤±2%±1d	1mA±5μA
Leakage current (I 0.75U 1mA)	(0.1 ~ 199.9) μA	±(2 μA +1d)	0.75 U1mA ≤±2%±1d

2. Discharge tube measurement

Technical Specifications	Measurement range	Maximum error	Test Conditions
DC breakdown voltage (V sdc)	(20 ~ 1700)V	≤±2%±1d	Rate of voltage rising 100V/S±10%

3. Voltage dependent resistor measurement

Insulating resistance: 6MΩ(500V)

Voltage withstand: AC 1.5kV 50HZ 1min

Working conditions:

Temperature: 0~+40°C humidity≤85%RH

Storage conditions:

Temperature:-10°C~+50°C humidity≤90%RH

Power supply: AC220V 50Hz

DC 12V 0.5A (core +pole)

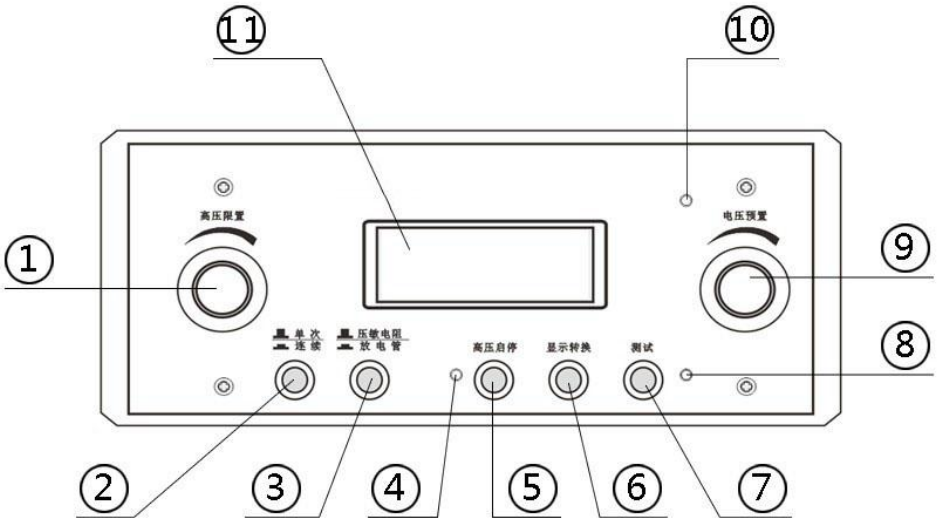
Power consumption: 8W

Dimension: 208x190x78mm

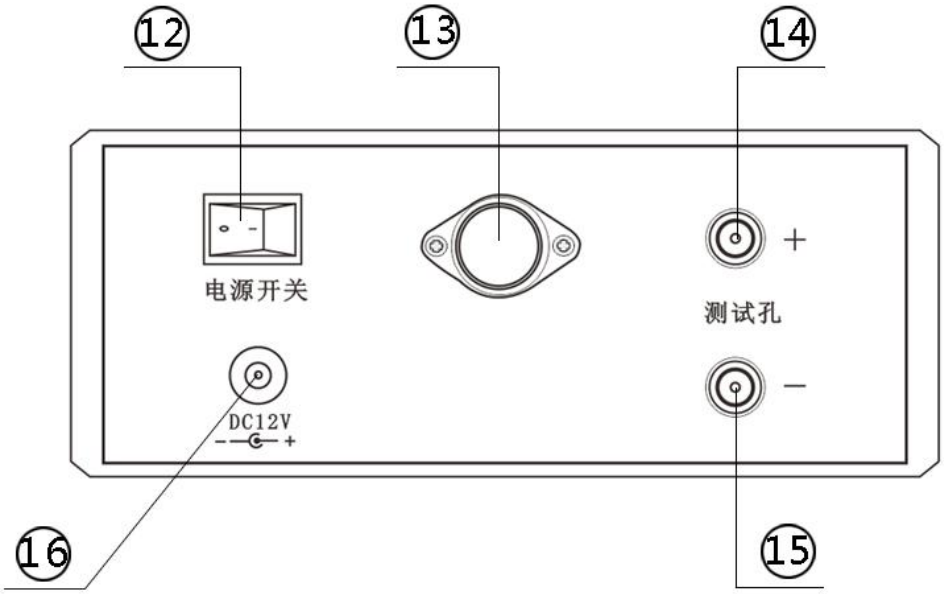
Weight: ≤1kg

III. Control panel

1. HV limited knob
2. Single / Continuous switch
3. Varistor/discharge tube
4. HV indicator
5. HV start-stop button
6. Conversion button
7. Test button
8. Test indicator
9. Voltage preset
10. Buzzer
11. Display
12. Power switch
13. Voltage regulator tube
14. Wire connecting terminal +
15. Wire connecting terminal -
16. Power outlet



Front panel diagram



Rear panel diagram

IV. Operation instructions

4.1. Power supply

There is an external power jack in the rear panel, let DC 12V power supply insert into this power jack, core wire contact to "+" pole. User-supplied power cord should pay attention to the polarity and diameter.

4.2. Preparation

4.2.1 Set the all the self-locking key switch of instrument panel to high position, adjust the " HV limit " knob clockwise to the end (maximum) and "voltage preset " knob counterclockwise to the end (minimum) . All test lines be inserted into the panel "+" " - ". The external power supply appropriate access to power socket of backplane.

4.2.2 Turn on the power switch; if the instrument displays "000", it indicates that the instrument is normal. Otherwise it is not working properly, please contact the after sales.

4.33. Test

4.3.1 Varistor test

Turn “Varistor/discharge tube” to “Varistor”, “Single / Continuous” to “Single”, connect with the measured product according 4.2.1.

Press “HV start/stop button”, start the HV and press “test”, the LCD display the breakdown voltage （U1mA）of the measured varistor, unit is “V”, after 2 seconds the LCD auto display leakage current (I0.75U1mA), unit is “μA”, the green indicator will be on when the leakage current shown on the LCD, after 2 seconds it auto disappear.

4.3.2 Discharge tube test

4.3.2.1 General method (Recommended)

Turn “Varistor/discharge tube” to “discharge tube”, “Single / Continuous” to “Single”, connect with the measured product according 4.2.1.

Press “HV start/stop button”, start the HV and press “test”, the measurement voltage self boost in speed of 100V/S from the presetting value, until the green indicator on. At this time the voltage on the LCD is the ignition voltage of the measured discharging tube.

4.3.2.2 Screening method

(a) Turn “Varistor/discharge tube” to “discharge tube”, “Single / Continuous” to “Single”, adjust the "voltage preset" knob clockwise to the end (maximum). Press “HV start/stop button”, start the HV and press “test”, HV indicator will be on, the LCD display the maximum output voltage of the instrument. Adjust “HV

limit” to the required value (the upper range value), then adjust the "voltage preset" to the required voltage (the lower range value).

(b)Insert test wire to the measured discharging tube, press “HV start/stop”, if the buzzer sounds, it indicates the ignition voltage Vsdc of the measured discharging tube is less than “voltage preset” value. At this time, should turn off the HV promptly, disconnect the measured product, otherwise the ignition will be repeated. If the buzzer not sounds, it indicates the ignition voltage Vsdc of the measured discharging tube is more than “voltage preset” value, can press “test” to continue.

(c)After press “test”, the measurement voltage self boost in speed of 100V/S from the presetting value, until the green indicator on:

(1) If the buzzer not sounds, the LCD displays the ignition voltage of the measured discharging tube within measurement range.

(2) If the buzzer not sounds, the LCD displays the upper value of the measurement range. At this time the ignition voltage more than the upper value of the measurement range and without ignition, then need raise the “range upper value”, retest.

Green indicator is lit and the display value generated synchronously (the buzzer will sound if over range) duration of about 2 seconds then disappear, followed by return to the preset state.

Removed measured the discharge tube during the green indicator light has been, preset voltage is restored and then access the next test measured discharge tube.

4.3.3 Continuous measurement

Turn ““Single / Continuous”” to “continuous” can do continuous test.

4.4 Self test and others

(a) Varistor 1mA test

Choose varistor test, start HV, adjust voltage preset value more than 10V, short circuit “+” ”-”, the LCD displays “000”, long press “conversion”, it should display “1000”, if the displayed value difference is too large, the instrument with

problem , please contact after sales .

(b) Varistor 0.75U1mA test

Measurement end open circuit, press “test” button, the LCD displays the upper value of measurement range, press “conversion” when the green indicator on, it shows the 0.75 times of the upper value of the measurement range.

(c) Long press “conversion” during the test: U1mA test, it shows the value in the test conditions 1mA (1000μA); I0.75U1mA test, it shows the value in the test conditions I0.75U1mA.

Others, it can be considered as 1999V/1mA 1mA DC power source and 1mA constant current source (the instrument constant output 1mA test current if the load current up to 1mA) using voltage preset and measurement range adjust functions, used in conjunction with the "Display Convert" button, can test load voltage, current (V/I feature) value.

4.5 When the test is completed, press the "start/stop" to off the test voltage, turn off the power switch. If using an external DC 12V power supply the power cord should be removed.

V. Notes

1. The instrument is equipped with range (measuring range) adjustment function.

Preset voltage adjustment range: 0V ~ 1700V

Range voltage adjustment range: 100V ~ 1700V

Range setting or test value exceeds 1999V, display overflow signal "1."

2. The preset voltage value of discharge tube is the lower limit value of test range, also called initial value of 100V / S rate rising voltage. The preset voltage of varistor test is only used as the lower range value; the lower limit of actual test range is always starting from 0V.

3. When set the preset voltage, the value should be lower than the upper limit of voltage range. Otherwise, test voltage will be in upper limit control state of voltage range. When test discharge tube, testing indicator will be lighted

repeatedly with over range beeping sounds. In this case, reduce the preset voltage to let high voltage locate in preset state.

4. The test voltage is up to 1700V, please keep panels, test lines and desktop clean and dry, so as to avoid test errors caused by leakage currents, arcing, and corona.

5. The operator shall take necessary HV protection to avoid high electrical injury.

VI. Packing List

1. Instrument host	1
2. Test lead	1 set
3. Test probes	1 set
4. Power supply	1
5. Aluminum alloy case	2
6. The instruction manual	1
7. Inspection report	1
8. Certificate	1