

# **ZXFC Lightning Protection Devices Tester**



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## I Product Functions and Features

1. This instrument is applied to test the DC parameters of Oxide Zinc voltage dependent resistor ( varistor / MOV), ceramic 2/3-electrode surge arrester, gas discharge tube and other Surge Protective Devices. It also can be used as stable power source or constant current power supply.
- 2 HV short circuit protection, over current protection, high voltage preset, range adjustment and other functions. High voltage self discharge time is less than 0.5 seconds.
3. Self inspection function.
4. Three and a half digits display, high accuracy and good reliability.
5. Audible alarm for over range during the measurement after presetting
6. Continuous measurement can be used for batch testings
7. Simple panel, easy operation, light weight, easy carrying

## II Technique Parameters

### 1. MOV measurement

Technique parameter	range	error	condition
Initial action voltage:U <sub>1mA</sub>	0~1999V	≤±1%±1d	1mA±5μA
Leakage current:0.75U <sub>1mA</sub>	0~199.9μA	≤±1μA±1d	0.75U <sub>1mA</sub> ≤±1%±1d

### 2. SPD measurement

Technique parameter	Range	error	Condition
DC breakdown voltage V <sub>sd</sub>	75~1999v	≤±1%±1d	Voltage rise speed:100V/S±10%

### 3. Others

Insulation resistance: 6MΩ(500V)

Withstand voltage: AC 1.5kV 50HZ 1min

Working temperature and humidity: 0~+40℃ ≤85%RH

Storage temperature and humidity: -10℃~+50℃ ≤90%RH

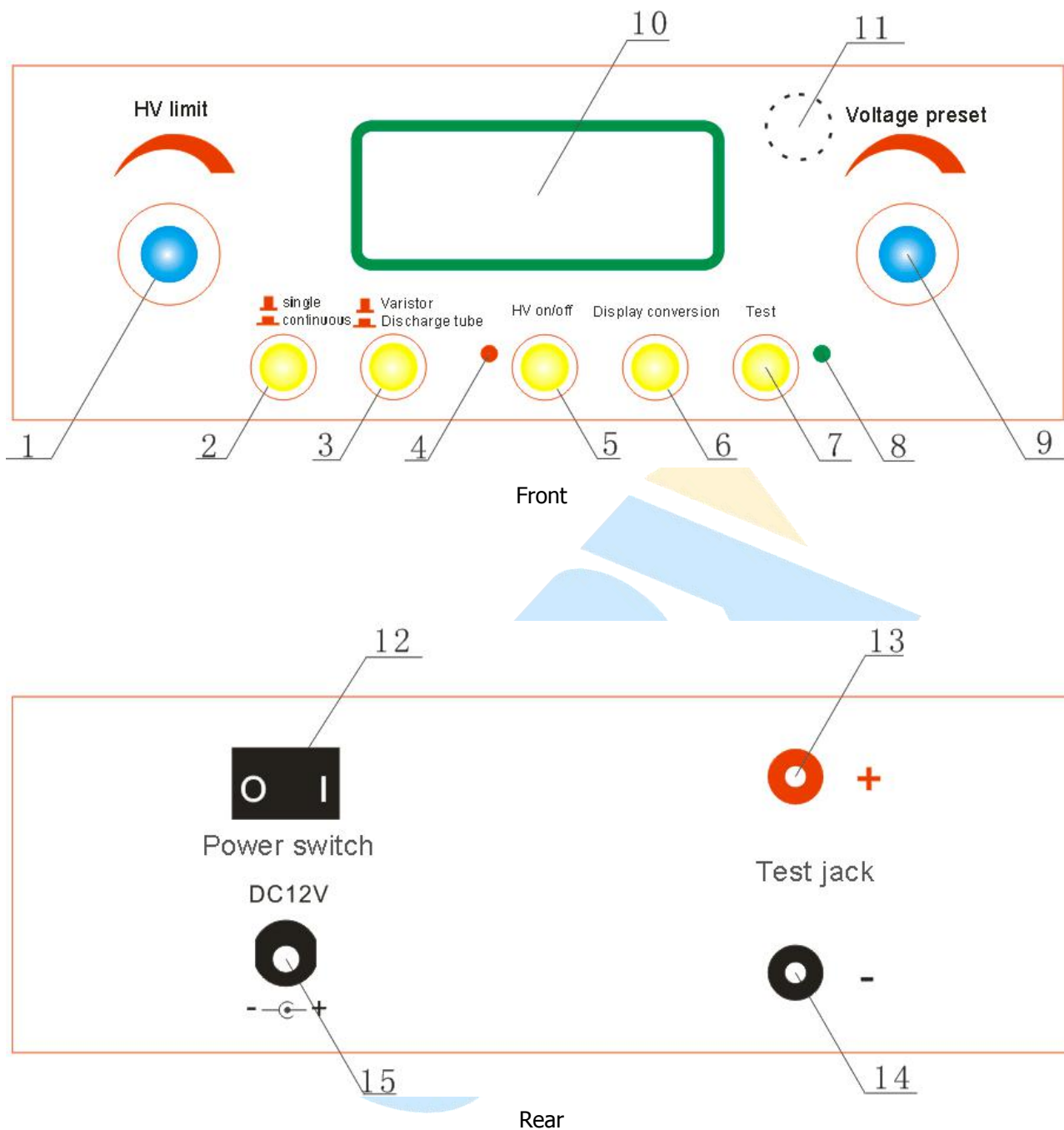
Power supply: AC 220V 50Hz/DC12V

Consumption: 8W

Instrument size: 208mm×190mm×78mm

Net Weight: 1.5kg

**III Panel**



- |                        |                         |                      |
|------------------------|-------------------------|----------------------|
| 1. HV limit            | 2.Single/Continuous     | 3.MOV/SPD            |
| 4. HV indicating light | 5.HV on/off             | 6.Display conversion |
| 7. Test                | 8.Testing light         | 9.Voltage preset     |
| 10.Screen              | 11.Buzzer               | 12.power switch      |
| 13.Test terminal(red)  | 14.Test terminal(black) | 15.Power socket      |

#### IV. Operation Method

##### 1. preparation

1) Turn "HV limit" knob clockwise to the end (maximum) and the "voltage preset" counterclockwise to the end (minimum). Insert the test lines into the panel "+" and "-" respectively. Connect the external power source to the back panel corresponding power socket.

2) Turn on the power switch. If the instrument display "000", it means the instrument is working well, otherwise, it is abnormal. Please contact the sales personnel promptly.

##### 2. Test

###### 1) test of varistor/MOV

Turn "varistor / discharge tube" to Varistor (Top) side, "single / continuous" to single(top)end, connect to the testing object, Press "HV on/off" key and press "test" button. The screen immediately displays the breakdown voltage of the measured varistor (U<sub>1mA</sub>), the unit is "V". After about 2 seconds, automatically displays the leakage current (I 0.75U<sub>1mA</sub>), the unit is  $\mu\text{A}$ , and the green indicating light in on along with the leakage current display, lasting about 2 seconds.

###### 2) Gas Discharge tube test

###### (1) routine methods (recommended)

Select "varistor / discharge tube" and "single / continuous" to lower side, connect to the testing sample after made the preparation mentioned above.

Press "HV on/off" key and "test" key, the test voltage rises from the voltage preset value at the rate of 100V/s, when the green indicator lights up, the screen displays the voltage which is the ignition voltage of the tube.

###### (2) screening method

Turn "varistor / discharge tube" to low position (discharge tube), "single / continuous" to top position (single), clockwise "voltage preset" knob to the end (maximum). Press "HV on/off" knob to the required value (the upper limit of the test range). Then adjust the "voltage preset" knob to select the voltage value (the lower limit of the test range).

Connect the test line into testing tube, press "HV on/off" , If the buzzer sends out a sound warning, the V<sub>sd</sub> value of the ignition voltage of the measured discharge tube is less than the "voltage preset" value (the lower limit of the super range). At this point, the high voltage should be shut down and the tested product should be removed in time. Otherwise, the ignition will be repeated. If the buzzer does not alarm, it means that the value of the ignition voltage V<sub>sd</sub> of the measured discharge tube is greater than the voltage preset. You can click "test" to continue the next steps.

After clicking the "test" button, the test voltage starts at the rate of 100V/s and step up from the voltage preset value. After the green light is on:

If the buzzer does not alarm, the display is the ignition voltage of measured discharge tube in the measurement range.

If the buzzer alarms, the display is the upper limit of the measurement range. At this time, the ignition voltage  $V_{sd}$  value of the tested product is greater than the upper limit of the measurement range (upper limit range) and no ignition. Increase the "upper limit of test range" and repeat the test again.

The green indicator lighting up time along with the value display lasts for about 2 seconds, and then revert to the preset state.

When the green indicator light is on, remove the measured discharge tube and wait the preset voltage is restored then make the next test.

Continuous measurement

Turn **single / continuous** to low position to start continuous measurements

Self-check and others

A) Varistor/MOV 1mA value test

Select **varistor / discharge tube** to **varistor**, open high voltage, preset voltage to above 10V, short circuit "+" "-" ends, display should be "000", long press "display conversion" key, display should be "1000", otherwise it indicates the instrument has problems, please contact the after sale personnel in time.

B) examination of the 0.75U1mA value of the varistor test

Make the test ends open circuited and press test key, the display screen should show the upper limit of the range. When the green light is on, press "display conversion" key, the display should be 0.75 times of the upper limit of the range.

C) in the process of testing, long press "display conversion" to display the value under 1mA (1000uA) test condition during U1mA measurement, or the value of 0.75U1mA test condition during I0.75U1mA measurement.

Others

Use voltage preset and range adjustment function the instrument can be used as 1999V/1mA DC stabilized power supply and 1mA constant current source (the instrument constant output 1mA test current when the load current reaches 1mA). With the use of "display conversion" key, the value of load voltage and current (V/I characteristics) can be measured.

3. completion of the test

Click "HV on/off" button to turn off the test voltage, turn off the power switch. When using external DC 12V DC power supply, the power cord should be removed.

## V Precautions

1. This machine has range (test scope) adjustment function. during the use, the test voltage should be as low as possible to reduce energy consumption, prolong the life of the instrument, the test time can be reduced with higher efficiency. It can also be used for group selection. The user should make full use of this reasonable function.

Preset voltage regulation range: 0V ~ 1800V

Range of range scope: 100V ~ 1999V

When range setting or test value exceeds 1999V, display displays signal "1"

Note: the actual output 1999V

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

3. The preset voltage setting should be lower than the upper limit voltage. Otherwise, the test voltage will be limited in the range/upper limit, in the discharge tube test, the test indicator will be repeatedly lit and accompanied by over range sound prompts. At this time, lower the preset voltage.

4. The test voltage of this machine is as high as 1900V, keep the panel and work table clean and dry to avoid the error caused by leakage of current, arc and corona.

5. Use 2P3W supply socket, well grounded.

6. The operator should take the necessary HV protection measures to avoid electrical injury.

## VI After sale service

Customers who purchase the equipment of the company enjoy the following after-sales service:

Within one month from the date of delivery, any quality problem our company will replace free, but the user can not disassemble the machine by himself.

The quality problem is free of charge in our company within one year.

The instrument has been used for more than one year. Our company is responsible for long-term maintenance and appropriate charge for materials.

If the instrument fails, turn to full-time maintenance personnel or send it back to our company for repair. Do not open the instrument without advice. Otherwise our company will not be responsible for the damage.

### VII Packing list

1. Main tester	1 pcs
2. Test lines	1 set
3. test clips	2 pcs
4. special power supply	1 pcs
5. Manual	1 copy
6. Inspection reports	1 copy
7. Warranty card	1 pcs
8. Carrying box	1 pcs

