ZGF Series DC Hipot Tester

Dear Client,

Thank you for Purchasing our ZGF Series DC Hipot Tester. Please read the manual in detail prior to first use, which will help you use the equipment skillfully.

Our aim is to improve and perfect the company's products continually, 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/draw the test wire or power outlet, they will cause electric spark. PLEASE CAUTION RISK OF ELECTRICAL SHOCK!

◆ 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 body injury and prevent the product or other relevant subassembly to damage. In order to avoid possible danger, this product can only be used within the prescribed scope.

Only qualified technician can carry out maintenance or repair work.

--To avoid fire and personal injury:

Use Proper Power Cord

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

Connect and Disconnect Correctly

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

Grounding

The product is grounded through the power wire; besides, the ground pole of the shell must be grounded. To prevent electric

shock, the grounding conductor must be connected to the ground.

Make sure the product has been grounded correctly before connecting with the input/output port.

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 Circuit and Charged Metal

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

Do Not Operate with Suspicious Failures

If you encounter operating failure, 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. Product introduction

This product adopts new technique , new material and new component with features of high output power, small volume, light weight, etc. And it is with the function of stable over-voltage ,over-current, zero position switching protection, 0.75 times voltage latch function , equipped with time relay, can set audio alarm when testing. The whole device is reliable , easy to operate and carry, especially applies to the power department field tests.

Ⅱ. Technique parameters and service conditions

1.technique parameters

- power：AC220V±10%，50Hz±1%
- Indication accuracy of output voltage：<1
- Indication accuracy of output current：<1
- Ripple factor：≤0.5%
- 0.75 times output voltage indication accuracy:<1，with latch function

2. service conditions

- Relative humidity：less than 85% under 25℃, without moisture
- working：discontinuously work for 30 minutes
- temperature：- 10～40℃
- altitude<1500m

3. protection

- internal over-voltage and over-current protection
- external over-voltage (protection voltage can be set) , over-current and breakdown protection
- internal power protection
- if it is not zero position, start protection
- timed audio alarm

item / model	Rated output DC voltage（kV）	Rated output DC current（mA）	Rated output power（W）	Over-voltage setting range（kV）	Weight（kg）	Voltage doubling device height（m）
60	60	2	120	22KV----60KV	16	0.5
	60	5	300			0.5
	60	10	600			0.5
120	120	2	240	42KV---120KV	20	0.8
	120	5	600			0.8
	120	10	1200			0.8
200	200	2	400	72KV---200KV	26	1.2
	200	3	600			1.2
	200	4	800			1.2
300	300	2	600	100KV---300KV	31	1.7
	300	5	1500			1.7
	300	10	3000			1.7
400	400	2	800	120KV---400KV	32	1.7
	400	3	1200			1.7
	400	5	2000			1.7

Ⅲ. Functional block diagram

This product uses new electronic technology, adopts advanced PWM modulation technique and high power MOSFET components, formed by intermediate frequency voltage doubling device commutation. It is with features: small ripple factor, stable and reliable output, small volume, light weight, and with reliable and sensitive internal protection functions, its principle shown as figure 1.

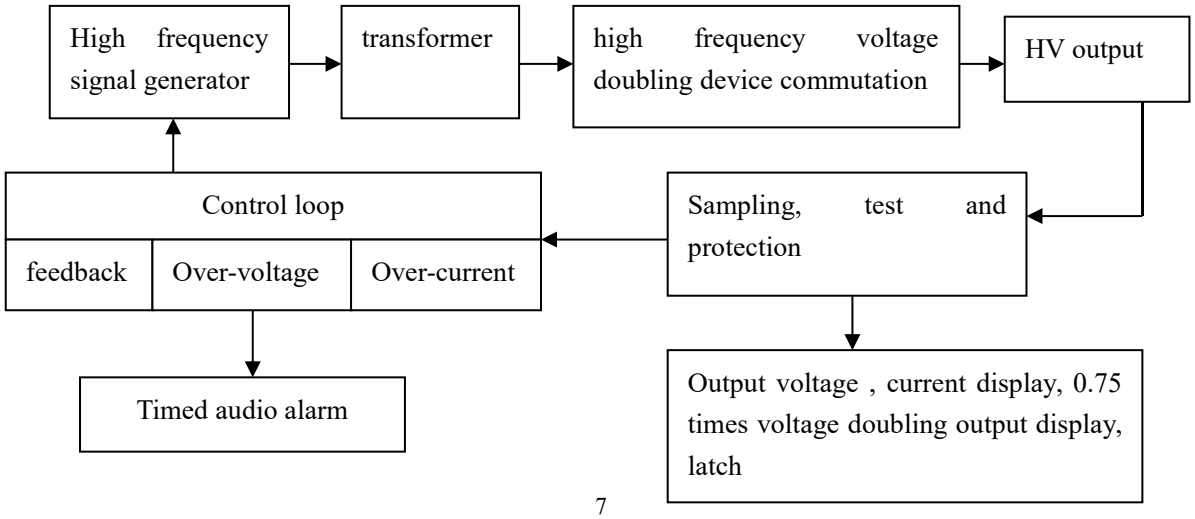


Figure 1. Functional block diagram

Ⅳ. Panel layout

1. this product is composed by operation cabinet and voltage doubling device, its panel shown as figure 2.

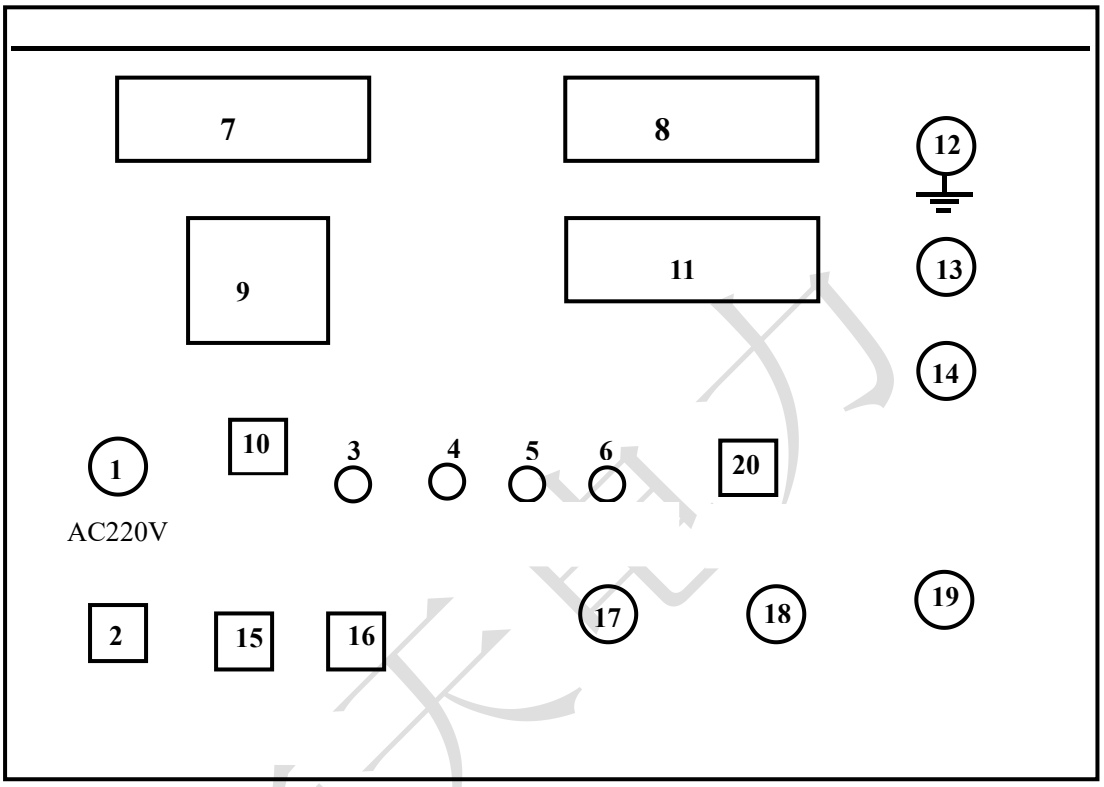


Figure 2. panel layout

1. power plug
2. power switch
3. power indicator
4. "zero" indicator
5. "over voltage" indicator
6. "over current" indicator
7. ammeter
8. voltmeter
9. time relay
10. "timer" on button
11. 0.75 times output voltage indicator
12. ground terminal
13. signal output plug
14. measurement input plug
15. "start" button
16. "stop" button
17. "voltage setting" knob
18. "voltage wide adjust" knob
19. "voltage fine adjust" knob
20. "0.75 times voltage latch" button

Ⅴ. Voltage doubling device instruction

1.top cap

2. equalizing ring

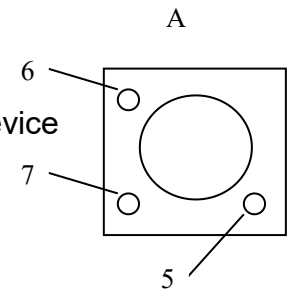
3.voltage doubling device

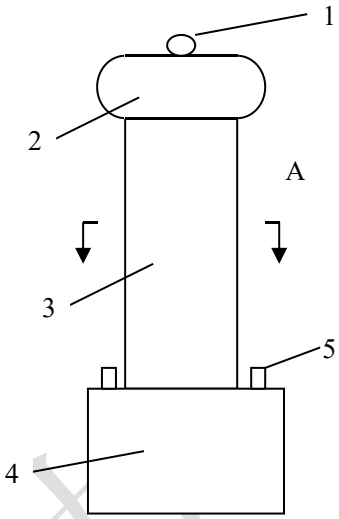
4.case

5.ground terminal

5.signal input outlet

6.measurement input outlet





VI. Method and procedure

1.prepare

Connect the plug 13 and 14 of operation cabinet with the voltage doubling device special cable outlet. Check if it is in good condition before using , and there should not be short circuit or open circuit; there should not be moist on the voltage doubling device; connect the operation cabinet ground terminal with the voltage doubling device using 25mm2 and they should be well grounded.

2.install the water resistor

(1)unscrew one end which with the stoma of the water resistor, inject at lest the 2/3 of the conductive rod with water, the end with the stoma should be on top.

(2) poured the water away after finished the test, re-inject before new test.

3.calibrate the voltage setting

(1)plug in the power, turn on the "power " button 2 of the operation cabinet. The voltmeter 8 ammeter 7 , and 0.75 times voltmeter 11 will show “0”.

(2)clockwise turn the voltage setting knob 17 to the end, voltage wide adjust knob 18 and voltage fine adjust knob 19 counter clockwise turn to “0”, zero position indicator 4 will light on.

(3)gently press the “start” button 15 , “power indicator” 3 (red) will light on. If press the15 , the red indicator is dark, it indicates that the fine or wide adjust potentiometer is not at zero position, counter clockwise adjust the 18 and 19 to “0”, the 3 will light on.

(4) counter clockwise adjust the 18 , when the voltage near your required value, adjust the 19 to your required value, here the unit for voltage is kV, the current unit is mA.

(5)counter clockwise adjust voltage setting knob 17 , turn off the HV, then the 3 will be dark, “over-voltage” indicator 5 will light on. This indicates that the device set according the required output voltage, it means that the device auto cut off the high voltage when the output voltage up to the required value, start the over-voltage protection. If do not adjust the voltage setting knob, the voltage only can boost to the setting value for each test. If need boost the voltage to the rated value, must clockwise adjust the voltage setting knob to maximum value.

4.test

(1)connect the tested equipment between the HV output terminal and ground anchor.

(2)power on the 2, gently press 15 , the 3 will light on, slowly adjust the 18 and 19 to begin the test. The 8 will show the measurement voltage, unit : kV; the 11 show the 75% of the measurement voltage, unit : kV; 7 show the measurement current, unit : mA.

(3) press the 20 during the test, then the value shown in 11 will be locked, keep the display value, this can be the reference voltage when testing the Zinc Oxide arrester.

(4)press the 10 at any time, then start time relay 9 , when achieve the setting time, the buzzer will alarm.

(5) if the load current is more than 0-10% of the rated output current, the 6 will light on, start the over-current protection to prevent the device and the equipment be damaged.

(6)when the test finished, counter clockwise adjust the 18 and 19 to “0”, the 8 will slowly back to “0”, the 4 will light on. When the value of the three meters are all “0”, gently press 16 , then the 3 will be dark, then power off the 2 .

If the measured equipment with high capacitance, after the voltage fine adjust and wide adjust back to “0”, but the voltmeter can not back to “0”, first press “stop” button 16 , then shut down. Then discharge for the equipment using the discharging rod, disconnect the wires at last.

VII. Fault and resolution

No	phenomena	reasons	resolutions
1	Power indicator is dark, each meter without display when powered on.	Power is not well connected; fuse is disconnected.	Check the inlet power; replace the fuse.
2	The “start” indicator of the operation cabinet is on but without output voltage.	Signal output cable is not well contacted or with short circuit or open circuit.	Check if the cable was well ground connected or if with short circuit or open circuit.
3	If can boosting but voltmeter or ammeter without display after starting up.	Measurement input cable is not well contacted or with short circuit or open circuit.	Check if the cable was well ground connected or if with short circuit or open

			circuit.
4	The switch can not be closed.	1) The fine or wide adjust potentiometer is not at zero position or broken. 2) The last operation with over-voltage or over-current	1)Adjust the fine or wide adjust potentiometer to zero position or replace 2)power off the power on.

Special notes：

1.in cable withstand test, the procedure of voltage boosting and voltage deducing should be slow and uniform, and there should be with protecting water resistor at the HV output terminal, or else, the inverse voltage will damage the device.

2. when testing the device should be well grounded, you should choose ground network or ground anchor, you can not begin the test without grounded.

VIII. Packing list

1.operation cabinet and voltage doubling device	1
2. high voltage cable	2
3. discharging rod	1
4. water resistor	1
5. power cord	1
6. ammeter	1
7.fuse	2
8.instruction manual	1
9.certificate	1