

**GDYD-53D**

# **AC Hipot Test Set**

**AC 3kVA/50kV**

## **User's Guide**





## **Caution**

- The following instructions are used by qualified person to avoid electrical shock. Do not perform any service beyond operation instructions unless you are qualified to do so.
- When plugging in or out cable, please be careful to avoid electric shock as the input and output terminals may cause discharge sparks.
- Don't operate this device in flammable and moist environment. Keep the surface clean and dry.
- Connect cables correctly. Connect the device to ground first and then connect other cables.
- Test operator should keep safe distance from high voltage electrified apparatus. Don't touch exposed contacts and apparatus when test item electrified.
- The velocity should be uniform in the process of boosting and reducing voltage.
- Turn off power when test finished, or persons left the test area.
- Please make sure the equipment is upright before opening. Don't drop equipment heavily avoid equipment movement damage.
- Place the equipment in dry, clean, ventilated area free from corrosive gas. Stacking equipment without transit containers is dangerous.
- Panel should be upright during storage. Elevate stored items to protect from moisture.

## ***Warranty***

The warranty period for this series is one year from the date of shipment. Please refer to your invoice or shipping documents to determine appropriate warranty dates. HV Hipot corporation warrants to the original purchaser that this product will be free from defects in material and workmanship under normal use. Throughout the warranty period, provide that such defects are not determined by HV Hipot Co. to have been caused by abuse, misuse, alteration, improper installation, neglect, or adverse environmental condition, HV Hipot Co. is limited solely to repair or replacement of this instrument during the warranty period.

## ***Packing List***

Control Unit	1 piece
Dry type testing transformer (HV unit)	1 piece
Power cord	1 piece
Metering cable	1 piece
Output cable	1 piece
HV cable	1 piece
Ground cable	1 piece
User's guide	1 copy
Factory test report	1 copy

HV Hipot Electric Co., Ltd. has strictly and carefully proofread the manual, but we cannot guarantee that there are no errors and omissions completely in the manual.

HV Hipot Electric Co., Ltd. is committed to making continuous improvement in product functions, and improving service quality, so the company remains the right to change any products and software programs described in this manual as well as the content of this manual without prior notice.

## I. General information

GDYD series AC Hipot Test Set is composed of manual control unit and AC Dry testing transformer (HV unit) which output AC voltage smoothly. Meanwhile, it has many monitoring and protection functions.

## II. Features

- Digital display meters mounted on the panel.
- Monitoring HV side voltage, HV side current, LV side current and indicator of zero, power, working start, timing.
- Over-current protection, zero-starting protection, sound, and light alarm.
- With new type time relay, time rang is wider (1S ~ 99H).
- Using the latest current relay, more accurate and reliable.
- Light weight, small size, easy to move.

## III. Specifications

### A. Control unit specifications

- Power: AC240V, 50Hz
- Capacity: 3kVA
- Output voltage: AC 0-250V
- Rated output current: 15A
- HV voltmeter range: 0-50kV  
Accuracy: 1.5% of the reading $\pm$ 1digit (F.S)
- HV ammeter range: 0-60mA  
Accuracy: 1.5% of the reading $\pm$ 1 digit (F.S)
- LV ammeter range: 0-20A  
Accuracy: 2.0% of the reading $\pm$ 1 digit (F.S)
- Timing range:1s-99h
- Weight: 17kg
- Dimension: 440mm (L)\*340mm (W)\*240mm (H)

### B. Testing transformer (HV unit) specifications

- Input voltage: 0-200V
- Input current: AC 0-15A
- Output voltage: AC 0-50kV

- Output current: AC 0-60mA
- Capacity: 3kVA
- HV side/LV side turns ratio: 250:1
- Measuring voltage: AC 0-100V  
Accuracy: 1.0% of the reading $\pm$ 1 digit (F.S)
- No-load current: <10%
- Impedance voltage: <10%
- Weight: 28kg
- Dimension: 265mm(L)\*325mm(W)\*550mm(H)

### **C. Working conditions**

- Working place: No gas, steam, chemical dust, and explosive and corrosive medium which will influence insulation.
- Environment temperature: -20-50°C  
Environment humidity:  $\leq$ 85% RH (no condensing)

## **IV. Operation**

The device is composed of control unit and AC dry testing transformer (HV unit). The control unit include voltage regulator, measuring, display, alarm, control, and protection parts.

### **A. GDYD system working principle**

The control unit includes voltage regulator and circuit of control, protection, measuring, signal. The power supply is industrial frequency 240V. It outputs voltage to primary winding of AC dry testing transformer by adjusting voltage regulator. Required testing voltage will be obtained according to electromagnetic induction principle.

See below Figure 1 of working principle.

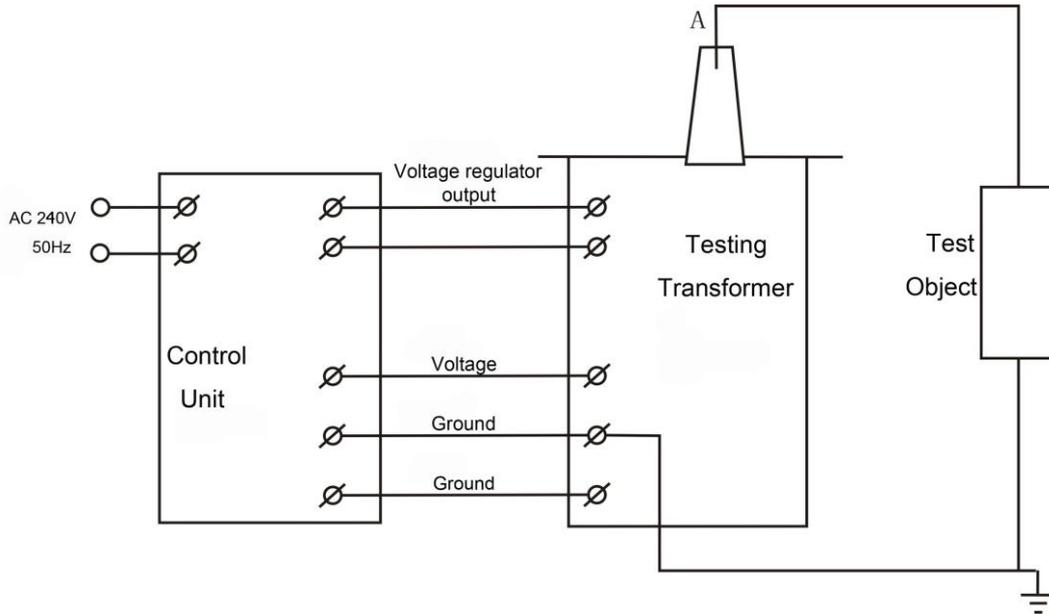


Figure 1

**B. Panel instruction**

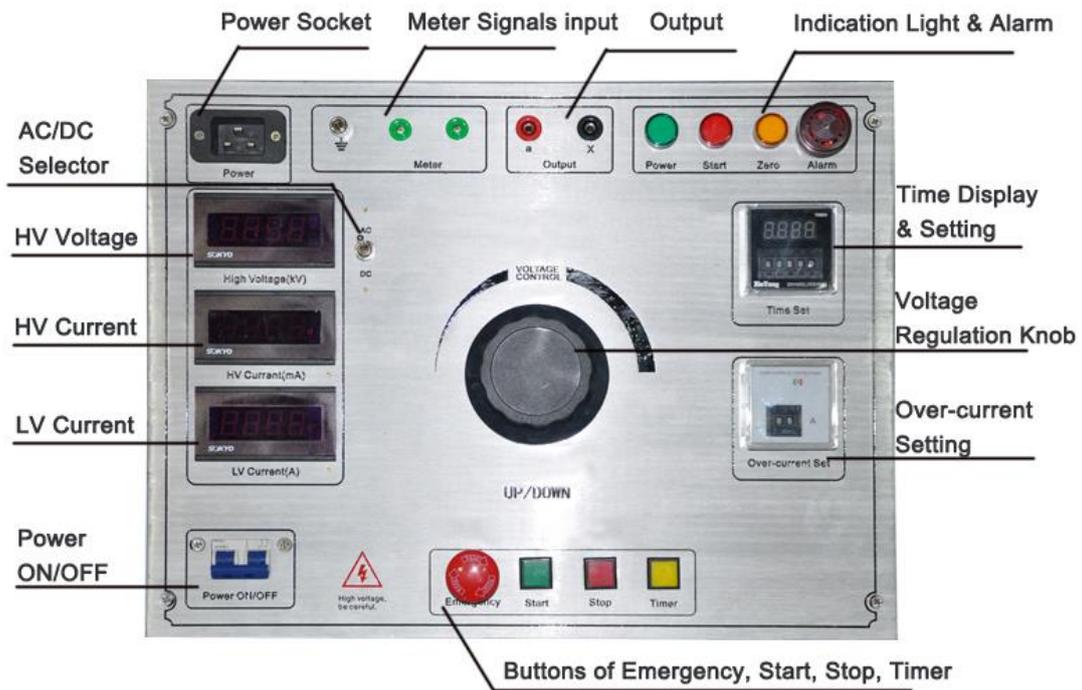
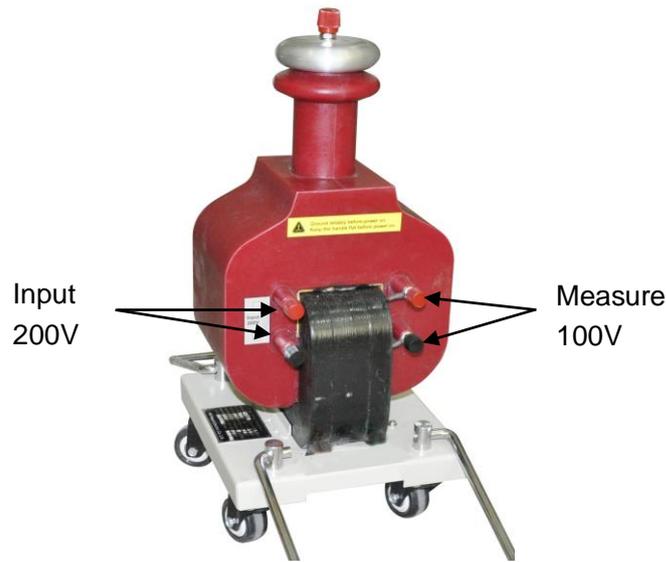


Figure 2

As it is AC Hipot Test Set, the AC/DC selector is useless. The output is only AC.

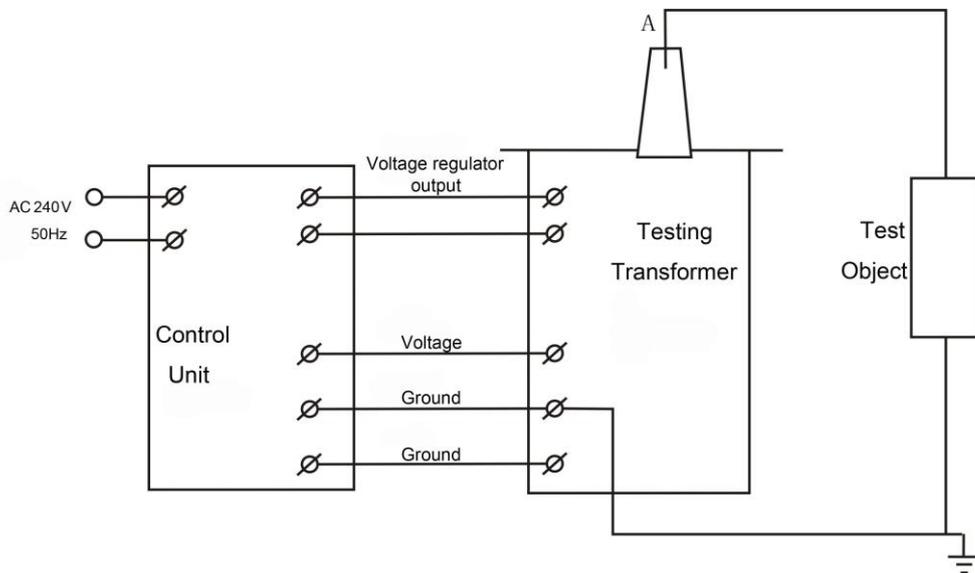
**C. AC Dry Type Testing Transformer Instruction**



**Figure 3 AC Testing mode**

**V. How to use**

**A. AC mode connection. See below Figure 4.**



**Figure 4**

When testing AC withstand voltage, there are protection accessories such as current limiting resistor, sphere gap for optional (required by customer). Meanwhile, HV divider is also for optional (required by customer) to monitor HV side voltage.

## **VI. Operating instruction**

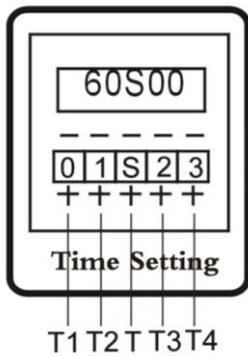
Before operation, please calculate max. operation current based on capacity, voltage level of different test objects and adjust current protector. Refer the connection diagram as Figure 4. Ground terminal should be grounded well.

### **A. Operation points**

1. Before testing, please get to know the testing voltage as well as other testing items and former testing results of the test object. If test object has defect or abnormal feedback, please solve the problem first and then to do AC withstand voltage test.
2. In the testing spot, please separate testing area from other working area by security warnings. Non-staff is forbidden to enter into testing area.
3. Before testing, clean the surface of test object. Shell and Non-winding of test object should be grounded reliably.
4. After connected cables, it is better to check if the connection is all right by qualified person and then to boost voltage.
5. Boosting voltage after voltage regulator knob return to zero position. The velocity of boosting should be uniform instead of fast or slow suddenly.
6. Keep monitoring the change of voltmeter and ammeter.
7. When test object sound abnormal noise or smoke, please lower the voltage immediately and cut off power supply. Check reasons after HV unit grounded.
8. Measuring insulation resistor of test object before and after testing.

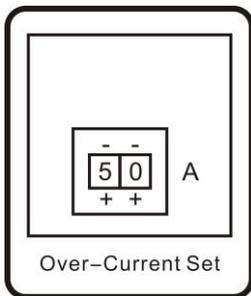
### **B. Operation steps**

1. Time relay setting



Set T1, T2, T3, T4 from 0-9. T can be set to H(hour), M(minute), S(second). Set time alarm as your wish within 1S-99H according to test requirement.

## 2. Over-current relay setting



Adjust over-current setting number by pressing "+", "-".

After power on, the over-current indicator will be light. When it is normal operation, the indicator light is green. When it is over-current protection, the indicator light turns to be red.

As this system (3kVA/50kVAC) rated current is 15A, the over-current relay setting range is 00-15.



**Note: Do not switch the over-current relay setting above 15A for this system.**

## 3. Operation procedure

a. When power on, power indication light is on. If "Zero light" is on, it means voltage regulator is in the zero position. If it is off, please rotate the knob counterclockwise to the light on. Then voltage regulation operation could proceed.

b. Press button "Start", then "Start light", "Zero light", "Alarm light" are on,

which indicate it will output high voltage. Please be careful!

c. Rotate voltage regulation knob clockwise under the uniform velocity of 2kV/s, to the required withstands voltage value of test object. Pay close attention to ammeter. At this time, "Power light", "Start light" are on, "Zero light", "Alarm light" are off.

d. According to time setting for the test, press button "Timer", timing start. When "Alarm light" blink as well as alarm sounds, it indicates the testing time is over. Test finished.

e. Rotate voltage regulator counterclockwise until "Zero light" is on. Then press button "Timer", the self-lock status disarmed.

f. Press button "Stop", then "Power light", "Zero light" are on, "Start light" is off.

g. Cut off power and dismantle connection. Test is over.

h. If short circuit, flash over, current breakdown happened in the process of voltage boosting or voltage withstand, over-current relay will work and cut off major loop. At this time, rotate voltage regulator counterclockwise to zero position, cut off power supply and check the reason. It's better to record details.

i. In the process of testing, if persons enter testing areas suddenly or other emergency happened, press button "Emergency" to cut off output voltage of control unit (HV voltage is also cut off) which keep personnel safety.

j. After power off, test object and testing device should be discharged.