

Dear Client,

Thank you for purchasing our HTGY-5kVA Automatic Control Box. 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!

Company Address:

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- ◆ Sales Hotline: 86-27- 87492243
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- ◆ Fax: 86-27- 87803129
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- ◆ Website: www.whhuation.com

◆ **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.

Catalog

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I. Safety precautions before the experiment

1. In order to protect the equipment and personal safety, please read the instruction manual carefully before the test and strictly follow the instructions.
2. The working power of the instrument is a single power supply: AC 220V. Use the power cord supplied with the instrument or a power cord of 45A or higher.
3. To ensure safety, the instrument is equipped with a protective grounding terminal. The grounding terminal of the test transformer and the operating box must be reliably grounded before testing.
4. To ensure accurate sampling, please ensure that the grounding terminal on the test transformer and the operating box is connected to the grounding grid, and ensure that the two grounding terminals are reliably connected to the same grounding grid. The grounding resistance should be less than 0.1Ω .
5. During the test, the operator should reserve a sufficient safe operating distance (less than 20kV per meter in air).
6. Before use, the transformer insulation resistance should be tested. The input insulation resistance value should be

greater than $2M\Omega$, and the output insulation resistance value should be greater than $10M\Omega$.

7、 Before use, check whether the contacts of each electrical component are loose, whether the contact is good, and whether the protection systems can work normally.

8、 After the test is completed, the high voltage end should be discharged. If the device is not used for a long time, it should be stored in a dry and ventilated place.

9、 The working and storage location of the device shall be free of other gases and vapors, which may seriously affect the insulation, and other explosive and aggressive media.

10、 The device must be operated by a professional and strictly abide by the operating procedures.

II. Overview

HTGY series automatic power frequency pressure console is a special supporting equipment for test transformers produced by Huatian Power. The control box (table) has convenient use and maintenance, superior performance, safe and reliable use, beautiful appearance, sturdy and durable, and easy to move. Features. It is an essential equipment for power supply companies, large factories, metallurgy, power plants, railways, etc. that require power maintenance.

HTGY series automatic power frequency withstand voltage control box adopts advanced microelectronic processing technology, all the process can be set in advance, full English interface, the operation is simple and clear. All test items are automatically tested after setting, without manual intervention.

This series of automatic power frequency withstand voltage control box adopts the new platform PLC configuration control, which can seamlessly connect various test transformers of different grades, and can perform software calibration, which greatly improves the applicability of the instrument.

1. Product Series

specificat ion	capac ity	power supply			output		refe renc e weig ht	Re ma rk s
		Pha se	(V)	(A)	(V)	(A)		
HTGY2/220	2	1	220	50	0~ 220	10	14	/
HTGY3/220	3	1	220	50	0~ 220	15	16	/
HTGY5/220	5	1	220	50	0~ 220	25	18	/
HTGY10/220	10	1	220	50	0~ 220	50	80	/
HTGY 15/400	15	2	380	50	0~ 430	37.5	90	/
HTGY 20/400	20	2	380	50	0~ 430	50	100	/
HTGY 25/400	25	2	380	50	0~ 430	62.5	120	/
HTGY 30/400	30	2	380	50	0~ 430	75	140	/
HTGY 50/400	50	2	380	50	0~ 430	125	160	/
HTGY 100/400	100	2	380	50	0~ 430	250	50	Re gu la to r Ex te rn al di st ri bu ti on
HTGY 150/3000	150	2	380	50	0~ 430	50	50	
HTGY 200/3000	200	2	380	50	0~ 430	65	50	
HTGY 250/3000	250	2	380	50	0~ 430	84	50	
HTGY 300/3000	300	2	380	50	0~ 430	100	50	

2. Features

1, using high-resolution 7-inch high-brightness full-color PLC touch display (resolution 800×480), voltage, current, time, status information and prompt information, etc. all in the large-screen LCD display, clear and intuitive reading;

2, full English interface, simple and clear operation, can adapt to a variety of applications;

3, high-precision touch screen operation, all functions can be touched to improve the safety and reliability of the product;

4, all-digital calibration method, abandoned the old potentiometer adjustment, the field is very convenient to use, the accuracy is easy to control (this function with password protection);

5, directly set the test transformer ratio (this function with password protection), when connecting testers of different voltage levels, the application is flexible and free, truly a console / box can be used with multiple transformers;

6, state reminder function, full English guided operation, even in the absence of instructions can be skillfully manipulated;

7. During the test, there is a display in progress on the screen to remind the operator to pay attention to safety;
9. Sound and light alarm function can be performed when the test is abnormal.
- 11, automatic timing function. During automatic control, when the voltage automatically rises to the set value, the device automatically starts timing. When the time is up, the test result is displayed and the device automatically returns to the zero position;
- 13, manual control mode, this mode is similar to the traditional electric lift / step down mode, the rise / fall is controlled by the button, the device automatically determines the upper / lower limit, there is over voltage protection;
14. The boosting speed is intelligently controlled. When the voltage reaches 80% of the target voltage, the boosting speed will automatically slow down. When the target voltage reaches 90%, the boosting speed is further slowed down;
15. It combines hard and software anti-interference technology, with stable performance and strong anti-interference.
- 16, with the printing function, you can quickly print the test data and test date

17, USB transfer function, you can save the saved test data to the USB flash drive to make a long-term backup

3. The main technical parameters

- Rated capacity: 5kVA
- Low voltage current: 0 ~ 22A
- Low voltage: 0 ~ 220V
- Instrument voltage: 0 ~ 100V
- Voltage measurement accuracy: 0.5 %FS \pm 3 words
- Current measurement accuracy: 0.5 %FS \pm 3 words
- Timing length: 0 ~ 3h59m59s
- Power supply voltage: AC220V \pm 10%; 50Hz \pm 1Hz
- Operating environment: ambient temperature 0~50 ° C

Relative humidity \leq 85%RH

Note: 5kVA and below capacity is box structure; 5kVA or above, 30kVA and below is bench structure; 30kVA or above, 50kVA and below is cabinet structure; 50kVA or above is split structure. (can also be customized according to user requirements)

3. Working principle

The instrument consists of PLC configuration screen, high-speed Cortex micro-processing chip, 16-bit AD sampling chip, precision voltage regulator, speed control current and high-precision transformer.

The user interacts with the interface through the PLC configuration screen, and can be set according to the specific parameters of the test object, and then the test is performed. The PLC configuration screen sends the test command to the high-speed processing chip, and the chip performs calculation and control, and controls the voltage regulator and The output loop works and is intelligently adjusted based on the voltage and current of the recovery. When an abnormal situation occurs, the high-speed processor performs overcurrent protection, cuts off the main output loop, and gives an audible and visual alarm. At the same time, it is equipped with a micro printer, which can print and save the test data. It can also export the test data through the USB transfer interface for permanent electronic archiving.

4. Panel schematic

The instrument panel is shown in Figure 1.1, which is labeled as follows:

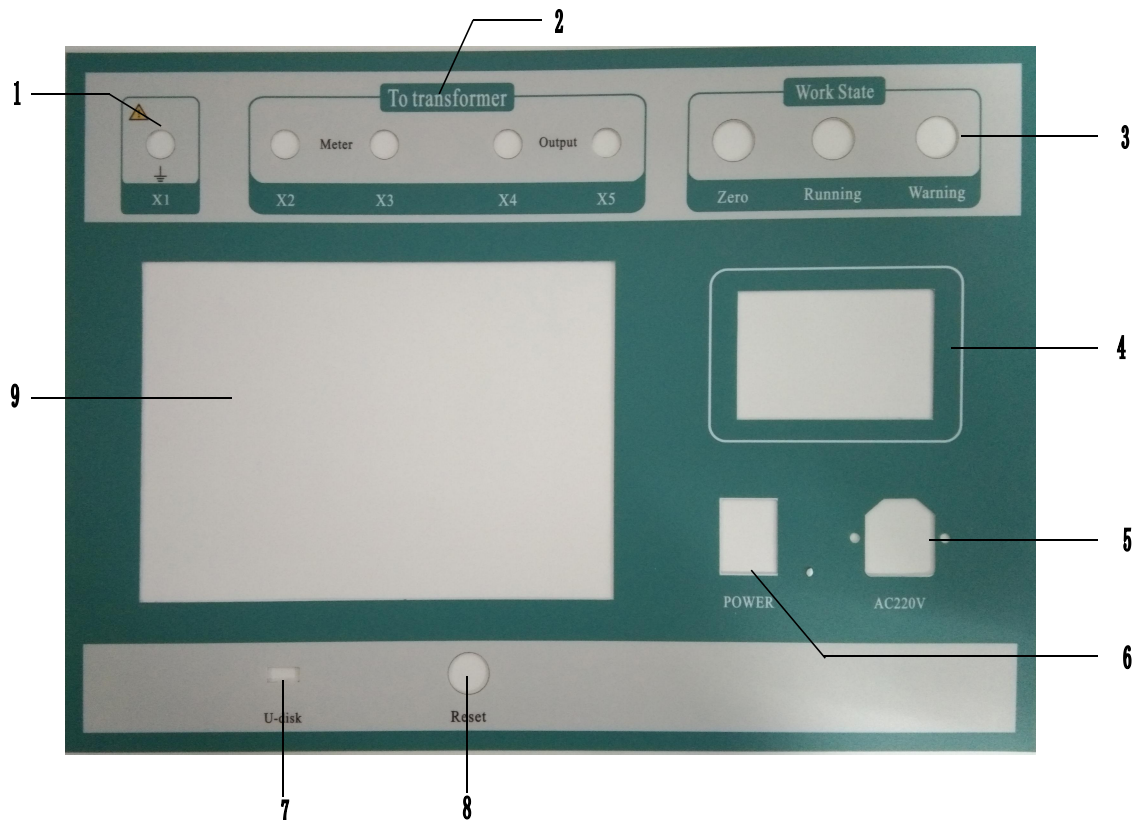


Figure 1.1 Panel structure

- | | |
|-------------------------------|--|
| 1. Ground terminal | 2. Connect to the output and instrument terminals of the transformer |
| 3. Operation status indicator | 4. Micro printer |
| 5. Power socket | 6. Power switch |
| 7.USB socket | 8.Reset button |
| 9. Touch screen | |

III. Function description and main menu

1. LCD display instructions

High-resolution 7-inch high-brightness full-color PLC configuration screen, this screen can not only display a variety of full-color graphic text but also touch function, full Chinese character operation interface, clear graphics, beautiful, easy to operate, sensitive, interactive experience.

2. Main interface introduction

First connect the AC220V power supply to the instrument panel, open the main power switch on the right side, and the instrument enters the boot screen. After the boot is completed, the instrument displays the screen shown in Figure 3.1. The main interface includes “Auto test”, “Manual test” and “Data query”, “Parameter Settings”, “Help”, “Time Settings” six options, you can enter the corresponding interface by touching the corresponding button. At the same time, the date and time are displayed at the bottom of the screen. If there is a deviation, it can be set by the “Time Settings” above.

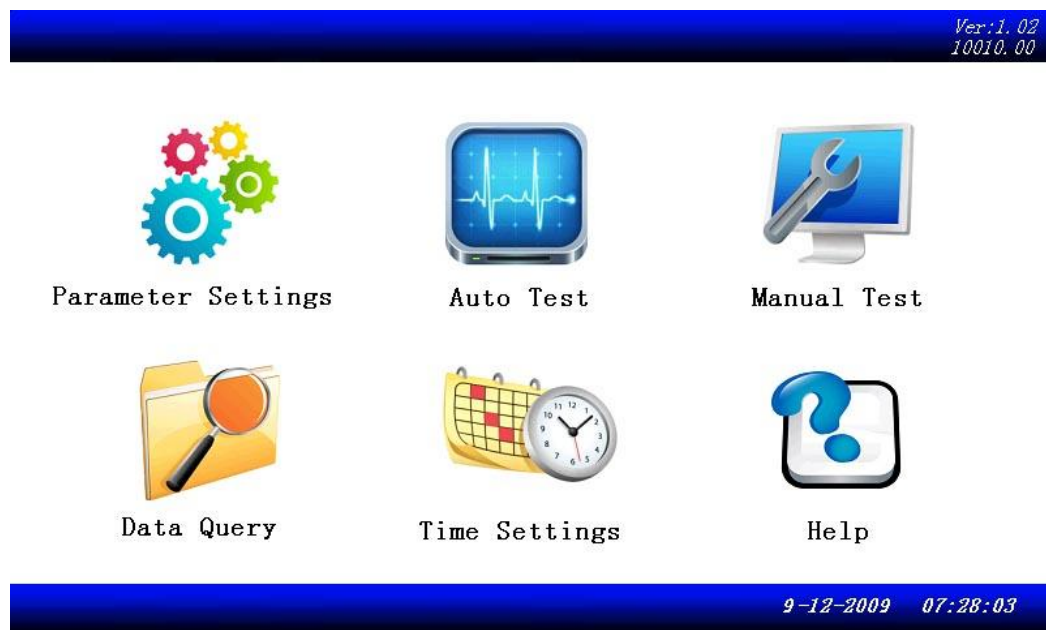


Figure 3.1

3. Parameter setting interface

Click the “Parameter Settings” button on the main interface, and then the parameter setting interface shown

in Figure 3.2 will pop up. Here you can set the test voltage type: AC or DC; target voltage and withstand voltage time. At the same time, parameters for overvoltage protection and overcurrent protection can be set.

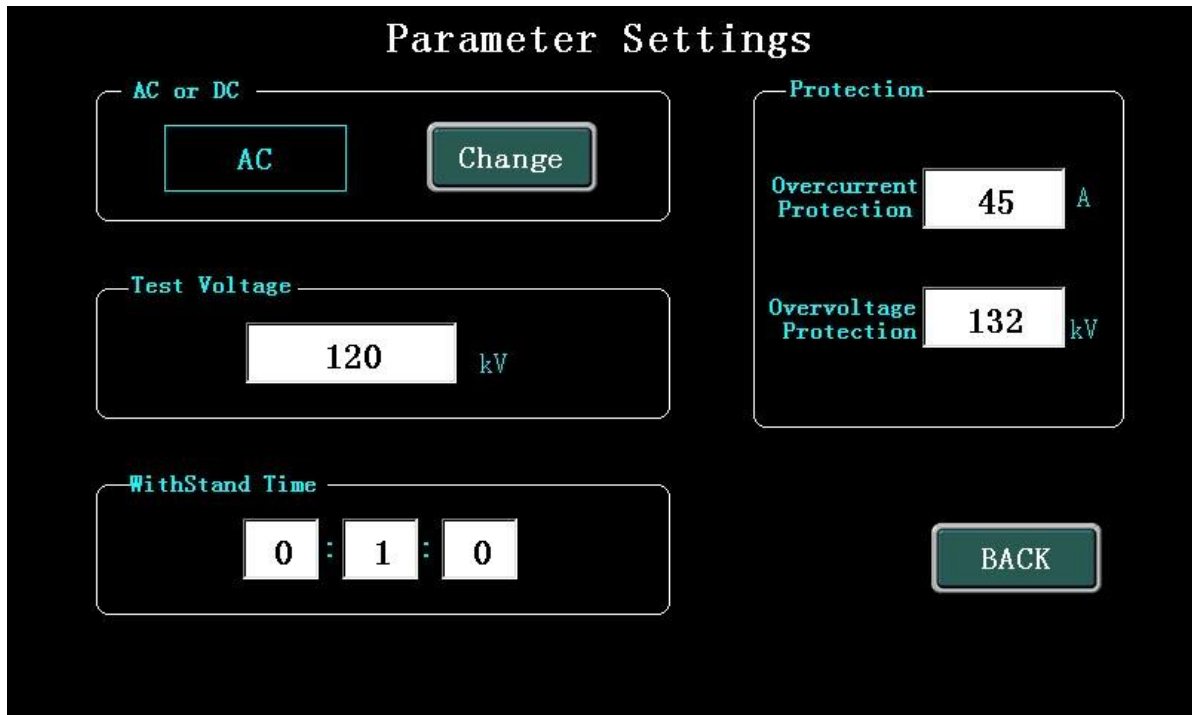
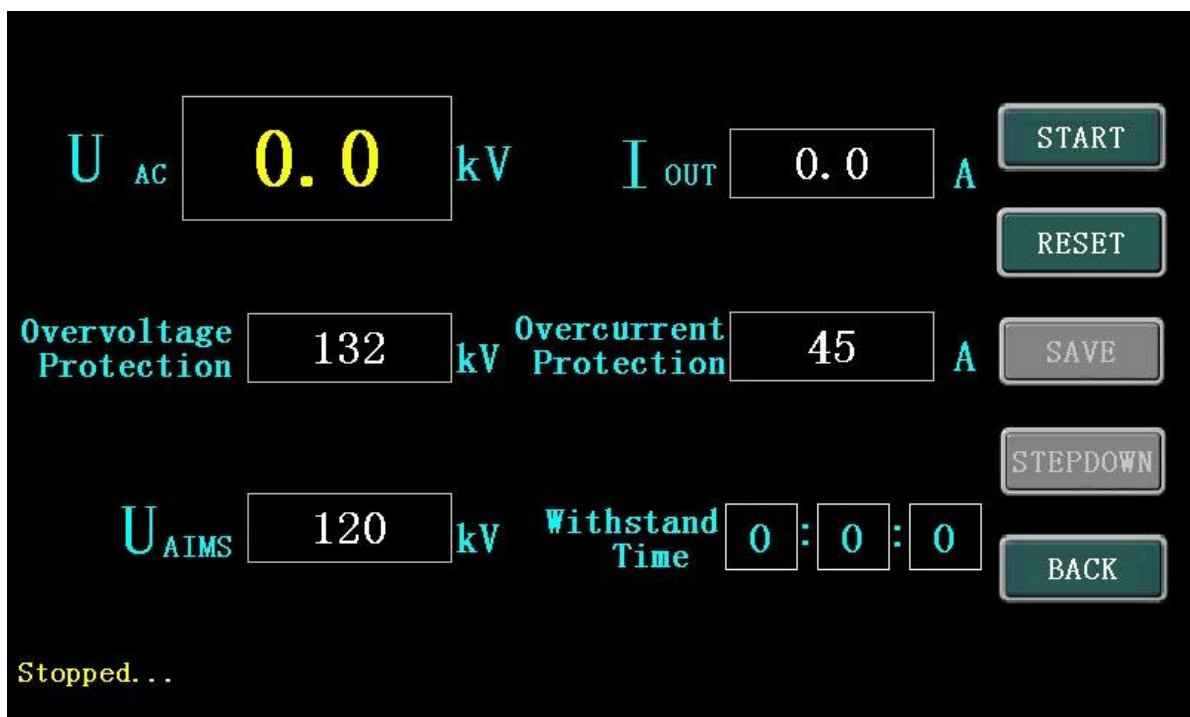


Figure 3.2

4. Automatic test interface

Click the “Auto Test” button on the main interface to enter the interface of the automatic test as shown in Figure 3.3. The left side is the voltage, current and withstand voltage time sampled in real time during the test; the right side is the operation button, click “START” to start the test immediately, the system will automatically boost to the set target voltage, and then perform the withstand voltage timing. After the set time, the voltage

is automatically reduced, the main circuit is automatically cut off, and the regulator is reset to zero. During the whole test, if there is a low-voltage current over-current condition, the main circuit will be cut off immediately, accompanied by an audible and visual alarm, and a reminder window will pop up on the interface. Click OK to eliminate the sound and light alarm.



After each test, you can click the “SAVE” button to save the test data. As Figure 3.4 shows. Enter the record number and click “OK” to enter the data preview interface. Click “PRINT” button to print the data of this test. As Figure 3.5 shows.

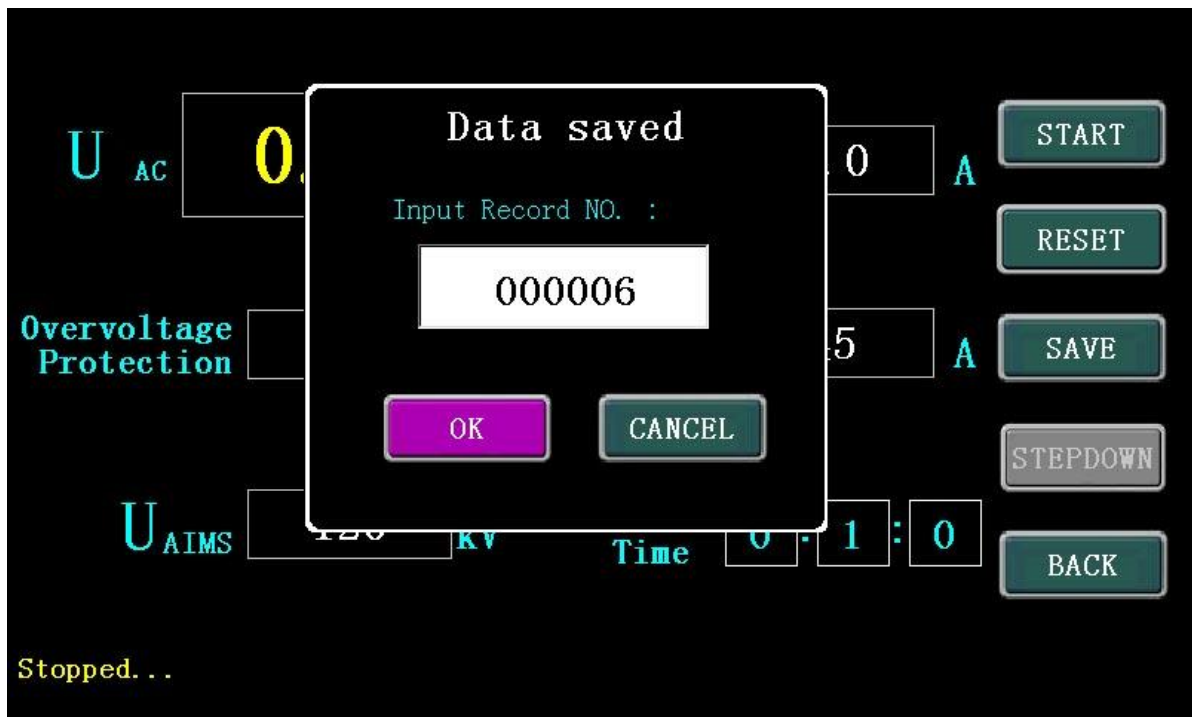


Figure 3.4

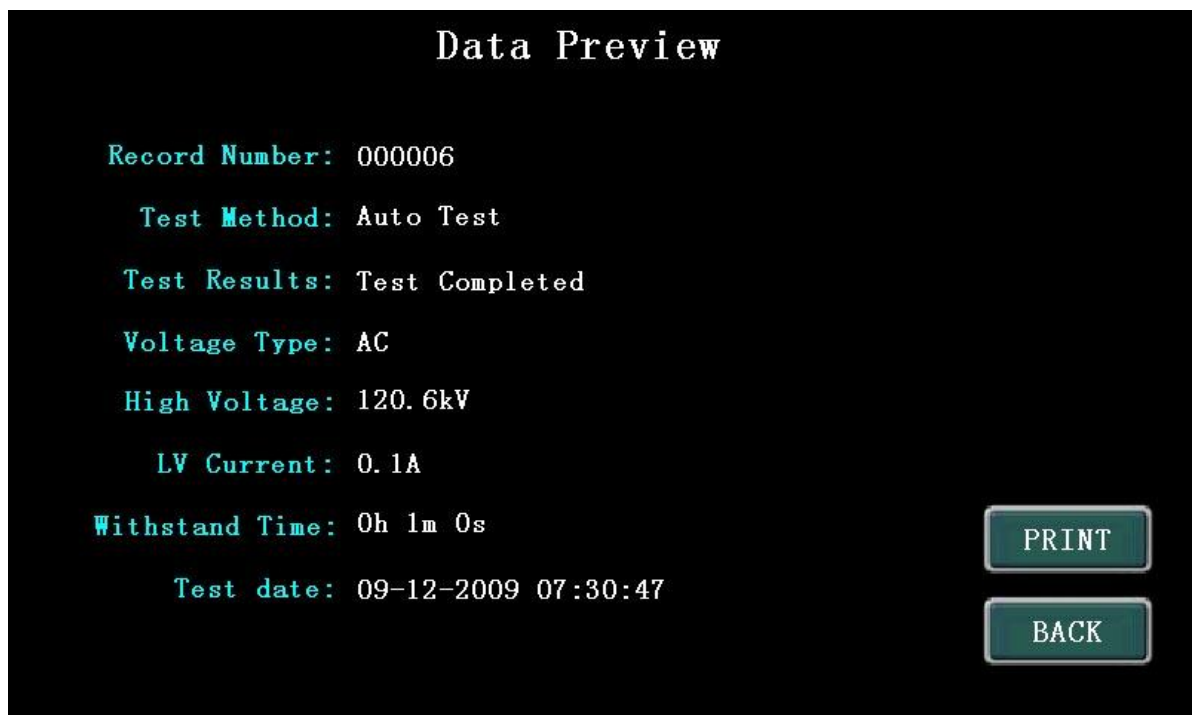


Figure 3.5

5. Manual test interface

Click the “Manual Test” button on the main interface to enter the manual test interface as shown in Figure 3.6. The left side is the voltage, current, target voltage, overvoltage protection value, overcurrent protection value and withstand voltage time sampled in real time during the test; the control button is on the right, and the “V-UP” button can be used to boost the voltage after clicking “START”. Or use the “V-DOWN” button to step down, here you need to pay attention to if you need a fast boost or buck, you can press the “V-UP” or “V-DOWN” button for a long time, when the target voltage is released, then click “V-UP” or “V-DOWN” button for control. If the manual adjustment reaches the target voltage, you can click the “TIMING” button to time the withstand voltage. When the timing reaches the preset time, you need to manually click “STEPDOWN” to end the test. During the whole test, if there is a overvoltage or overcurrent condition, the main circuit will be cut off immediately, accompanied by an audible and visual alarm, and a reminder window will pop up on the interface. Click the “Reset” button on the screen or the reset button on the panel. Both sound and light alarms can be eliminated.

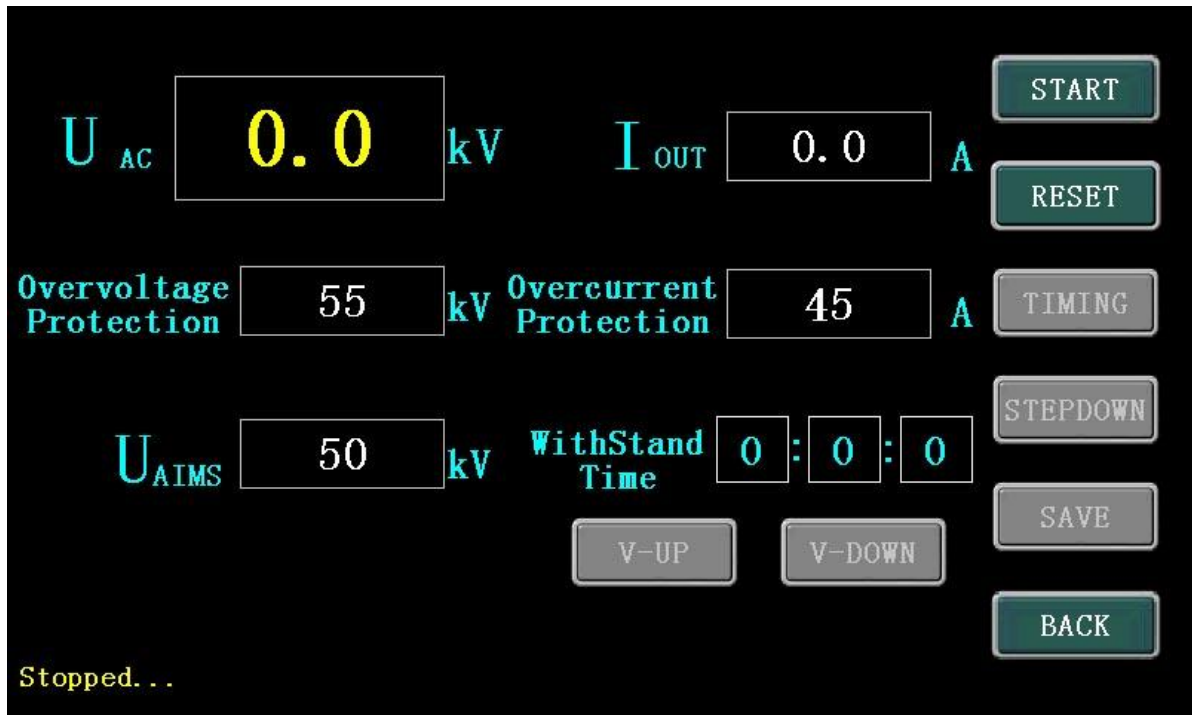


Figure 3.6

After each test, you can click the “Save” button to save the test data. After entering the record number, click “OK” to enter the data preview interface, and you can print the data of this test through the “Print” button (same as automatic test).

6. Data query interface

Click the “Data Query” button on the main interface to enter the data query interface as shown in Figure 3.7. This interface is mainly for querying the data saved in the historical experiment. In the table on the left, the data saved in the history will be displayed. After clicking the selection, you can click the “OPEN FILE” button. In the

open record interface, you can query the data in detail and print the historical data. The “CLEAR” button on the right can clear all saved historical data; the “EXPORT” button can export historical data to the USB flash drive through the USB interface for long-term electronic format archiving.



Figure 3.7

7. Help interface

Click the “Help” button on the main interface, and then the system help interface. This interface is mainly the wiring diagram of the instrument.

8. Time setting interface

Click the “Time Settings” button on the main interface, and then enter the design setting interface as shown in

Figure 3.9. When the system time is wrong, you can modify the time and date through this interface.

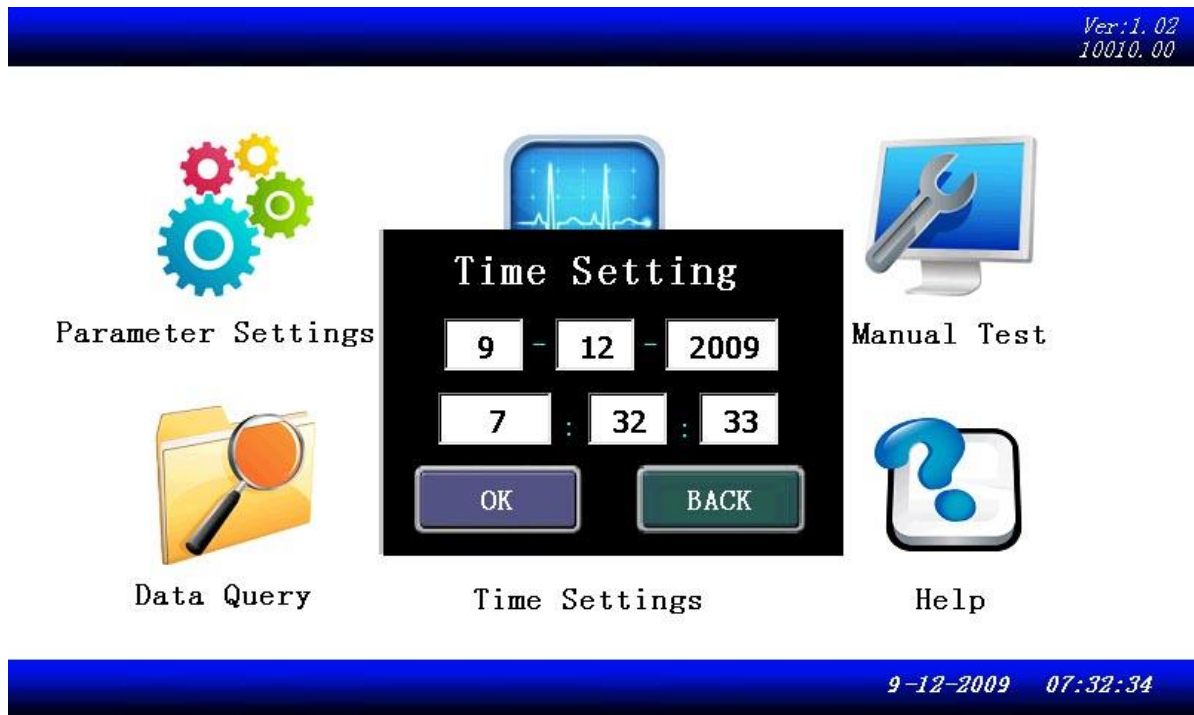


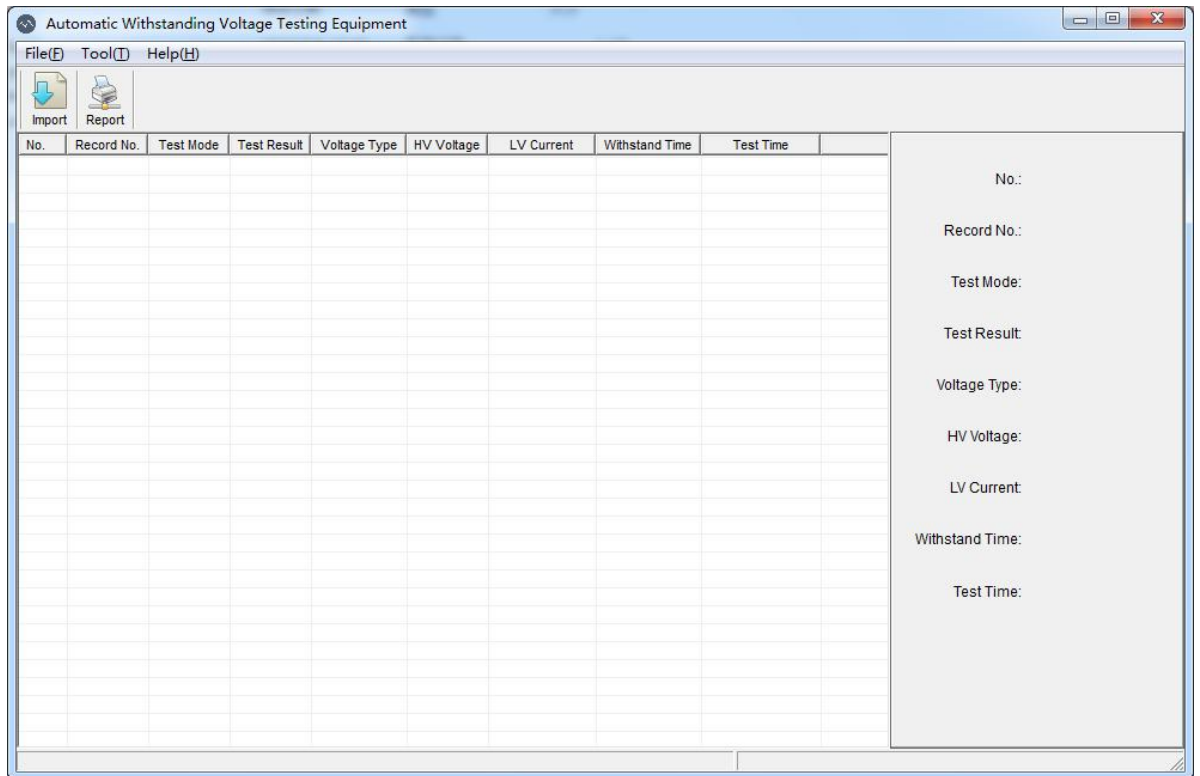
Figure 3.9

IV. Host computer software operation method

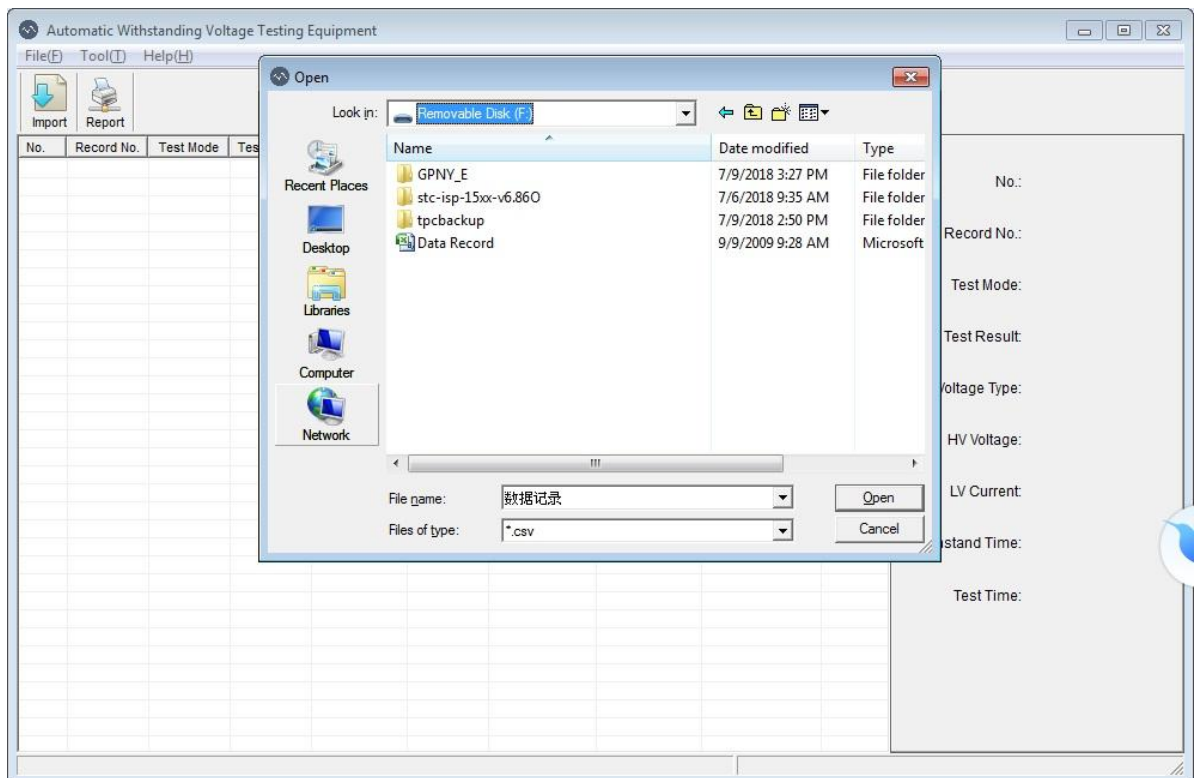
1. Host computer software usage

1. Open the " Computer Software" folder in the U disk and you can see the software "gppy.exe" and open the software.

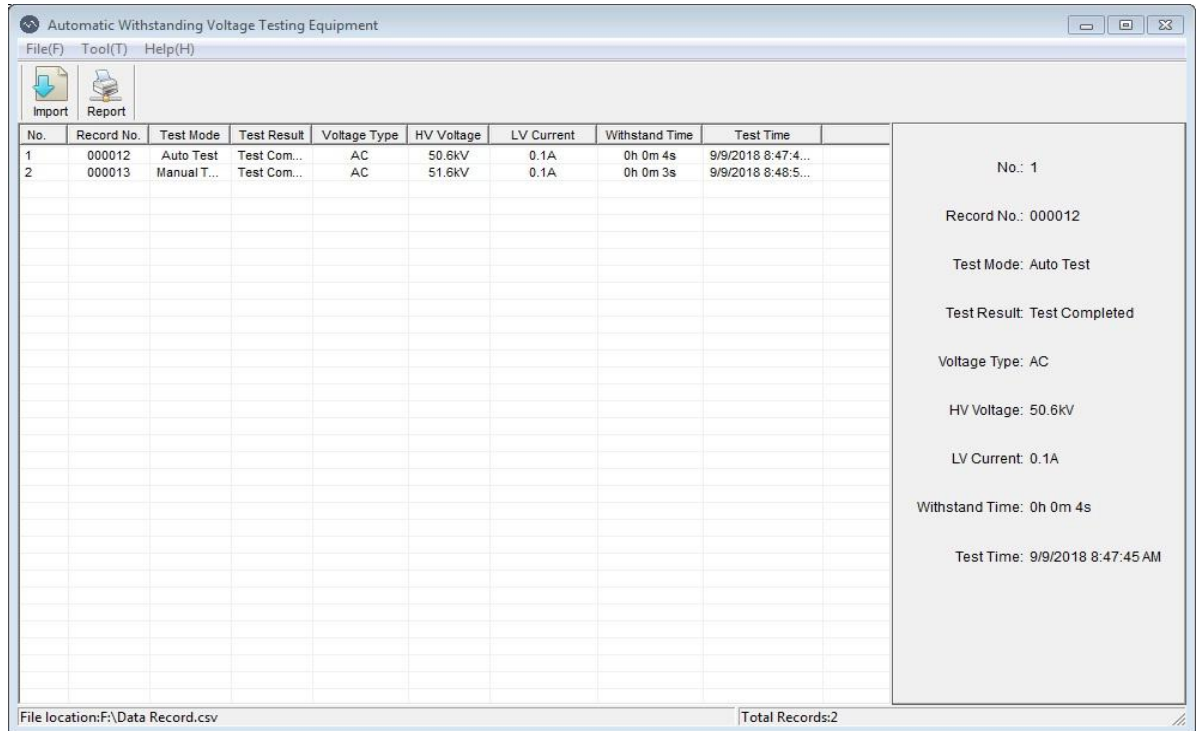
2. The supporting PC software running interface is shown in the figure below.



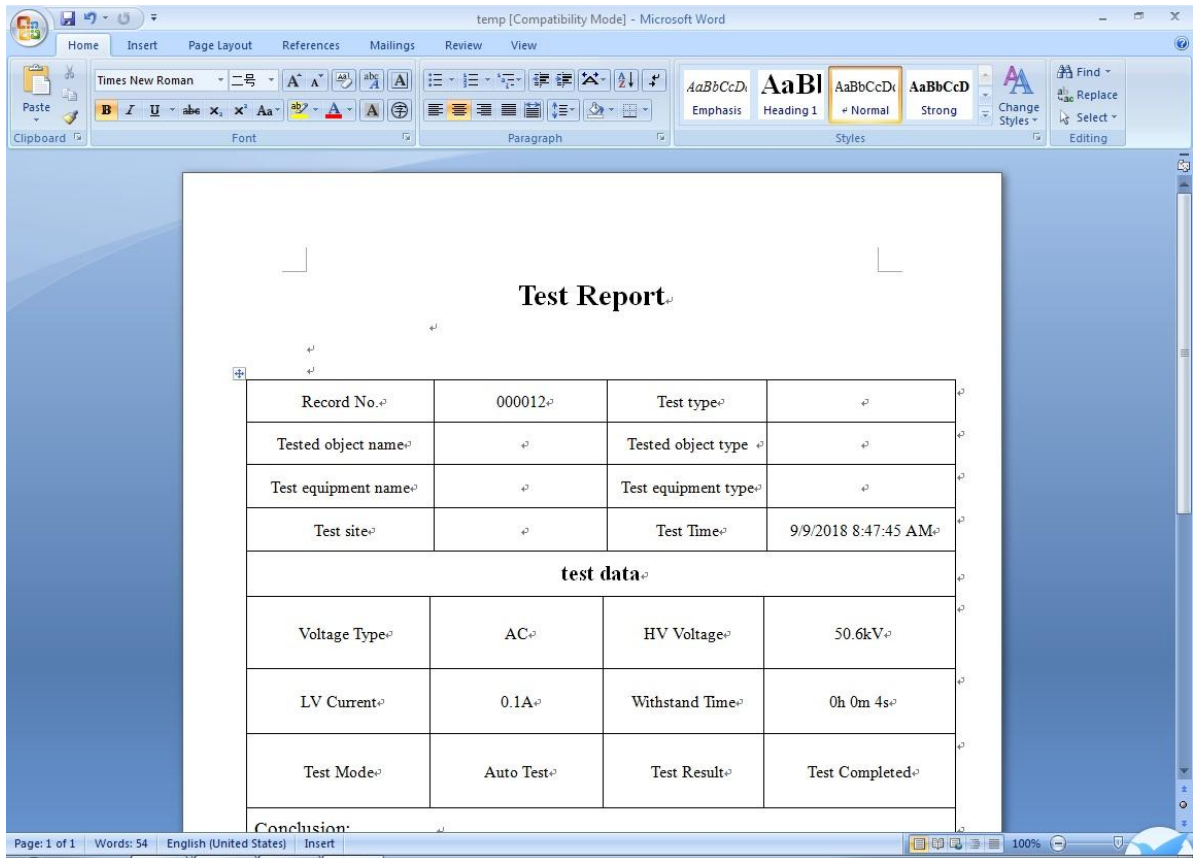
3. Click the "Import Data" icon in the upper left corner and the following image will pop up.



4. Select the file to be transferred, the file name is "data record.csv". Click "Open" and the interface is as shown below. The left side is the recorded test record, and the right side is the specific content of the selected item.



5. To generate a test report, click on the desired entry and click the "Report" button at the top right. The popup interface will be as follows.



6. This report is in word format. You can fill in the corresponding content in the blank space and save it after printing.

V. Instructions for use

1. Set up the site according to the relevant regulations, connect the equipment online, and the qualified areas should have the guidance of the person in charge of safety.
2. Connect the power cord, turn on the power switch, and the power indicator lights. If it is not at zero, the system will automatically return to zero and the “Zero” status indicator will illuminate.
3. After selecting the automatic test or manual test, click the “Start Test” button, the main contactor is closed, the automatic power supply regulator is energized, and the “Run” status indicator is on. At this time, the system automatically boosts the test until the target value is set.
4. When the voltage rises to the set voltage value, the timer will automatically time. When the voltage tolerance time specified by the test object is reached, the system will alarm and automatically lower the voltage to return the voltage regulator to zero position. At the same time, the high-pressure output is cut off, indicating that the test article is pressure-resistant.
5. If the current indication exceeds the range specified by the test product during the test, the system will

automatically cut off the main circuit power supply and perform an audible and visual alarm. The user needs to find out the relevant reasons before testing.

6. During the boost or withstand voltage test, if an overcurrent such as short circuit, flashover or breakdown occurs, the current relay will act to automatically de-energize the voltage regulator and record the breakdown voltage (this item is based on customer requirements).

Indicates that the test item is unqualified. At this point, the regulator will automatically return to zero and turn off the power for the next operation.

Note: The power must be turned off after each test, and it is safe!

VI. Brief troubleshooting

Fault phenomenon	Cause Analysis	Method of exclusion	Remarks
No display at boot	1) Power is not connected	Power on	
	2) The voltage is wrong	Measuring supply voltage	
Output voltage does not reach the rated value	1) Input voltage does not match	Press the voltage on the nameplate	
	2) Output fuse burned	Replacement output fuse	
No current voltage indication	1) Loose internal device plug-in	Inspection equipment Troubleshoot	
	2) Test circuit has open circuit fault	Check the test circuit to eliminate open circuit faults	

VII. Transportation, storage

Transportation

1) When the equipment needs to be transported, it is recommended to use the company's instruments to pack wooden boxes and shock-absorbing articles to avoid unnecessary damage during transportation and cause unnecessary losses to you.

2) Stacking code is not allowed when the equipment does not use wooden boxes during transportation. The maximum number of stacking layers allowed to be two layers when using Huatian Electric Instrument packaging.

On the way to transport equipment, the panel should face up.

2. Storage

1) The equipment should be placed in a dry, dust-free, ventilated, non-corrosive atmosphere. Stacking is not allowed without wooden case packaging.

2) When the device is stored, the panel should face up. And put moisture-proof items on the bottom of the device to prevent the device from getting wet.

3. Equipment maintenance

After each test, clear the connection on the instrument terminal, turn off the power, disconnect the power plug, and place it in a dry, dust-free, ventilated, non-corrosive atmosphere.

VIII. Packing list

NO.	NAME	Quantity	unit
1	Host	1	
2	Test Line	1	
3	Fuse	2	
4	U-disk	1	
5	power cord	1	
6	Ground wire	1	
7	The instruction manual	1	
8	Inspection report	1	
9	Certificate	1	

