OPERATION MANUAL

TH8601

Cable /Harness Tester

Changzhou Tonghui Electronic Co. , Ltd.

Add: No.3, Tianshan Road, New District, Changzhou, Jiangsu

Tel:（0519）85195566、85132222

Fax:（0519）85109972

E-mail: Sales@tonghui.com.cn

Website: http:/// www.tonghui.com.cn

Contents

Announcement

The description of the manual may not cover all contents of the instrument, and our company is subject to change and to improve the performance, function, inner structure, appearance, accessory and package of the instrument without notice. If there is puzzle caused by inconsistency of manual and instrument, then you can contact with our company by the address on the cover.

Chapter 1 Unpacking and Installation

This chapter describes some inspections that must be performed after you receive the instrument, and the conditions that you must understand and have before installing and using the instrument.

1.1 To Inspect the package

After unpacking, you should first check whether the instrument is damaged due to transportation. We do not recommend that you power on the instrument when the exterior is damaged. Then confirm according to the following packing list.
TH8601 Cable/Harness Tester ×1
Power cord ×1
Instruction Manual ×1
Automatically find point probe ×1
Adapter Fixture 64 channels with 2 and 128 channels with 4
If there is any discrepancy, please contact our company or the dealer as soon as possible.

1.2 Power connection

Power supply voltage range: 100～242 Vac.
Power supply frequency range: 47 ~ 63 Hz.
Power supply range: not less than 100 VA.
The power input phase cable L, neutral cable N, and ground cable E should be the same as the power plug of the instrument.
This instrument has been carefully designed to reduce the noise interference caused by the AC power input, but it should still be used in a low-noise environment. If it is unavoidable, please install a power filter.

Warning: In order to prevent leakage of electricity from causing damage to the instrument or people, the user must ensure that the ground cable of the power supply is reliably connected to the ground.

1.3 Fuse

The instrument has been equipped with a fuse when leaving the factory, and the user should use the fuse provided by our company.

Warning: Before powering on, pay attention to whether your fuse position is consistent with the supply voltage range

1.4 Environment

1) Please do not operate the instrument in the place that is vibrative, dusty, under direct sunlight or where there is corrosive air.
2) The normal working temperature is 0℃～40℃, relative humidity ≤75%, so the instrument should be used under above condition to guarantee the accuracy.
3) There is heat abstractor on the rear panel to avoid the inner temperature rising. In order to keep good airiness, please don't obstruct the left and right airiness holes to make the instrument maintain the accuracy.
4) Although the instrument has been specially designed for reducing the noise caused by ac power, a place with low noise is still recommended. If this cannot be arranged, please make sure to use power filter for the instrument.
5) Please store the instrument in the place where temperature is between 5℃ and 40℃, humidity is less than 85%RH. If the instrument will not be put in use for a time, please have it properly packed with its original box or a similar box for storing.
6) The instrument, especially the test cable should be far from strong electro-magnetic field, to avoid the jamming on measurement.

1.5 Use of Test Fixture

Please use the test fixture or test cable provided by our company. The test fixture or test cable made by the user or other companies may cause incorrect measurement results.
Precautions:
The shorter the patch cord, the better
Too long external wiring burdens additional flux, which can easily cause false detections for on-resistance specification testing or short-circuit terminal judgment.

Change the adapter frequently
After the adapter has been used for a long time, the conduction will be unstable when in contact, and it will cause a false test when testing the low conduction impedance specification; therefore, when the same good cable is tested multiple times, the poor conduction impedance or intermittence open -circuit will occure , the adapter needs to be replaced.

Keep jigs and adapters clean
After the machine has been used for a long time, there will be some dust in the fixture. When it is rainy or the air humidity is high, it will produce poor insulation , which will result in misjudgment of the insulation resistance specification test.

1.6 Warm-up

1) To guarantee the accurate measurement, the warm-up time is no less than 15min.
2) Please not turn on or off instrument frequently, in order to avoid the inner data fluster.

1.7 Other features

1) Power: consumption power≤100VA.
2) Dimension (W*H*D): 425mm*189mm*357mm
3) Weight: About 13kg.

Chapter 2 Introduction

This chapter describes the basic operating features of TH8601 series instruments. Before using the TH8601 series instrument, please read this chapter carefully so that you can quickly learn the operation of TH8601.

2.1 Introduction to front panel

Figure 2-1 shows the front panel of TH8601.

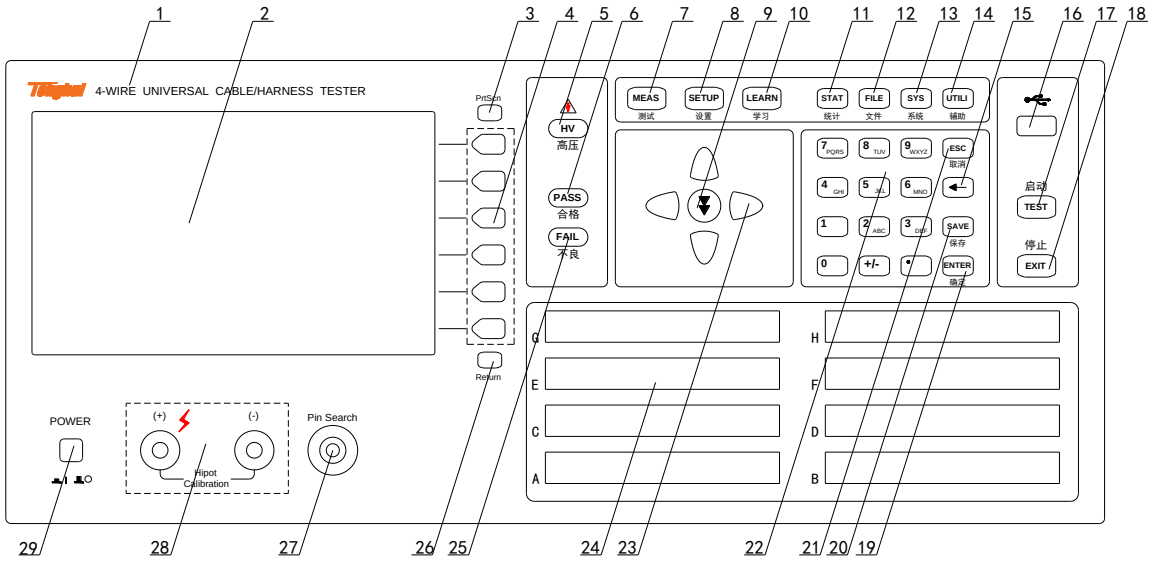


Figure 2-1 Front panel

1) Brand and model

Model	Chanel
TH8601A	64
TH8601	128

2) LCD liquid crystal display

800x480 color TFT LCD display, display measurement results, measurement conditions, etc.

3) [PrtScn] key

Screen copy button, intercept the entire LCD screen and save it to the U disk in the format of a picture.

4) Menu key

Six menu keys can be used for menu control, and each menu key has a corresponding menu function on the left. The definition of the menu key changes with the display page and cursor position.

5) HV indicator

Indicates that a high-voltage test is in progress and warns of high-voltage danger.

6) PASS indicator
Test qualified LED indicator.
7) [MEAS] page buttons
Press the [MEAS] key to enter the page that displays the measurement steps and measurement results of the current file.
8) [SETUP] page buttons
Press the [SETUP] key to enter the current measurement parameter setting page.
9) [▼] key
This key is used to quickly turn pages for easy viewing of measurement results.
It can also be used to set parameter items, for example:
If you want to set the edge judgment function on or off, when you press this button, the edge judgment is set to ON;
When it is pressed again, it is turned off when setting; when it is pressed again, it is set to on; in this way, every time it is pressed,
Each time you press, the set value will change once, until the set value you need appears, the setting is complete.
10) [LEARN] page buttons
Press the [LEARN] key, the instrument will perform the learning test, and enter the learning page after completion, and display the learning results.
11) [STAT] page button
Press the [STAT] key to enter the statistical measurement result page.
12) [FILE] page button
Press the [FILE] key to enter the file management setting page.
13) [SYS] page button
Press the [SYS] key to enter the system setting page.
14) [UTILI] page buttons
Press the [UTILI] key to enter the auxiliary function setting or measurement page.
15) [←] key
BACKSPACE key. Press this key to delete the last number or letter of the entered value.
16) USB HOST interface
It is used to connect the U disk storage to save and recall files.
It is also used for program upgrades.
17) [TEST] key
Press the [TEST] key to start the test.
18) [EXIT] key
Press the [EXIT] key to stop the test.
19) [ENTER] key
[ENTER] key is used to confirm data input.
20) [SAVE] key
[SAVE] key, save key. Used to save files.
21) [ESC] key
[ESC] key is used to cancel data input.
22) Numerical keys
The numeric keys are used to input data. The numeric keys are composed of number keys [0]

to [9], decimal point [.] and [+/-] keys.

Also used for text input. In addition to 0-9, you can also enter 26 letters from A to Z.

23) Cursor keys (CURSOR)

The cursor keys are used to move the cursor between the fields on the LCD display page. When the cursor moves to a certain field, the field will be highlighted on the LCD screen.

24) Test terminal [UNKNOWN]

32PIN fixture connector, 128Pin in the picture, a total of 4 slot connectors.

25) FAIL indicator

Bad test LED indicator.

26) [RETURN] key

The return key is used to return the cursor on the current interface to the starting position.

It is also used to return to the local area during remote communication.

27) [Pin Search] interface

This interface is connected to the meter pen, used for point search and point test.

28) [Hipot Callbration] interface

This interface is a pair of high-voltage output terminals, red for high end and black for low end. Used for voltage output during high voltage calibration

29) Power switch (POWER)

Switch.

2.2 Introduction to rear panel

Figure 2-2 shows the rear panel of TH8601.

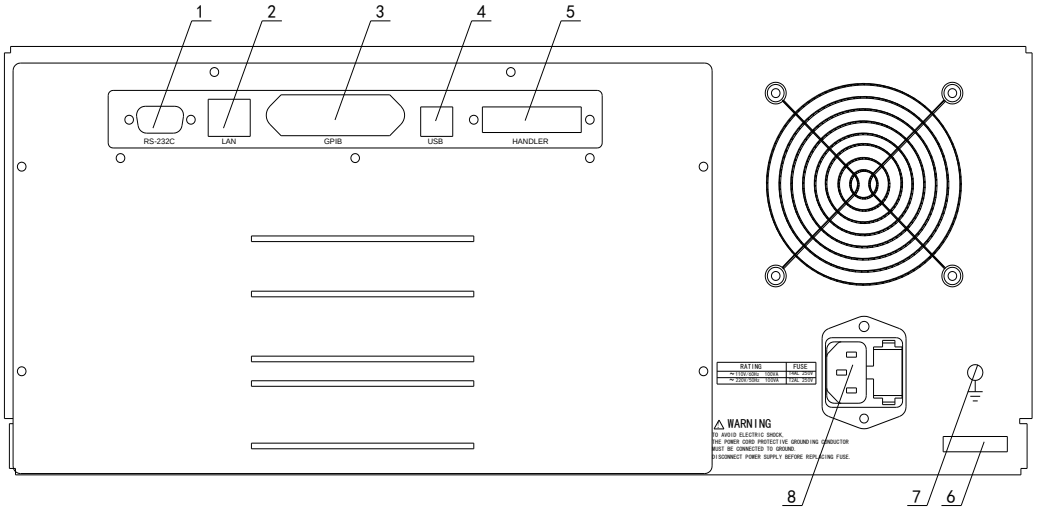


Figure 2-2 Rear panel

1) RS232C serial interface

The serial communication interface realizes online communication with the computer through instructions.

2) LAN interface

The network interface realizes online communication with the computer through instructions.

3) IEEE-488 interface
The GPIB interface realizes online communication with the computer through instructions.

4) USB DEVICE interface
The USB communication interface realizes online communication with the computer through instructions.

5) HANDLER interface
HANDLER interface, realize control and communication with computer through level signal.

6) Nameplate
Indicate production date, instrument number, manufacturer and other information.

7) Chassis ground terminal
This terminal is connected to the instrument chassis. Can be used to protect or shield ground connections.

8) Power socket
Used to input AC power.

2.3 Introduction to display zone

TH8601 uses a 7-inch widescreen TFT display with 65k colors, and the content displayed on the display is divided into the following display areas, as shown in the figure:

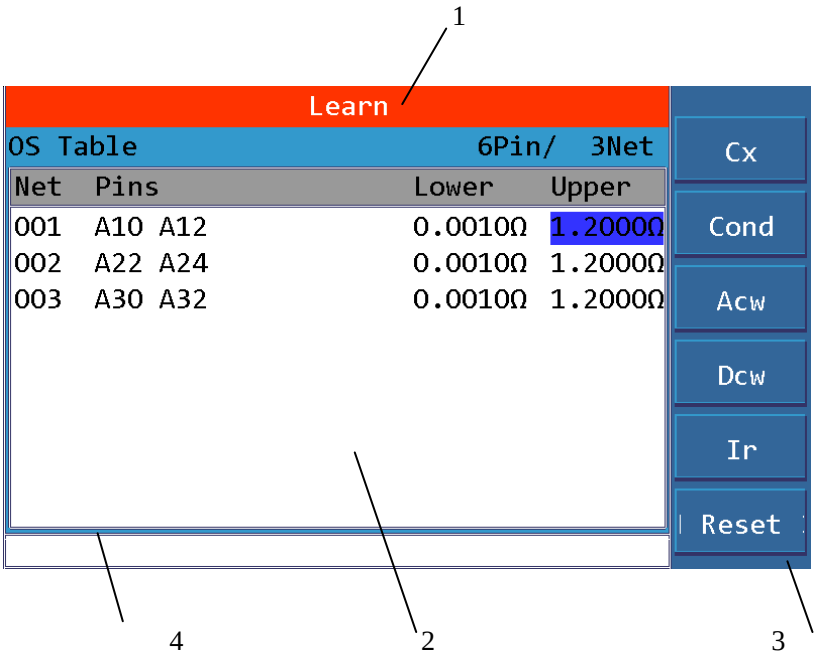


Figure 2-3 display zones

1. Title area
Used to display the name of the current page.

2. Main display area
Used to display the main content of each interface

3. Menu area
Used to display menu items, a total of 6

4. Information area
Used to display prompt information, inquiry information, error information, etc.
Main menu buttons and corresponding displayed pages.

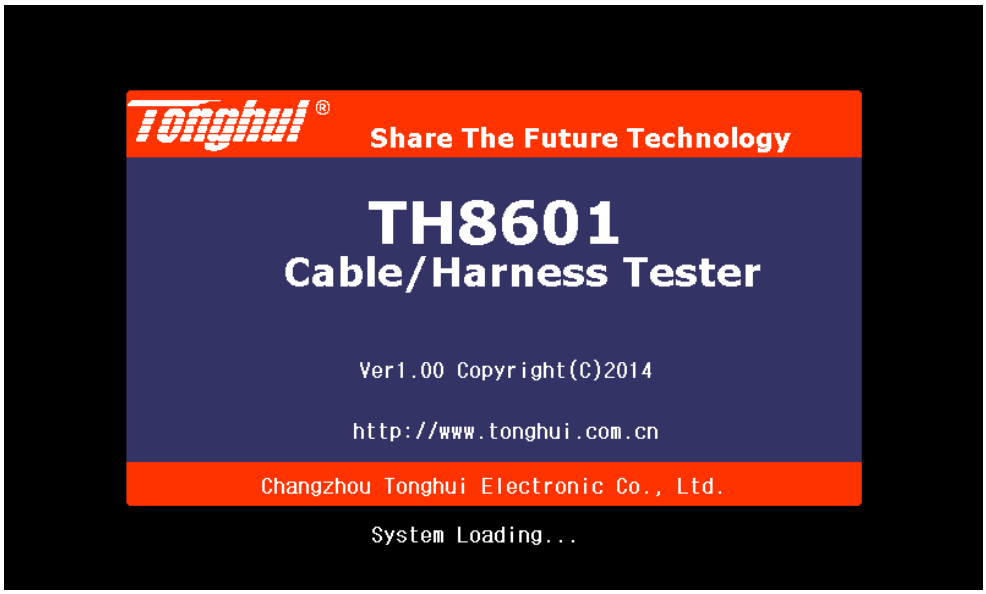
2.4 Basic Operation

The basic operation of TH8601 is as follows:
Use the menu buttons ([MAES], [SETUP], [LEARN], [STAT], [FILE], [SYS], [UTILI]) and soft keys to select the page you want to display.
Use the cursor keys ([↑] [↓] [←][→]) to move the cursor to the field you want to set. When the cursor moves to a certain field, the field will be highlighted. The so-called domain is the area where the cursor can be set.
The corresponding menu function of the current cursor area will be displayed in the "menu area". Select and press the desired soft key. The number keys, [←] key and [ENTER] key are used for data input.
When a number key is pressed, the corresponding English letters and numbers will be displayed in the soft key area. Select and press the required software. When the [ENTER] key is used to end the data input, the data unit is the default unit of the corresponding domain parameter: Hz, V or Ω. For example, the default unit of test frequency is Hz.

Chapter 3 Detailed Operation

3.1 Booting

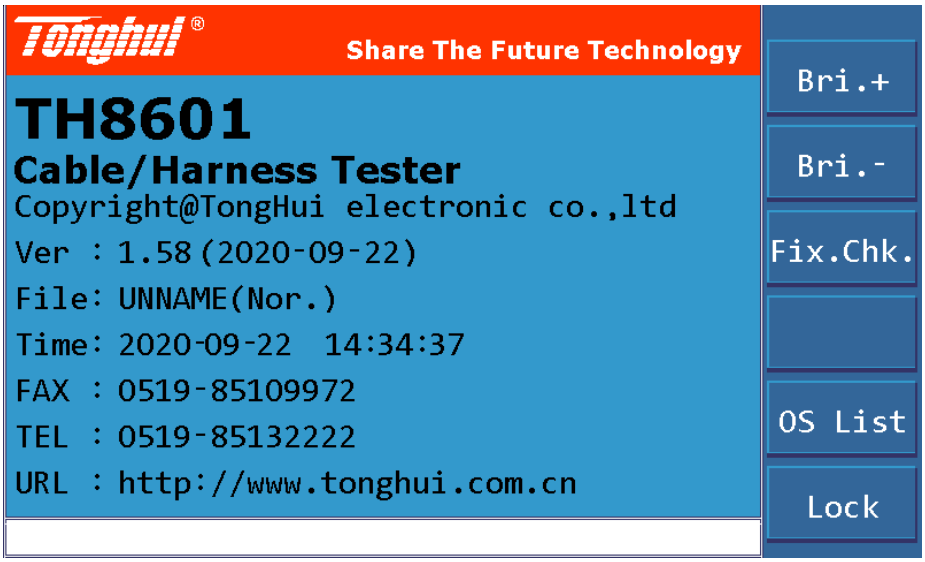
Plug in the three-cable power plug. Note: Keep the power supply voltage and frequency in compliance with the above regulations. The power input phase line L, neutral line N, and ground line E should be the same as the phase line and neutral line on the power plug of the instrument.
Turn on the power and press the power switch at the lower left corner of the front panel to turn on the instrument and display the startup screen.
The figure below shows the startup screen of TH8601. It also shows the company LOGO, instrument model (TH8601), and software version number (Ver 1.00).



After the system is loaded, it will eventually stop at the page shown in the figure below: This page is called the main interface.

3.2 Main Interface

After booting, the page entered is the main page.
The main page mainly displays software related information and company contact information. As shown below:



The menu function has the following 3 items:

2.1 Brightness + in the figure is to increase the brightness of the display.

2.2 Brightness -in the figure is to reduce the brightness of the display.

2.3 View network is the network table used to view the current test file.

2.4 Lock is used for key lock.

3.3 SETUP Interface

Press the module button [SETUP] to enter the <Setup> page .As shown:

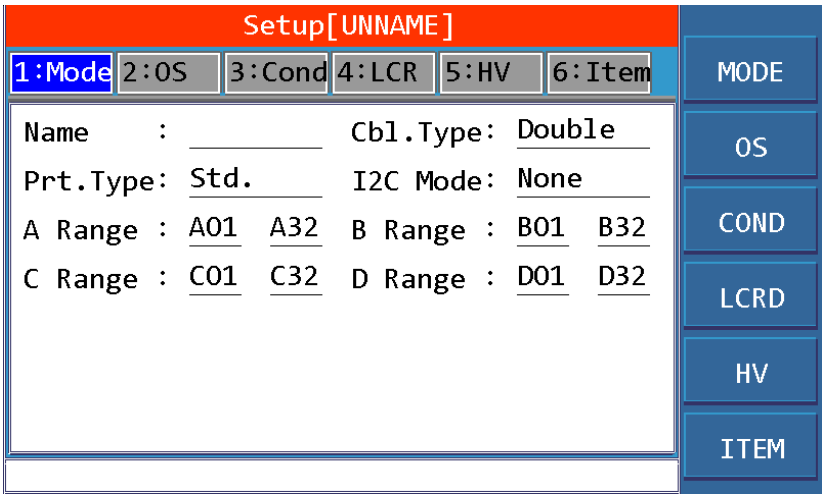


Figure 3.3-1 Setup Page

The <Settings> page includes 6 sub pages including Mode, OS, Cond, LCR, HV and Item. The following paragraphs explain each setting page in details.

Press the number 1~6 in the numeric keyboard to quickly enter the corresponding setting page.

3.3.1 <Mode>

The information page mainly sets some features about the cable, including the following:

- Product Name (Name)

The name consists of letters, numbers, and a dash (-), with a maximum of 8 characters.

- Cable Type (Cbl Type)

Move the cursor to the Cable Type field. The following options are displayed in the menu area.

Double: Both ends of the cable are plugged into the instrument for testing, also called double-sided cable.

Single: one end of the cable is plugged into the tester for testing, also called unilateral cable

Probe: refers to using test probe to test.

Learn: You can learn the sample under test through Learn in the menu function, and you can automatically obtain the type of tested product.

- Probe Tip Type (Prt. Type)

  Standard: Both terminals of the cable are single-ended.

  One AB: One end of the cable has two sides AB.

  Two AB: The two ends of the cable have two sides AB.

- Chip Type(I2C Mode)

  Move the cursor to the I2C Mode field. The following options are displayed in the menu area.

  No chip: refers to the cable without a chip.

  Light: Refers to the cable with Lightning chip.

  OPPO: Refers to the cable with OPPO chip.

  VIVO: Refers to the cable with VIVO chip.

  TypeC: Refers to the cable with TypeC chip.

- Terminal A Start Point

  Please use the number keys to input as needed, the range is A1～A64; if this terminal is not used, it can also be turned off.

- Terminal A End Point

  Please use the number keys to input as needed, the range is A1～A64; if this terminal is not used, it can also be turned off.

- Terminal B Start Point

  Please use the number keys to input as needed, the range is B1～B64; if this terminal is not used, it can also be turned off.

- Terminal B End Point

  Please use the number keys to input as needed, the range isB1～B64; if this terminal is not used, it can also be turned off.

- Terminal C Start Point

  Please use the number keys to input as needed, the range is C1～C32; if this terminal is not used, it can also be turned off.

- Terminal C End Point

  Please use the number keys to input as needed, the range is C1～C32; if this terminal is not used, it can also be turned off.

- Terminal D Start Point

  Please use the number keys to input as needed, the range is D1～D32; if this terminal is not

used, it can also be turned off.

- Terminal D End Point

  Please use the number keys to input as needed, the range is D1～D32; if this terminal is not used, it can also be turned off.

3.3.2 < OS>

Used to set OS related test conditions, as shown in the figure below: OS Setup page.

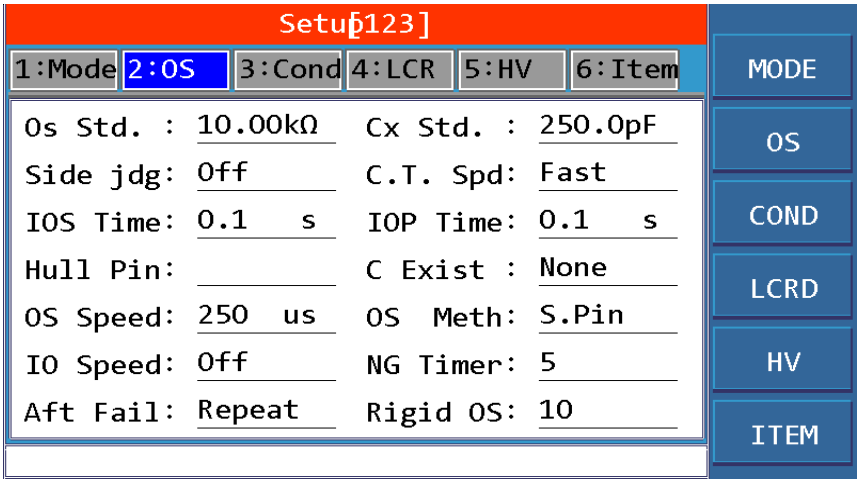


Figure 3.3-2

- OS Standard (Os Std.)

Set the threshold for judging OS; the threshold range is 1kΩ～50kΩ.

It is used to judge whether the double-sided cable is a path or an open-circuit.

For example, OS standard: set to 2k

If the resistance between the two ends of the cable is greater than 2k, then it means an open circuit

If the resistance between the two ends of the cable is less than 2k, it means a path or a short circuit.

- Distributed Capacitance Sensitivity (Cx Std.)

Set the single-side capacitance value; either manually input or obtain the capacitance value by learning standard parts, the setting range is 0.1pF～9.9999nF.

Whether the single-side cable is open or not is judged by measuring the size of its distributed capacitance. The distributed capacitance of the single-side cable is the unilateral sensitivity.

For example, unilateral sensitivity: set to 100pF

If the unilateral sensitivity of the cable is greater than 100pF, it means that there is no open circuit in the cable.

If the unilateral sensitivity of the cable is less than 100pF, it means that the cable has an open circuit.

- Side Judgment (Side jdg.)

OFF: Turn off the side judgment function.

ON: Turn on the side judgment function.

Side: enable the side judgment function, and short-circuit the slot judgment.

What is judgment by slot division, let's illustrate with examples:

Assuming a short circuit, there are 4 possibilities, namely:

A1-A2, A1-B2, A2-B1, B1-B2

Since a short circuit cannot occur between A slot and B slot, we reduce the short circuit point to the

inside of A slot and B slot. So 4 possibilities have become 2 possibilities, namely: A1-A2, B1-B2
Then test the conductance of A1-A2 and B1-B2 respectively, and the smaller one is the short-circuit point.
Excluding A1-B2, the screening behavior of A2-B1 is the edge separation function.
%: Turn on the side judgment function and judge the position of the break point, expressed in %.
For example:
The result of the test is 50%, which means that the break point is in the middle of the cable.

- Capacitance Speed (C.T.Spd)

Slow
Med
Fast

Set the sweeping test speed of unilateral sensitivity. The slower the speed, the higher the test accuracy.
For example:
The length of a cable under test is only 5cm, and its unilateral sensitivity is very small, only about 5pF. In order to ensure the accuracy of the test, the test speed is set to slow, and the test stability reaches 1pF, which meets the test requirements.

- Interval OS Time (IOS Time)

Set the interval open and short circuit test time, the setting range is 0～999.9S.
If it is 0 seconds, it means unlimited time, and the test will not be terminated until the tested product is removed or the STOP button is pressed.

- Interval Short Time (IOP Time)

Set the interval short -circuit test time, the setting range is 0～999.9S.
If it is 0 seconds, it means unlimited time, and the test will not be terminated until the tested product is removed or the STOP button is pressed.

- Hull Pin (Hull Pin)

The pins connected to the hull, can be manually inputted or the points can be found through the test leads.
In addition, the hull pin is used for trigger testing.
For some DUTs of connector type, if you want to automatically trigger the test, it is not feasible to rely on the traditional unilateral sensitivity to judge, because the unilateral sensitivity of the DUT is often less than 1pF and cannot be accurately measured.
Therefore, connect its hull to the test port, when the operator takes the tested part and inserts it into the jig for testing, the instrument will scan a distributed capacitance brought by the human body, this capacitance can be accurately measured, so as to achieve the purpose of automatically triggering the test.

- C Exist (C Exist)

None
Exist

Whether there is a large capacitance between the lines, and use the large capacitance as the dividing point to divide the network table.

- OS Speed (OS Speed)

When sweeping the cable loop, how much to delay, then read back the level. The size of this parameter depends on the size of the capacitance between the lines, the larger the capacitance, the

longer the delay. The default is 0us.

- Sweeping Method (OS Meth)

Dich.

One

Dichotomy, fewer scans, high speed, its number of times is log2(N), where N is the total number of pins, for example, a 64Pin cable requires 6 times.This method is suitable for pure thread products

One corresponds to the other

Sweep each pin one by one, its number of times is N, in other words, N pins need to sweep N times. Although this method is much slower than the dichotomy, it is suitable for products with passive components.

- Fast Interval Open-Circuit (IO Speed)

The fast mode of interval open-circuit, normal interval open-circuit can only detect 4ms width interval open-circuit.

But when the fast interval open-circuit is turned on, the interval open-circuit with a width of 5us can be detected.

Note: fast interval open-circuit also requires special tooling to match it before it can be used.

- After Fail (Aft Fail)

Empty

Short

Open

Repeat

When the trigger mode is automatic, when a OS circuit is tested, if a fault occurs, under what conditions need to end the test and report the OS circuit failure.

Empty spot stop: When the test piece is removed, that is, the sweeping end shows an empty network state, and the instrument ends the test.

Short-circuit stop: When a short-circuit failure occurs, the instrument ends the test.

Open circuit stop: When a open-circuit failure occurs, the instrument ends the test.

Repeat stop: When the same bad condition occurs N times (N can be set), the instrument ends the test.

- Negative Timer (NG Timer)

As mentioned above, negative repeated N times, the instrument ends the test, this N times is to set here.

- Rigid OS

In traditional OS circuit, a resistance of Nk (the value range of N is 1~50) is used as the dividing line, <Nk is short-circuit, and >Nk is open-circuit.

This kind of rough division method has poor accuracy and often cannot describe the accurate network structure of the DUT.

Therefore, after the traditional OS circuit sweeping, the conductance sweeping is added to further analyze the network structure.

If it is set to 10 ohms here, then it will be considered as a short circuit based on the sweeping resistance value <10, and >10 judged as open circuit.

3.3.3 Conduction

Used to set the relevant test conditions for conduction, as shown in the figure:

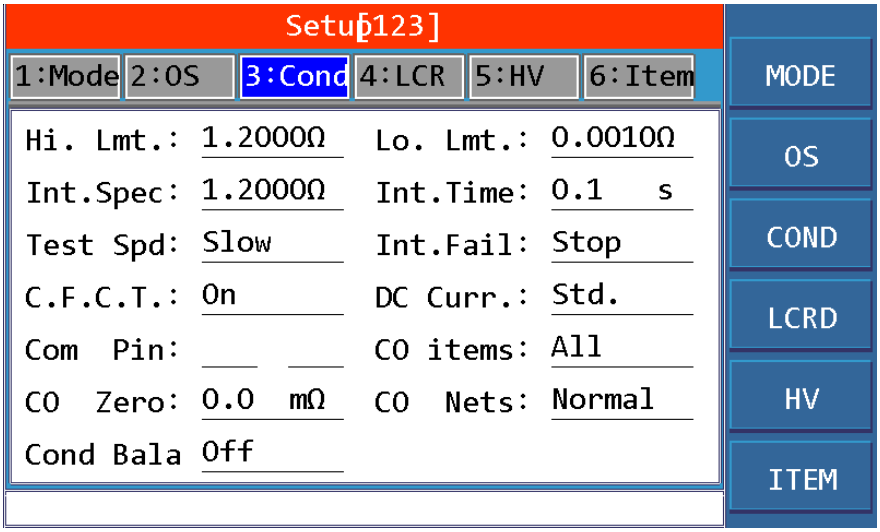


Figure 3.3-3 Conduction Page

■ High Limit (Hi. Lmt.)

Set the high limit of the conductance value, the setting range is 0 Ω ~ 2000 Ω.

The high limit of the specification used to judge whether the conductance is qualified.

You can directly input or connect to the tested sample through the numeric keyboard to learn and obtain a measured value as a reference value.

■ Low Limit (Lo.Lmt.)

Set the low limit of the conductance value, the setting range is 0Ω ~ 2000Ω.

The low limit of the specification used to judge whether the conductance is qualified.

You can directly input or connect to the tested sample through the numeric keyboard to learn and obtain a measured value as a reference value.

■ Interval Specifications (Int. Spec)

Set the high limit of the change value of the interval conductance test.

The high specification limit used to judge whether the interval conductance resistance is qualified.

You can directly input through the numeric keyboard or directly copy the high conductance limit above.

For example, the conductance resistance value of A1-B1 is 0.985 ohms

Then in the interval conductance test, A1-B1 was tested N times, N conductance values are generated, then change value = maximum value-minimum value, If the change value> this interval specification value, then judged as negative.

■ Interval Time (Int. Time)

Set the time to measure the interval conductance resistance, the setting range is from 0.1s to 999.9s.

It cannot be set to 0s, and unlimited time testing is not supported.

■ Test Speed (Test Spd)

Slow

Med

Fast

Set the sweeping test speed of the conductance resistance, the slower the speed, the higher the test

accuracy.

For example:

A certain cable under test, the cable length is only 5cm, its conductance resistance is very small, only about 5mΩ.To ensure the accuracy of the test, the test speed is set to slow, and the test stability is up to 1mΩ, which meets the test requirements.

■ Interval Fail (Int. Fail)

Stop

Cont.

What to do when the interval conductance test is negative: whether to stop the test and report FAIL immediately or complete the test and report FAIL later.

■ Error Loop (C.F.C.T.)

OFF

ON

When error loop is turned on, when the conductance test is failed, the instrument will cyclically test the conductance resistance value of this pin, and displayed on the test page, the test can be continued until the test passes. You can also press the STOP button to stop the test, and the instrument will directly report the FAIL result.

■ Test Current (DC Curr.)

Standard

The test current of the conductance resistance can be set from 1mA to 20mA, if the standard is selected, it is 20mA.

■ Conductance Network (Co Nets)

Normal

Stars

A - B

Mix

The pin combination mode of conductance resistance:

Normal: Conduct the conductance test on two adjacent short-circuit pins, for example: a certain network is: A1-A2-A3-B1, then you need to test 3 groups of conductance resistance, which are:

A1-A2

A2-A3

A3-B1

Stars: First, we must set a common pin, then combine with other pins to form test pins.

For example, set A1 as a common pin, then the conductance resistance test pin combinations are:

A1-A2

A1-A3

A1-B1

A - B: The pins of different sockets match each other, and then the conductance pin will become:

A1-B1

A2-B1

A3-B1

Mix: Contains all permutations and combinations, total number=N*(N-1)/2, so the above example has 6 combinations.
A1-A2

A1-A3

A1-B1

A2-A3

A2-B1

A3-B1

Common Pin (Com. Pin)

The common pins mentioned above are set here. Up to 2 common pins can be set for each DUT.

- Test items (CO items)

All
Normal
Probe

The conductance test is divided into two categories: normal conductance test and probe conductance test.
For these two types of conductance tests, you can choose here.

- Conductance Base (Co Zero)

If there is a fixed base deviation in the test system, measure its value, then input here, then all the conductance test values will subtract this bottom value.

- Conductance Balance (Cond Bala)

OFF
Sort

First, the conductance network is divided into N groups by conductance grouping, the test value of each conductance network, the difference between each other cannot exceed the set value.

3.3.4 LCR

Used to set related test conditions of passive components, as shown in the figure:

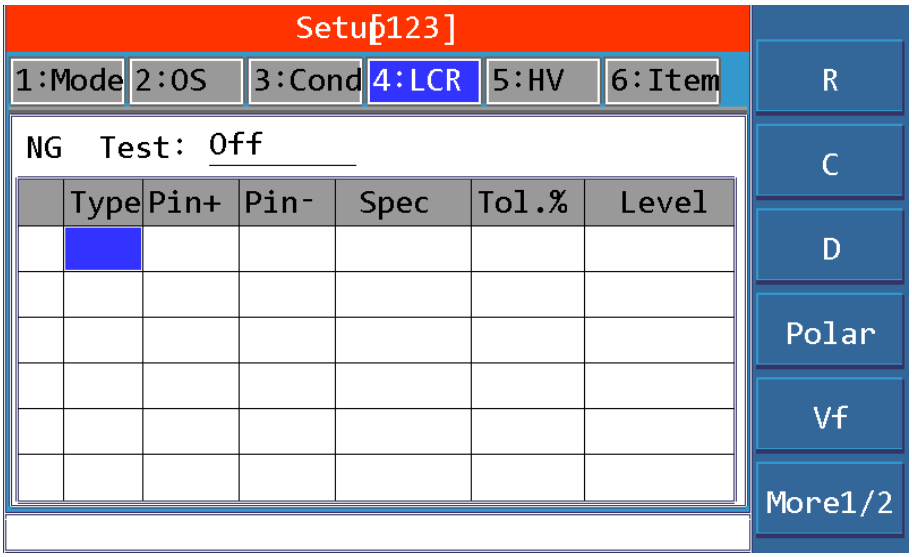


Figure 3.3-4 LCR page

■ Inductance Test

a. Move the cursor to the Type and select the inductance option;

b. Move the cursor to Pin +, enter the pin or use the test lead to find the pin automatically;

c. Move the cursor to the Pin -, input the pin or use the test lead to find the pin automatically;

d. Move the cursor to the Specification, enter the value and unit of the specification or connect a sample to be tested, perform learning, and obtain a measured value as a reference value;

e. Move the cursor to the Tolerance and enter the value of the tolerance;

Set the above points one by one, then the inductance components setting is completed.

■ Capacitance Test

a. Move the cursor to the type and select the capacitance option;

b. Move the cursor to Pin +, enter the pin or use the test lead to find the pin automatically;

c. Move the cursor to the Pin -, input the pin or use the test lead to find the pin automatically;

d. Move the cursor to the Specification, enter the value and unit of the specification or connect a sample to be tested, perform learning, and obtain a measured value as a reference value;

e. Move the cursor to the Tolerance and enter the value of the tolerance;

Set the above points one by one, then the setting of the capacitor components is completed.

■ Resistance Test

a. Move the cursor to the type and select the resistance option;

b. Move the cursor to Pin +, enter the pin or use the test lead to find the pin automatically;

c. Move the cursor to the Pin -, input the pin or use the test lead to find the pin automatically;

d. Move the cursor to the Specification, enter the value and unit of the specification or connect a sample to be tested, perform learning, and obtain a measured value as a reference value;

e. Move the cursor to the Tolerance and enter the value of the tolerance;

Set the above points one by one, then the setting of the resistance components is completed.

■ Diode Test

a. Move the cursor to the type and select the diode option;

b. Move the cursor to Pin +, enter the pin or use the test lead to find the pin automatically;

c. Move the cursor to the Pin -, input the pin or use the test lead to find the pin automatically;

d. Move the cursor to the Specification, enter the value and unit of the specification or connect a

sample to be tested, perform learning, and obtain a measured value as a reference value;
e. Move the cursor to the Tolerance and enter the value of the tolerance;
f. Move the cursor to addition, you can set the test current, the setting range is: 1-20mA.
g. If you need to light up the diode to check, you can enter the software debugging interface to set the light-emitting time. When testing a diode, it will not only measure its tube pressure, but also light up the diode for the set lighting time
Set the above points one by one, then the setting of the diode is completed.

■ Capacitor Polarity Test

a. Move the cursor to the type and select the capacitor polarity option;
b. Move the cursor to Pin +, enter the pin or use the test lead to find the pin automatically;
c. Move the cursor to the Pin -, input the pin or use the test lead to find the pin automatically;
d. Move the cursor to the Specification, enter the number 1 to indicate the direction as +, and enter the number 0 to indicate the direction as-
e. Move the cursor to addition, you can set the charging time. To test the polarity of a capacitor, the capacitor must be charged first. The larger the capacitor, the longer the charging time. The charging time can be set through the numeric keyboard input.
If the capacitance polarity test is misjudged, you can try to increase the charging time.
Set the above points one by one, then the capacitor polarity setting is completed.

■ Pressure Drop Test

a. Move the cursor to the type and select the pressure drop option;
b. Move the cursor to Pin +, enter the pin or use the test pen to find the pin automatically;
c. Move the cursor to the Pin -, input the pin or use the test pen to find the pin automatically;
d. Move the cursor to the Specification, enter the value and unit of the specification or connect a sample to be tested, perform learning, and obtain a measured value as a reference value;
e. Move the cursor to the Tolerance and enter the value of the tolerance;
f. Move the cursor to addition to set the working current.
Set the above points one by one, then the pressure drop setting is completed.

■ Leakage Test

a. Move the cursor to the type and select the leak option;
b. Move the cursor to pin +, enter the pin or use the test pen to find the pin automatically;
c. Move the cursor to the pin -, input the pin or use the test pen to find the pin automatically;
d. Move the cursor to the specification, enter the value and unit of the specification or connect a sample to be tested, perform learning, and obtain a measured value as a reference value;
e. Move the cursor to the tolerance and enter the value of the tolerance;
f. Move the cursor to addition to set the working voltage.
Set the above points one by one, then the leakage setting is completed.

■ Copy and Delete

If you want to delete or copy the set passive components, please follow the steps below:
First move the cursor to the serial number. At this time, two menus will be displayed: delete and copy.
Click delete to delete this row of components
Click Copy to copy this row of components to the next row.

3.3.5 HV

The setting of high voltage parameters is divided into 3 columns, namely AC withstand voltage, DC withstand voltage, and insulation resistance. The three high-voltage test items are independent of each other.

In addition, there are 2 pages in the high voltage setup as shown in the following figure: 1/2 page and 2/2 page respectively. Switching between pages can be done by directly moving the cursor.

1/2 page is high-pressure conventional parameter setting

Page 2/2 is the grounding pin parameter setting

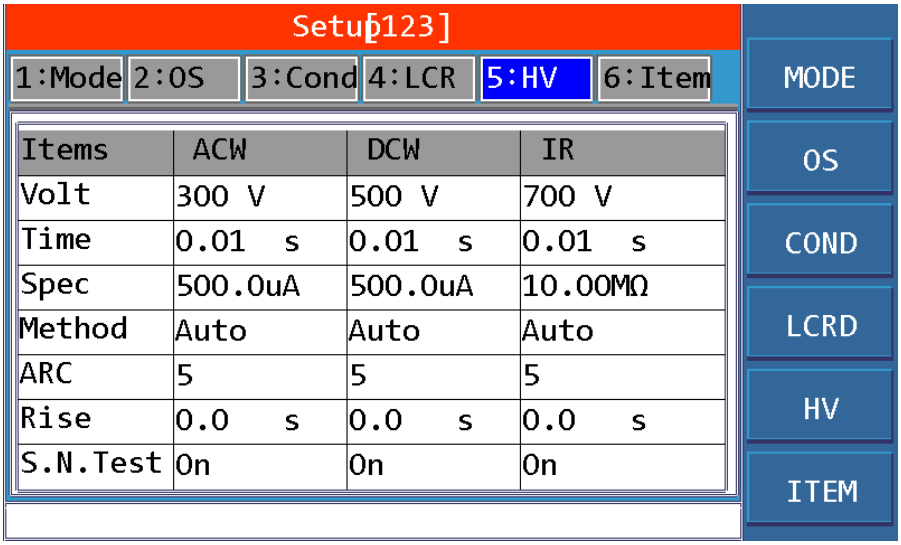


Figure 3.3-5 HV Page 1

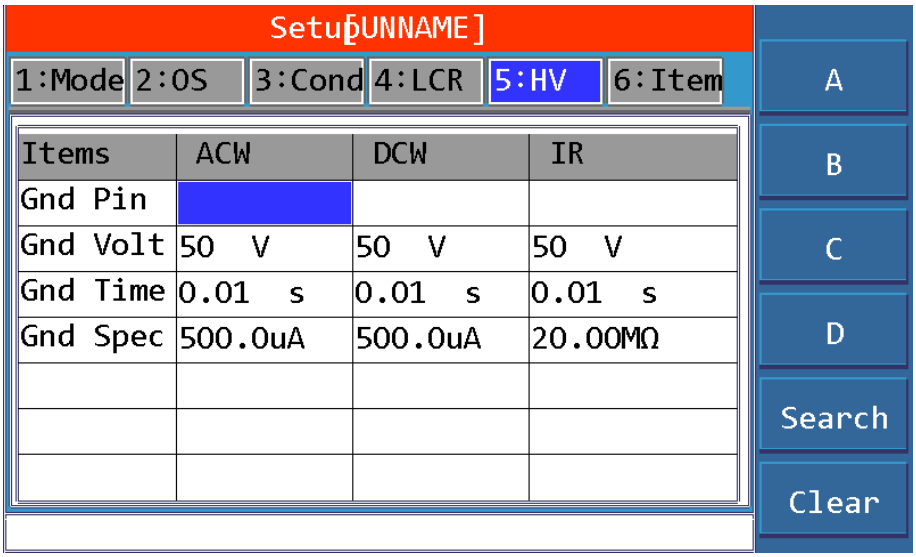


Figure 3.3-5 HV Page 2

- Voltage

Use the numeric keyboard to enter the value of the voltage and make settings.

The voltage range is: AC: 50V~1000V DC: 50V~1500V.

- Time

Refers to the duration of each test.

Use the numeric keyboard to enter the time value and set it.

The test time range is: 0.01s~500.0s

- Specification

Refers to the standard for judging whether the test data is qualified.

The specification setting range of AC withstand voltage is: 1uA~10mA;

The specification setting range of DC withstand voltage is: 1uA~10mA

The specification setting range of insulation resistance is: 0.1MΩ~10GΩ

- Method

There are a total of 4 methods for selection of high voltage test methods, which can be selected through the menu:

Dich.: high speed, but it cannot accurately find out the specific bad pin.

One: scan each network one by one to other test method, the speed is slow, however, specific bad pins can be scanned.

Auto: first perform a binary test on the tested part:

If it is passed, the test will end and report PASS;

If it is failed, then switch to the one to the others method for testing;

If it is passed, the test will end and report PASS;

If it is failed, the test will end and report FAIL;

Gnd: used to test shielding cable test, insulation or withstand voltage test of center cable to ground cable.

First specify a ground pin, then connect the ground pin to the test high end, and connect the other pins to the test low end, conduct the high voltage test like this.

- Arc Detection

This item can be set to OFF or a total of 8 arc levels from 1 to 8.

- Rise Time

The time required for the voltage to rise to the specified test voltage.

The rise time is set by direct input through the numeric keyboard.

- Spot None Test (S.N.Test)

Whether to test the none spot on the DUT, you can set it through the menu item, choose to turn ON or OFF.

- Ground Pin

In all tests to ground, a ground pin must be designated.

The pin setting can be input through the numeric keyboard or use the test lead to automatically find the point.

- Ground Voltage

Use the numeric keyboard to enter the value of the voltage and make settings.

The test voltage range is: AC: 50V~1000V DC: 50V~1500V.

- Ground Time

Refers to the duration of each test.

Use the numeric keyboard to enter the time value and set it.

The test time range is: 0.01s~500.0s

- Ground Specifications

Refers to the standard for judging whether the test data is qualified.

The specification setting range of AC withstand voltage is: 1uA~10mA;

The specification setting range of DC withstand voltage is: 1uA~10mA

The specification setting range of insulation resistance is: 0.1MΩ~10GΩ.

3.3.6 Item

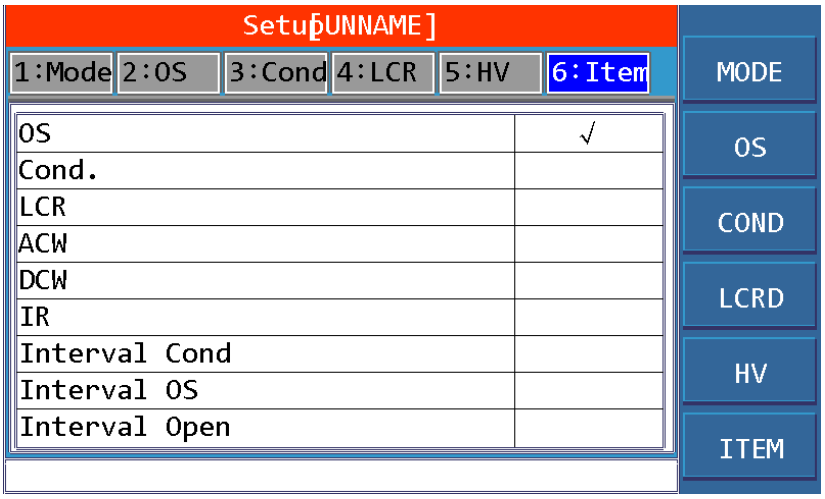


Figure3.3-6 Item Page

Select the items to be tested in the current file. For example, you need to test the OS circuit.

3.4 Learn Interface

Press the module button [LEARN], and the network sweeping of the tested sample will be performed immediately. After completion, it will enter the <Learn> page to display the sweeping result. As shown below

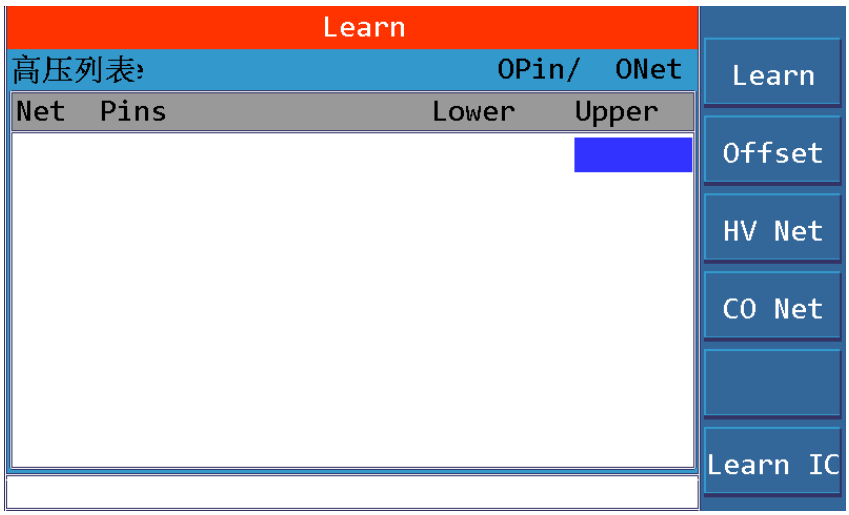


Figure 3.4-1 Learn Interface 1

3.4.1 Learn

Before learning, first connect the tested sample to the test port.

The main purpose of learning is to obtain the pin structure of the DUT (namely, the OS-circuit network table), and then perform related tests in accordance with the OS-circuit network table.

3.4.2 OSC Network Table

The result of learning, that is, the OS-circuit net table, is displayed on the display screen in the form of a two-dimensional list.
1. Pins that are short-circuited to each other are grouped together and called: Net.
A collection of multiple networks is called a network table.
2. The network table is divided into 4 columns, the first of which are: Net, point, learning value, standard value respectively
Net: indicates the number, the network table has multiple networks (Net), and each network table is numbered starting from 001, 002.
Pins: It is the pin.
The meaning of the learn value and the standard value is different for unilateral cable and bilateral cable
For single-sided cables:
Learn value: the measured unilateral sensitivity.
After sweeping the net list, the instrument continues to perform unilateral sensitivity scanning of the tested sample. The unilateral sensitivity value of each Net is displayed here.
Standard value: Set the unilateral sensitivity in the short break page. It is used to judge whether the unilateral cable is disconnected.
Move the cursor to the standard value column and use the up and down keys to move the cursor back and forth between the standard values of each Net. At the same time, you can enter a new standard value through the numeric keyboard. Because TH8601 supports different standard values for each Net. This function is mainly for some unilateral cables of different lengths.

For double-sided cables:
Learn value:
Standard value: the high limit of conduction in the conduction page of the setting. It is used to judge whether the double-sided cable is disconnected.
Move the cursor to the standard value column and use the up and down keys to move the cursor back and forth between the standard values of each Net. At the same time, you can enter a new standard value through the numeric keyboard. Because TH8601 supports different standard values for each Net. This function is mainly for some double-sided cables of different lengths.

3.4.3 Offset

The offset function is mainly to eliminate errors caused by temperature, humidity, and fixtures.

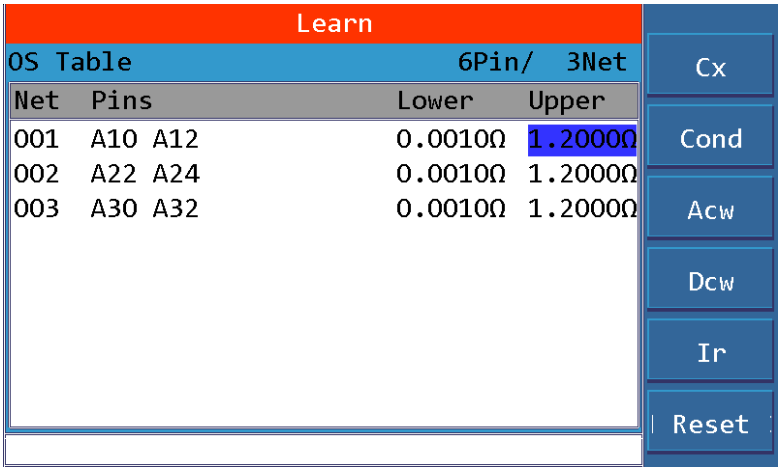


Figure3.4-2 Learn Interface 2

- Single-side Offset (Cx)

Put the instrument in the open-circuit state, and then click Select, the instrument will start to sweep the single-side sensitivity of each pin one by one, and the obtained single-side sensitivity value will be used as the single-side sensitivity clear value.

In the actual test, the test data = the measured single-side sensitivity-the single-side sensitivity off-set value.

- Conductance Offset (Cond)

Plug in the short-circuit board, put the instrument in a short-circuit state, and then click Link. The instrument will sweep the inductance resistance of each net one by one according to the network table, and the obtained conductance value is used as the offset value of the conductance. In the actual test, the test data = actual measured conductance resistance- the conductance resistance offset value.

- AC withstand voltage Offset (ACW)

Put the instrument in the open-circuit state, and then click Reset. The instrument will start to sweep the AC withstand voltage leakage current of each net one by one, and the obtained leakage current value will be used as the AC withstand voltage reset value.

In the actual test, the test data = the measured leakage current-the leakage current offset value.

- AC withstand voltage Offset (DCW)

Put the instrument in the open-circuit state, and then click Reset. The instrument will start to sweep the DC withstand voltage leakage current of each net one by one, and the obtained leakage current value will be used as the DC withstand voltage reset value.

In the actual test, the test data = the measured leakage current-the leakage current offset value.

- Insulation Offset

Put the instrument in the open circuit state, and then click Creat. The instrument will start to sweep the leakage current of each net's DC withstand voltage one by one, and the obtained leakage current value will be used as the insulation resistance reset value.

In the actual test, the test data = the measured leakage current-the leakage current offset value.

- Reset

All the above offset values, including single-side sensitivity offset value, conductance resistance offset value, AC withstand voltage offset value, insulation resistance offset value, are all set to 0.

3.4.4 HV Net

In order to protect the passive components or improve the test efficiency, the high-voltage test network needs to be modified, so the function of high-voltage merge is provided, which can create, link, delete and other functions of the high-voltage network.

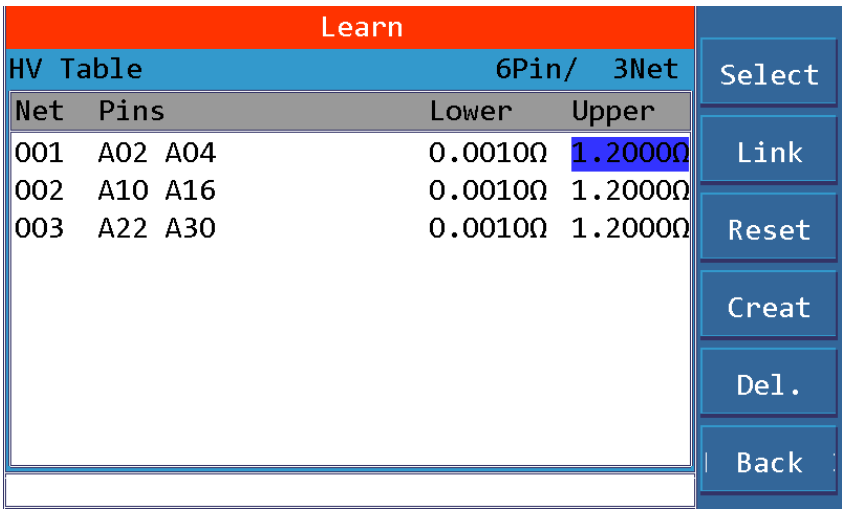


Figure 3.4-3 Learn Interface 3

- Link

First select the nets to be linked, move the cursor to the net to be linked, and click the menu item of Select. The background color of the net is programmed to be blue, indicating that the net has been selected.

After selecting the nets to be linked, click the menu item Link, you can see that the network table is refreshed, and you can see that the selected nets are linked into one net.

- Delete

First select the net to be deleted, move the cursor to the net to be deleted, and click the menu item of Select. The background color of the net is programmed to be blue, indicating that the net has been selected. You can select multiple nets.

After selecting the net to be deleted, click the menu item Delete, you can see that the network table is refreshed, and you can see that the selected nets are missing, indicating that the deletion is successful.

- Create

The so-called creation is to create a new high-voltage network, which is a unilateral network by default.

First click the menu item to Creat , the prompt message is displayed: please enter the starting pin

Then input the starting pin, such as input: A1

After the input is completed, the prompt message is displayed: Please input the termination pin

Then enter the termination pin, for example, enter: A8

After the input is complete, a new network will be displayed.

- Reset

Click the menu item Reset to restore the high voltage network meter to its initial state.

3.4.5 Conductance Network Editing

In order to protect the passive components or improve the test efficiency, the high-voltage test network needs to be modified, so the function of high-voltage link is provided, which can create, link, delete and other functions of the high-voltage network.

- Delete Net

Move the cursor to the net to be deleted, and click the delete button in the menu item to delete this net.

- Modify Pin Position

If you want to modify the specified pin position, just move the cursor to the pin position and input the new pin position.

- Add Net

Move the cursor to the blank space, and then input 2 pins in sequence.

- Modify Standard Value

The standard value of each net is the high limit of conduction by default, but different standard values can also be set for each net.

Move the cursor to the standard value you want to modify and input the new standard value.

3.5 <MEAS > Interface

Press the [MEAS] module button, the <Test> page will be displayed on the screen.

As shown:

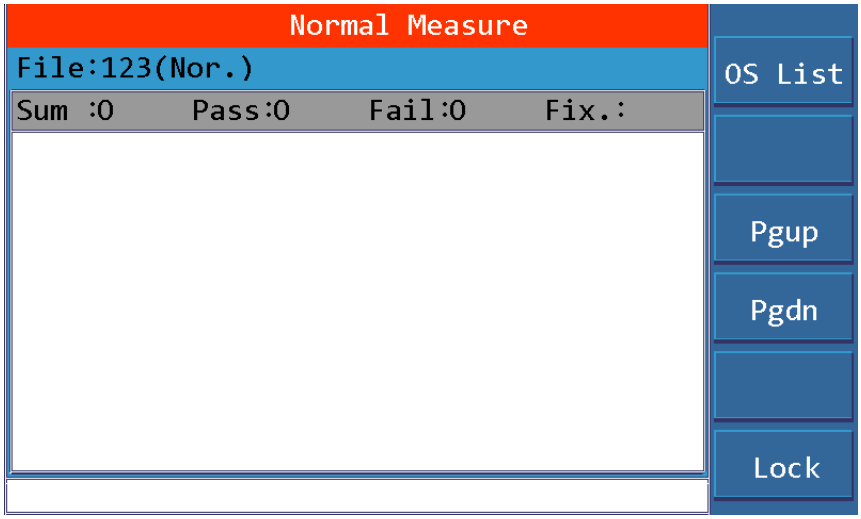


Figure3.5-1 Measure Interface

On this page, relevant information about the current test is displayed, including the current test file, test type, and test result. Each part is described in detail below.

3.5.1 Title

The title indicates the type of current test. There are the following 4 test types:

Normal measure: Ordinary cable test
Single-side measure: single-sided cable test
Probe measure: test point test
Sequential measure: test of sequential files
The above picture is an example, the current test type is Normal Measure.

3.5.2 File

The file indicates the name and type of the file:
File name: It is composed of numbers, letters and underscore (-), and can be up to 12 bytes
File type: Divided into two types: common for single test files; sequential files for sequential files

3.5.3 Sum

Sum show the total number of tests currently tested, the total number of passes and the total number of failed.

3.5.4 Measurement Result

The test results mainly include:
Test item: Show what the test item is.
Test pin: display which test pin is
Test data: display specific data of the test
Sorting judgment: display whether the judgment result is pass or fail.

3.5.5 Menu

OS List: You can switch to the learning interface to view the network table of the current file.
Page up/page down: Page up or down to view the test results.
Lock:
In the environment page of the system settings, the parameter item Lock, divided into manual and bus modes.
1. Manual mode:

When the Lock is pressed, 4 functions are retained:
Press <TEST> to start the test;
Press <STOP> to stop the test;
<Unlock> button to unlock;
Load file function: you can press the <FILE> button to enter the file module to load files.

2. Bus mode:

When the key lock is pressed, 3 functions are retained:
Press <TEST> to start the test;
Press <STOP> to stop the test;

<Unlock> button to unlock;

3.6 <STAT> Interface

Press the module button [STAT] to enter the <Statistics> page. As shown below:

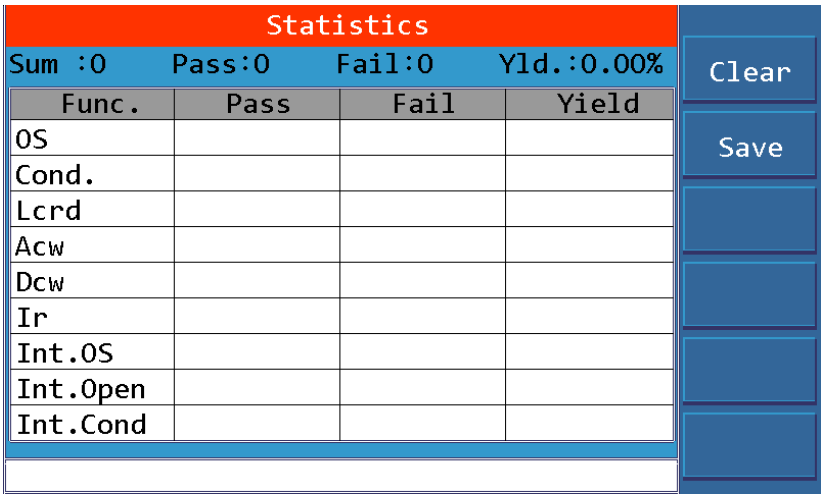


Figure 3.6-1 Statistics Interface

3.6.1 Overall Statistics

At the top, there are four statistical data of Sum, Pass, Fail, and Yield. These data are the overall statistics of the test work. You can intuitively see the summary and yield of product tests.

3.6.2 Statistics by Items

In the list, we have carried out statistics on 9 test items respectively. The counted items include pass number, fail number and yield rate, which is convenient for the analysis of product defects.

3.6.3 Menu Function

Click the menu item Clear, and a prompt message will pop up: Do you want to clear statistical data? If you choose yes, all previous statistics will be zeroed.

3.7 <FILE> Interface

Press the module button [FILE] to enter the <File> page. Including the current file name, file storage location and file-related operations, etc., as shown in the following figure:

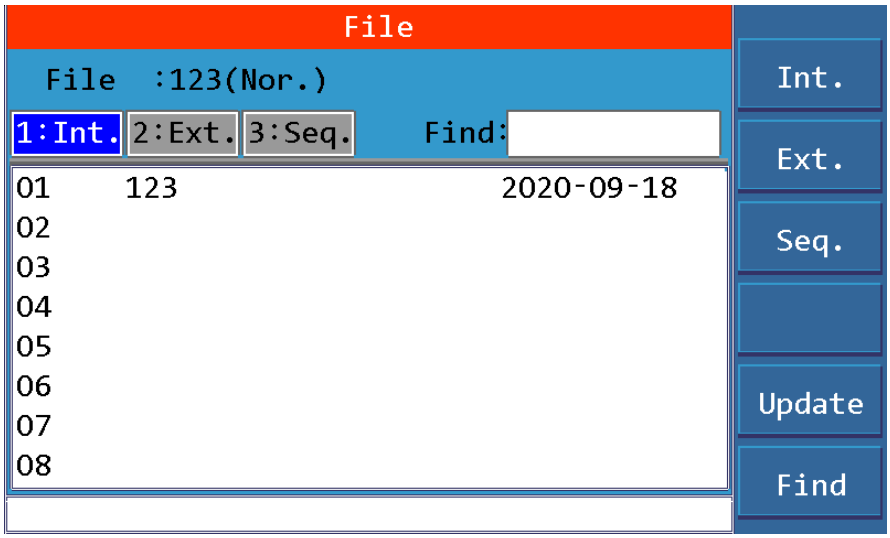


Figure 3.7-1 File Interface

The <File> page has 3 tabs, which are internal, external and sequential, as explained below:

3.7.1 Current File: UNNAME (normal)

It contains the name and type of the test file being used.

3.7.2 Internal

The so-called internal refers to the files in the internal memory of the instrument. The operation of internal files mainly includes the following 5 operations:

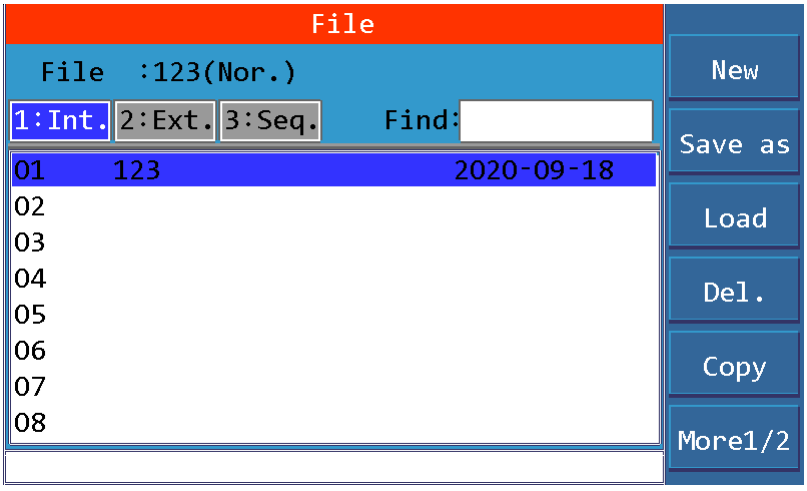


Figure 3.7-2 File Interface 2

New: Create a new file whose setting content is the factory setting.
Move the cursor to the blank space, and then click the menu New, a prompt message will pop up: Please enter the file name
Then enter the file name, click OK, and a new file will be created.
Save as: save the current parameter settings
Move the cursor to the blank area, and then click the menu to save, a prompt message will pop up:

Please enter the file name

Then enter the file name, click OK, and a new file will be saved.

Load: Import an existing file

Move the cursor to the file you need, and then click the menu to import, a prompt message will pop up: Do you want to import the file?

After clicking OK, the files you need are imported.

Copy: Copy the file to the USB flash drive, provided that the USB flash drive is inserted first.

Move the cursor to the file you want to copy, and then click the menu copy, a prompt message will pop up: Do you want to copy the file to the U disk?

After clicking OK, the files you want to copy are copied to the U disk.

Delete: delete the specified file

Move the cursor to the file you want to delete, then click the menu delete, a prompt message will pop up: Do you want to delete the file?

After clicking OK, the file you want to delete is gone, indicating that the deletion is complete.

3.7.3 External

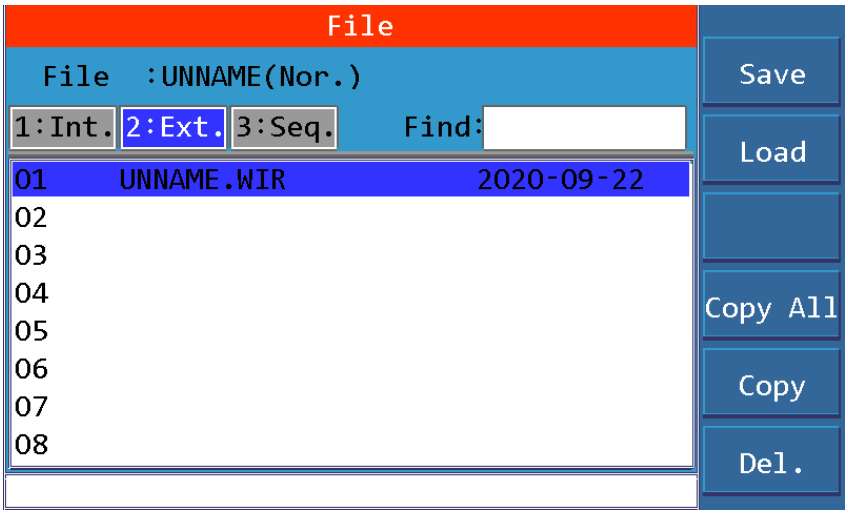


Figure 3.7-3 File Interface 3

External refers to external USB storage. The operation of external files mainly includes the following 4 operations:

Save : save the current parameter settings

Move the cursor to the blank area, and then click the menu to save, a prompt message will pop up: Please enter the file name

Then enter the file name, click OK, and a new file will be saved.

Load: Import an existing file

Move the cursor to the file you need, and then click the menu to import, a prompt message will pop up: Do you want to import the file?

After clicking OK, the files you need are imported.

Copy: Copy the file to the instrument.

Move the cursor to the file you want to copy, and then click the menu copy, a prompt message will pop up: Do you want to copy the file to the instrument?

After clicking OK, the file you want to copy is copied to the instrument.

Delete: delete the specified file

Move the cursor to the file you want to delete, then click the menu delete, a prompt message will pop up: Do you want to delete the file?

After clicking OK, the file you want to delete is gone, indicating that the deletion is complete.

3.7.4 Sequential

Sequential refers to the sequential test file. For sequential test files, there are mainly the following 5 operations:

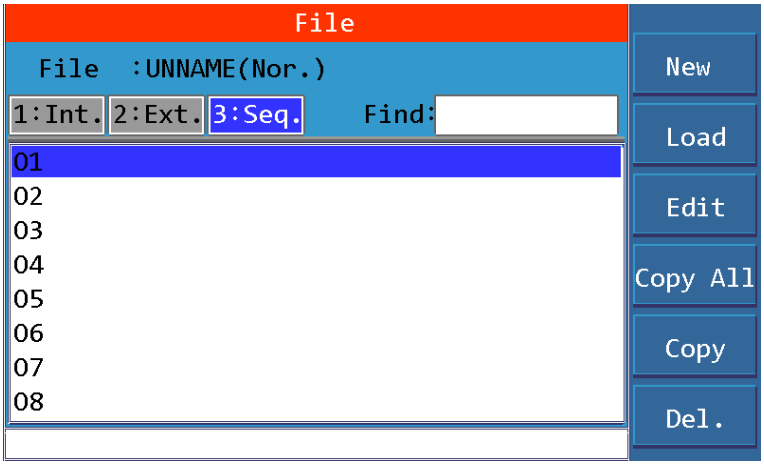


Figure 3.7-4 File Interface 4

New: Create a new profile.

Move the cursor to the blank space, and then click the menu to New, a prompt message will pop up: Please enter the file name

Then enter the file name and click OK to enter the creation interface.

If you need to add a certain file to the sequential file, just move the cursor to the file and click the menu item to select, then you can move the file to the sequential file.

According to this operation, you can select multiple files to the sequential file.

Finally, click the menu item Finish to successfully create a sequential file.

Load: Import an existing file

Move the cursor to the file you need, and then click the menu to import, a prompt message will pop up: Do you want to import the file?

After clicking OK, the files you need are imported.

Edit: Edit an existing file

Move the cursor to the file you are editing, then click the menu edit, and then you will enter the editing interface.

After entering the editing interface, you can perform the following 3 operations: delete steps, add steps, and adjust the order of steps.

Copy: Copy the file to the USB flash drive, provided that the USB flash drive is inserted first.

Move the cursor to the file you want to copy, and then click the menu copy, a prompt message will pop up: Do you want to copy the file to the U disk?

After clicking OK, the files you want to copy are copied to the U disk.

Delete: delete the specified file

Move the cursor to the file you want to delete, then click the menu delete, a prompt message will pop up: Do you want to delete the file?

After clicking OK, the file you want to delete is gone, indicating that the deletion is complete.

3.8 <SYS> Interface

Press the module button [SYS] to enter the <System> page. As shown:

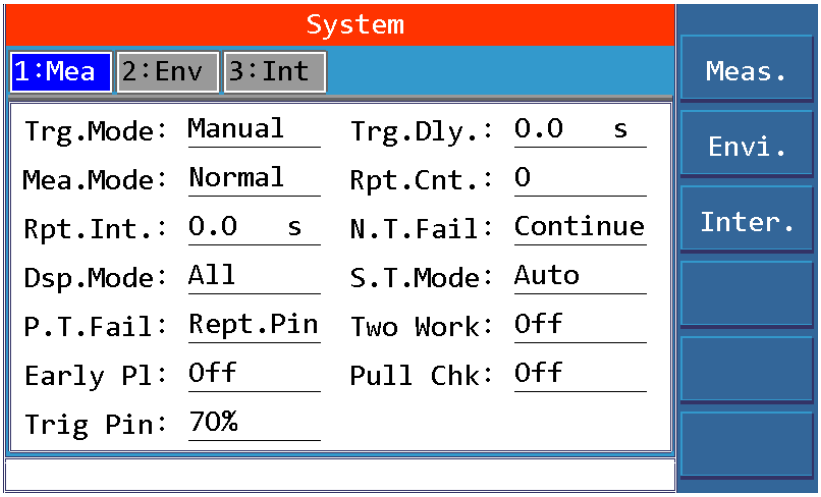


Figure 3.8-1 System Interface

The <System> page includes three tabs: Measurement, Environment and Intercommunication. After modifying the settings, click the save button to save. The following describes each page one by one.

3.8.1 Measurement

- Trigger Mode

Move the cursor to the Trg. Mode setting field, and the following options will be displayed on the soft key area of the screen.

Manual: Use the front TEST button to start the test;

Ext.: use the Handle interface on the rear panel to start the test;

Bus: Through the communication interface, use the trigger command to start the test;

Auto: The instrument automatically judges whether the DUT is plugged in and automatically triggers the test;

- Trigger Delay

After starting the test, the test does not start immediately, but a certain time delay before the test starts. The length of the delay time is set here.

Move the cursor to the Trg. Dly setting field, and use the numeric keyboard to directly input a value. The allowable input range is: 0~99.9s.

- Measure Mode

Move the cursor to the Mea. Mode setting field and the following options will be displayed on the soft key area of the screen.

Normal: each test piece is tested once;

Repeat: Repeat the test several times, the specific times are set by the repeat times of the following parameter items;

Loop: Test continuously, and the test will not stop until you press the EXIT button to exit.

- Repeat Count

As mentioned above, this parameter sets the number of times to repeat the test.

Move the cursor to the Rpt.Cnt. setting field, use the numeric keyboard to directly input a value, the allowable input range is: 0~999.

- Test Interval

In repeat test and sequential test, the time interval between the two tests is set here.

Move the cursor to the Rpt. Int setting field, use the numeric keyboard to directly input a value, the allowable input range is: 0~99.9s.

- Normal Test Fail

In the test process of normal files, there is a bad situation, which should be handled as follows:

Move the cursor to the setting field N,T.Fail, the following options will be displayed in the soft key area of the screen.

Cont.: Continue testing until all test items are tested.

Stop: Stop the test immediately and give a FAIL judgment.

Skip HV: continue testing, but high voltage items will not be tested, other items are allowed to be tested.

- Display Mode

When a DUT test is completed, the test data will be displayed and how to display these data.

Move the cursor to the Dsp.Mode setting field, and the following options will be displayed on the soft key area of the screen.

All: Show all data, including qualified data and bad data

NG: Only display the unqualified data

Auto: first display the unqualified data, if necessary, press the ENTER key to display all the data

Sequential Test Method

It is the test method of sequential files.

Move the cursor to the S.T.Mode setting field, and the following options are displayed in the soft key area of the screen.

Key: Use the TEST button on the front panel to start the test and the next test

Cont.: Use the TEST button on the front panel to start the test, and continuously complete all steps at one time.

Auto: The instrument will continuously scan the network table, and will not start the test until the network table is consistent with the learning network of the current file.

Probe Test Fail

What to do if the test fails during the spot test.

Move the cursor to the P.T.Fail setting field, and the following options will be displayed on the soft key area of the screen.

Repeat: The test will stop at the bad place, repeat the test and display the bad data, until the test PASS or you press the EXIT button to stop the test.

Next: The test will stop at a bad place, repeat the test and display bad data. There is a menu item

Next test, click this menu item to skip this step and enter to the next test.

- Early Pullout

Whether to turn on the judgment function of the DUT is pullout early

Move the cursor to the Early Pl setting field, and the following options will be displayed on the soft key area of the screen.

OFF

ON

Two Work

Duplex workbench function

Move the cursor to the Two Work setting field, and the following options will be displayed in the soft key area of the screen.

OFF

ON

Pull Out Check

After the DUT is tested, it must be unplugged to continue testing the next DUT, otherwise the test cannot be performed. Prevent a DUT from being repeatedly tested.

Move the cursor to the Pull Chk setting field, and the following options are displayed in the soft key area of the screen.

OFF

ON

Trigger Pin

How many pins should be inserted to trigger the test, set it here.

3.8.2 Environment

The environment refers to the setting of the test sound, system language and date. As shown

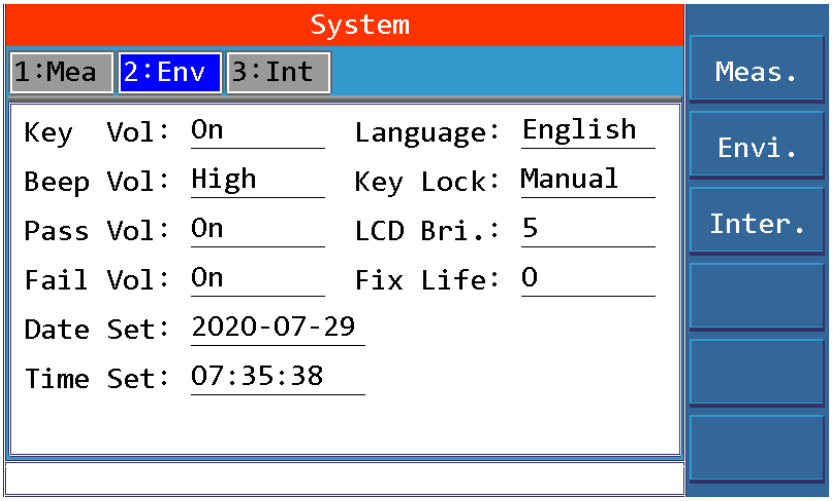


Figure 3.8-2 System environment interface

- Key Volume

Do you want to make a sound when you press the key?

Move the cursor to the key Vol setting area, and the following soft keys are displayed in the soft key area of the screen.

OFF

ON

Language

The instrument provides two languages, Chinese and English.

Move the cursor to the Language setting area, and the following soft keys are displayed in the soft key area of the screen.

Chinese

English

Beep Volume

Adjust the volume of the speaker in the instrument, divided into three levels: high, middle and low

Move the cursor to the Beep Vol setting field, and the following soft keys are displayed in the soft key area of the screen.

OFF

Low

Med

High

Key Lock

After the key is locked, its permissions are divided into the following two types

Move the cursor to the key lock setting area, the following soft keys are displayed in the soft key area of the screen.

Manual: You can use the TEST and EXIT buttons to start and stop the test. It is also allowed to enter the file module to load files.

Bus: Only use the TEST and EXIT buttons to start and stop the test.

- Pass Volume

Do you want to make a sound when the DUT passes the test?

Move the cursor to the Pass Vol setting field, and the following soft keys are displayed in the soft key area of the screen.

OFF

ON

LCD Brightness

Adjust the brightness of the LCD screen, the adjustment range is 0~10.

Move the cursor to the LCR Bri. setting field, the following soft keys are displayed in the soft key area of the screen.

+: increase brightness

-: decrease brightness

Fail Volume

Do you want to make a sound when the DUT failed the test?
Move the cursor to the Fail Vol setting field, and the following soft keys are displayed in the soft key area of the screen.
OFF

OFF

Date Set

Move the cursor to the year and enter the year value to set the year;
Move the cursor to the month and enter the month value to set the month;
Move the cursor to the day part, enter the value of the day, you can set the day;

- Time Set

Move the cursor to the hour and enter the hour value to set the hour;
Move the cursor to the minute and enter the minute value to set the minute;
Move the cursor to the second and enter the second value to set the second;

3.8.3 Inter telecommunication

Inter telecommunication refers to the setting of the system communication method, as shown in the figure:

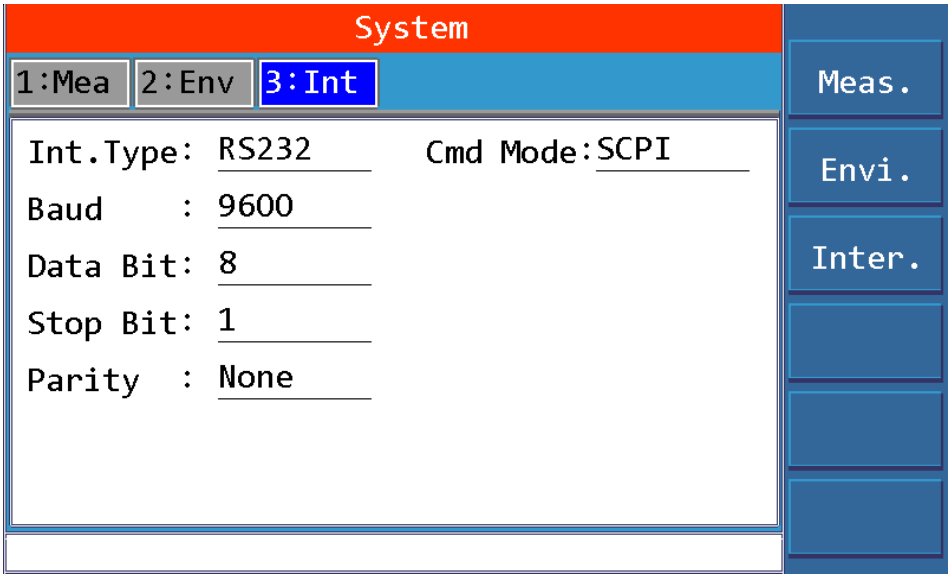


Figure 3.8-3 Inter telecommunication Interface

- Inter telecommunication Type

This device has 5 inter telecommunication types, they are: RS232, GPIB, USB, LAN and RS485.
Move the cursor to the Int.Type setting field, and the following soft keys are displayed in the soft key area of the screen.
RS232

GPIB

USB

LAN

RS485

RS232 Inter telecommunication Setting

1. Baud Rate

There are a total of 4 baud rates to choose from: 9600, 19200, 38400, 115200

Move the cursor to the Baud setting field, the following soft keys are displayed in the soft key area of the screen.

9600

19200

38400

115200

Data Bit

There are a total of 2 data bits to choose from: 8,7

Move the cursor to the Data Bit setting area, the following soft keys are displayed in the soft key area of the screen.

8

7

Stop Bit

There are a total of 2 stop bits to choose from: 1,2

Move the cursor to the Stop Bit setting area, the following soft keys are displayed in the soft key area of the screen.

1

2

Parity

There are 3 ways to choose parity check: none, odd check, even check

Move the cursor to the Parity setting field, and the following soft keys are displayed in the soft key area of the screen.

None

Odd

Even

GPIB Inter telecommunication Setting

Address number

Move the cursor to the Address setting field, and input the address value. The setting range is 1～32.

- USB Inter telecommunication Setting

USB Mode

Move the cursor to the USB setting field, the following soft keys are displayed in the soft key area of the screen.

TMC

CDC

- LAN Inter telecommunication Setting

Routing Protocol

Move the cursor to the DCHP setting field, the following soft keys are displayed in the soft key area of the screen.

OFF

ON

- RS485 Inter telecommunication Setting

1. Address code

Move the cursor to the Address setting field, and input the address value. The setting range is 1～32.

2. Auto IP

Move the cursor to the Auto IP setting field, and the following soft keys are displayed in the soft key area of the screen.

OFF

ON

3. IP Address

Move the cursor to the IP address setting field to input the address values one by one, a total of 4 values need to be input, the range is: 0~255

4. Subnet Mask

Move the cursor to the Subnet Mask setting field to input the address values one by one, a total of 4 values need to be input, the range is: 0~255

5. Default Gateway

Move the cursor to the Default Gateway setting field to input the address values one by one, a total of 4 values need to be input, the range is: 0~255

6. DNS Service 1

Move the cursor to the DNS Service 1 setting field to input the address values one by one, a total of 4 values need to be input, the range is: 0~255

7.DNS Service 2

Move the cursor to the DNS Service 2 setting field to input the address values one by one, a total of 4 values need to be input, the range is: 0~255

3.9 <UTILI> Interface

This module provides some auxiliary functions, please see the detailed explanation below.

3.9.1 Pin Search

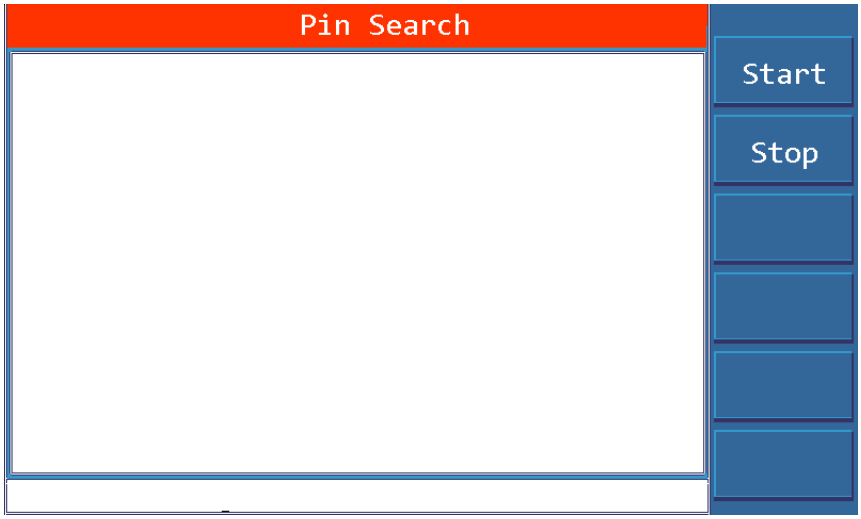


Figure 3.9-1 Pin Search Interface

Click on the menu item: Start to find the point and the instrument will start to detect the point continuously.

Then use the test pen to touch the pin whose number you want to know, and the result of the search point will be displayed on the screen immediately.

If you want to exit this function, please first click the menu item: Stop seeking to stop detecting points, and then press EXIT to exit.

3.9.2 Self Check

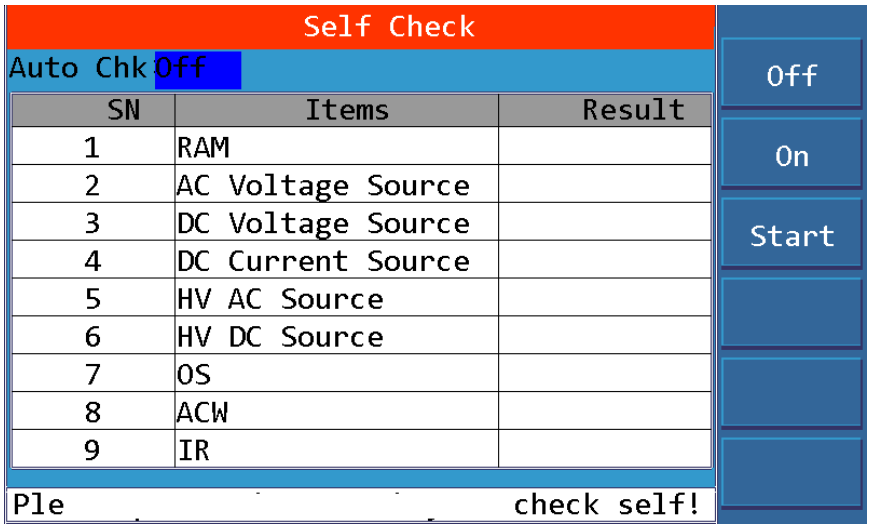


Figure 3.9-2 Self Check Interface

1. Whether to perform self-test when power on, the menu item: Off and On is used to control this function.

2. To start the self-test, you can click the menu item START button.

3.9.3 HV Module

This function can be used as a simple withstand voltage meter.

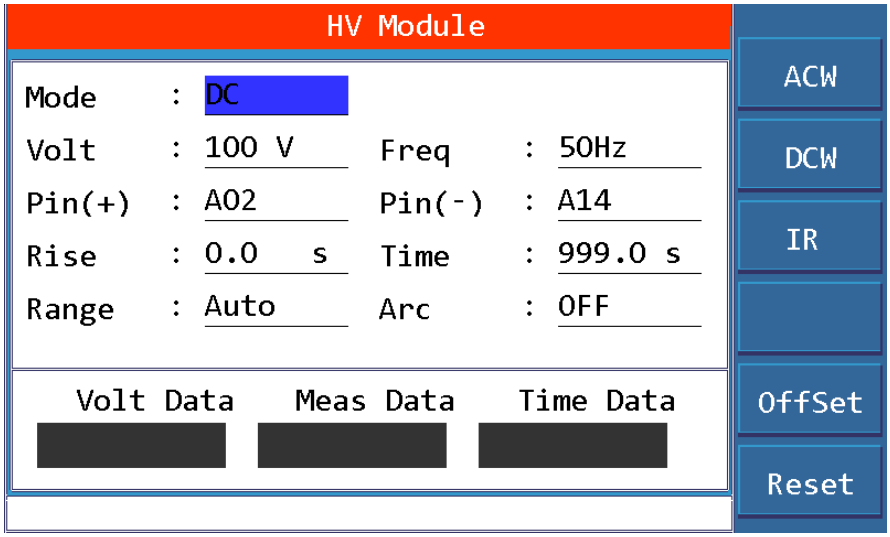


Figure 3.9-3 HV Module Interface

In this interface, you can select three test functions: AC withstand voltage, DC withstand voltage, and insulation resistance.

Move the cursor and you can freely set the test voltage, test frequency, test pin position, rise time, test time, test range, arc level and other parameters.

Lower part is the real-time display of test voltage, test data and test time.

3.9.4 I/O Edit

In this interface, you can edit the related settings of the Handler interface.

Except for the input signals of pins 11 and 12 that cannot be edited, the other pins 1 to 8 are output signals, whose signal and level can be set at will.

1. Signal setting

This instrument provides nearly 40 kinds of signals to choose from.

Such as qualified signal, bad signal, poor conduction and so on.

2. Level setting

This instrument provides 4 types of levels, namely high level, low level, high pulse, and low pulse.

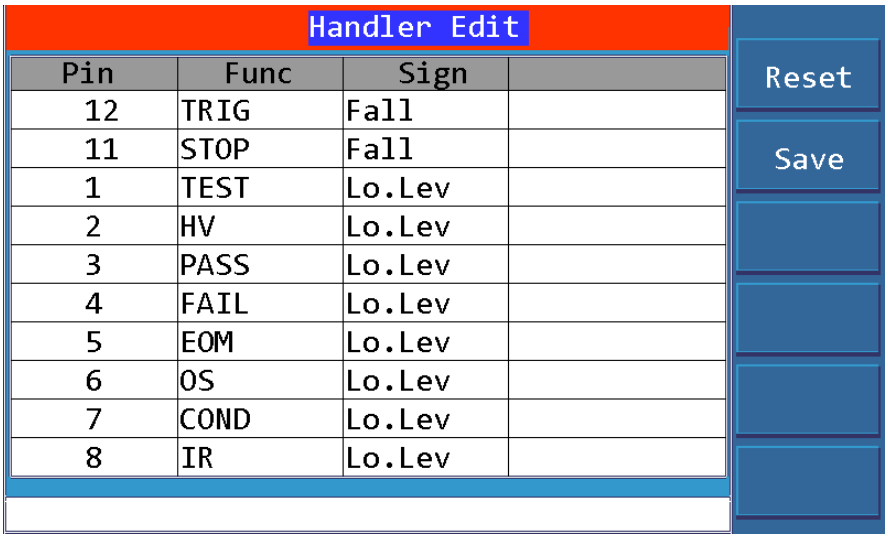


Figure 3.9-4 Handler Edit Interface

3.9.5 Memory Initialization

Move the cursor to the Memory Init. location, and 3 menu items will appear.

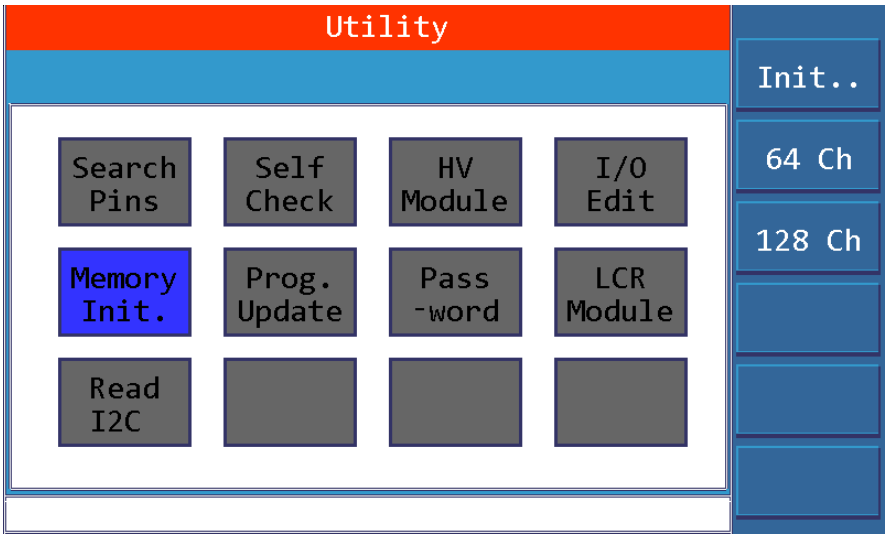


Figure 3.9-5 Utility Interface

1. Initialization

This function can initialize the memory of the instrument and restore factory settings. Note: This operation will clear all archives, please make backup work in advance.

2. 64Ch/128 Ch

To switch between the two instrument types, note: Please do not use this function without the guidance of a technician.

3.9.6 Program Update

Move the cursor to the Program Update place, insert the U disk with the upgrade program (TH8601.sec), click the menu item Upgrade and confirm, then the upgrade program will start, and a progress bar will appear in the bottom information bar. When the progress bar reaches 100 %, the instrument will automatically restart, indicating that the program upgrade was successful.

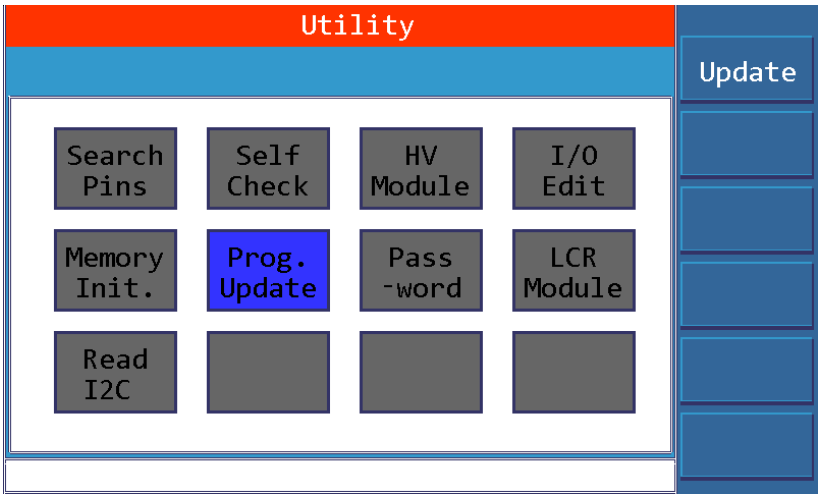


Figure 3.9-6 Utility Interface

3.9.7 Pass Word

Here you can set a system password.

During the actual test, you can lock the keyboard to prevent the operator from changing the test conditions. After setting the password, both the keyboard lock and keyboard unlock need to enter the password to operate successfully.

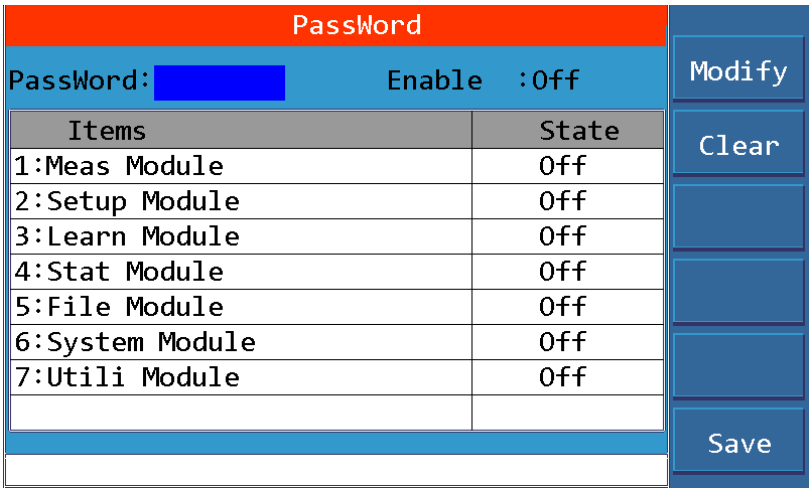


Figure 3.9-7 System Pass Word Interface

3.9.8 LCR Module

This function can be regarded as a simple LCR bridge to use.

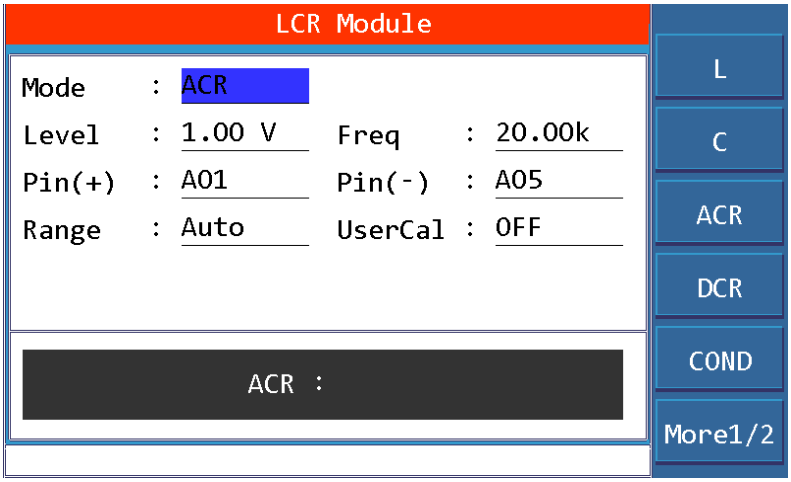


Figure 3.9-8 LCR Interface

This interface can test inductance, capacitance, AC resistance, DC resistance, on-resistance, and diodes. The TH8601C series also adds voltage drop, which provides high current testing.

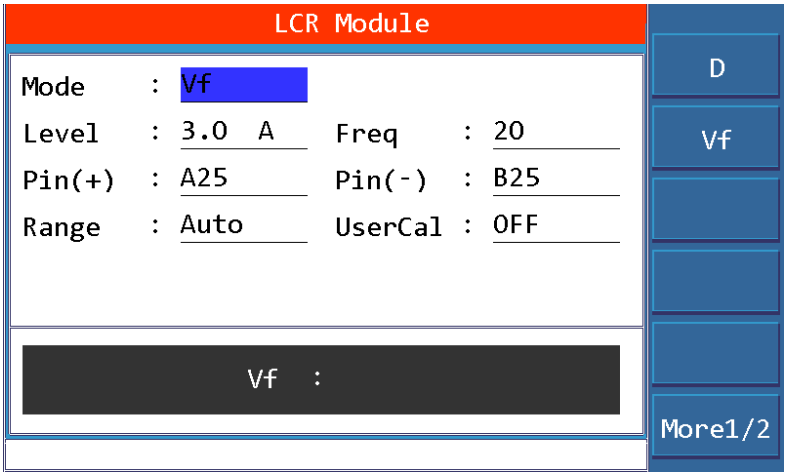


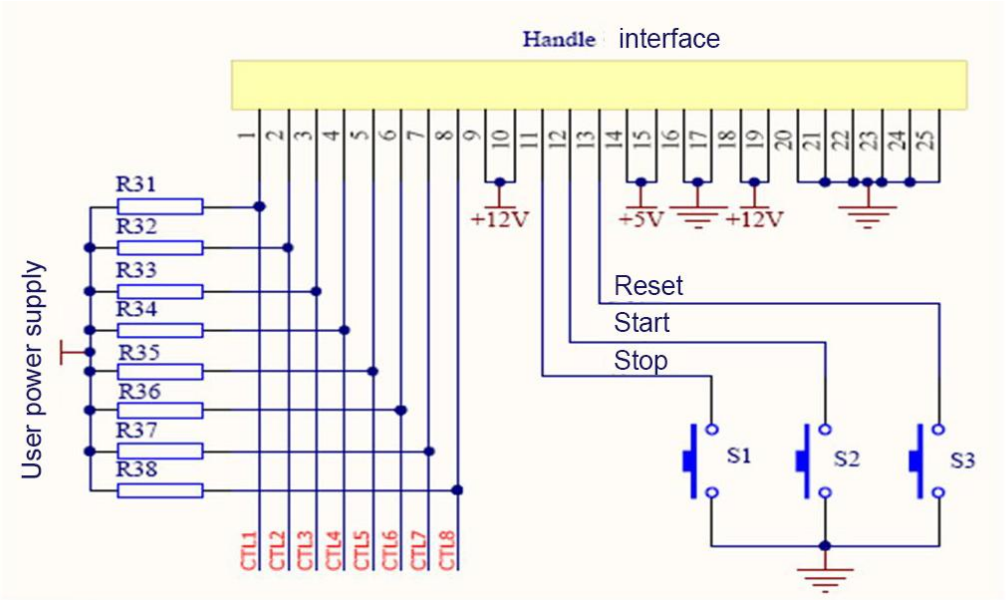
Figure 3.9-9 LCR Interface 2

Among them, DC resistance is used to test large resistance greater than 1k,
For small resistances less than 1k, please use on-resistance for testing.
Move the cursor and you can set the test level, test frequency, test pin position, test range and other parameters.

Chapter 4 Communication Interface

4.1 Handler

4.1.1 Handler Interface Circuit Diagram



4.1.2 Interface Description

Pin#	Pin# Name	Pin Function
1~8	CTL1~ CTL8	Output signal pin 1~8, relay output
9	12V	Power
10	12V	Power
11	EXIT	Stop Test
12	TEST	Start Test
13	RESET	Restart Tester
14	5V	Power
15	5V	Power
16	GND	Ground
17	GND	Ground
18	12V	Power
19	12V	Power
20~25	GND	Ground

- Output pin

  CTL1~CTL8 correspond to pins 1~8 of TH8601 Handler interface and are output signal pins.

The user can choose an external power supply or use the 5V (14, 15 pins) and 12V (9, 10, 18, 19 pins) that come with the TH8601 Handler interface. When using an external power supply, the ground of the external power supply should be the same ground as the casing of the machine, or the ground of the external power supply can be short-circuited with pins 20-25 of this interface. In order to ensure the stability of the output signal, users need to add pull-up resistors (R31~R38 as shown in the figure above), and 10k resistors are recommended.

- Input pin

  Pins 11~13 are the input signal pins of TH8601 Handler interface, corresponding to stop, start and reset functions respectively. When the external switch is controlled, the user can connect the lines S1~S3 as shown in the figure above. An external low level trigger can also be connected.
- In order to ensure the reliability of TH8601 Handler interface control and output signal, the user's external circuit must share the same ground with the ground pin (16, 17, 20~25) of TH8601 Handler interface.

4.2 RS232 Interface

4.2.1 RS232 Standards

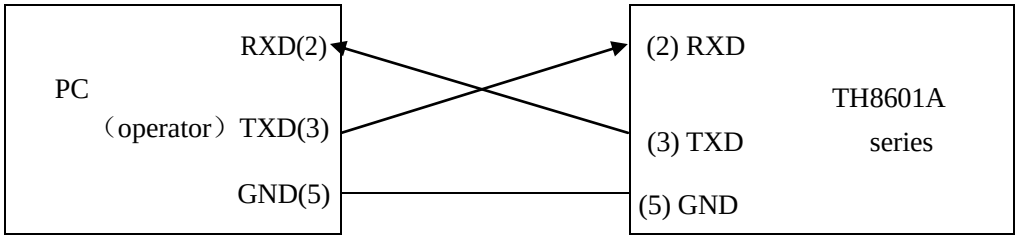
Currently TH8601 adopts the simple RS-232 standard, as shown in the following table:

Signal	abbreviation	Connector Pin#
Transfer Data	TXD	3
Receive Data	RXD	2
Ground	GND	5

Three-line operation is much cheaper than five-line or six-line operation. This is the biggest advantage of using serial communication.

4.2.2 RS232 Connection

The connection between the instrument and the computer is shown in the figure:



As you can see from the picture above, the serial port cable used needs to be crossed with 2 and 3 pins. Please pay attention when purchasing. Or users can use the serial port cable that comes with TH8601 series instruments purchased from Tonghui.

4.3 SCPI Commands Reference

All the following commands are transferred and received in string type. A terminator must be added after each command, otherwise the instrument will always be in a waiting state and will not process the command. The terminator is a newline character, which is LF, and its ASC code is 10 in decimal or 0A in hexadecimal. When the instrument returns data, the end of each returned data will be LF as the end character.

4.3.1 Setup Command

4.3.1.1 MODE Setup Command

1. SETUP:MODE:NAME
--Function: Set product name
--format:
Command Syntax::SETUP:MODE:NAME <name>
Query Syntax: :SETUP:MODE:NAME?
--Data <name>
Data type: string, 8 bytes
Data range:
Data accuracy:
Data unit:
--Setting example:
If you want to set the product name as: TONGHUI
The input command is: :SETUP:MODE:NAME TONGHUI
--Query example:
If the input command is: :SETUP:MODE:NAME?
The returned content is: TONGHUI, which means the product name is TONGHUI

2. SETUP:MODE:TYPE
--Function: Set the wire type
--format:
Command Syntax::SETUP:MODE:TYPE <data>
Query Syntax::SETUP:MODE:TYPE?
--Data<data>
Data type: enumerated type, 1 byte
Data range:
0---normal
1--- unilateral
2---point measurement
Data accuracy:
Data unit:
--Setting example:
If you want to set the wire type as: Single side

The input command is: :SETUP:MODE:TYPE 1
--Query example:
If the input command is: :SETUP:MODE:TYPE?
Then the content returned is: 1, indicating that the wire type is single side

3. SETUP:MODE:LENG
--Function: Set line capacitance
--format:
Command Syntax::SETUP:MODE:LENG <data>
Query Syntax::SETUP:MODE:LENG?
--Data<data>
Data type: enumerated type, 1 byte
Data range:
0---None
1---small
2---medium
2---large
Data accuracy:
Data unit:
--Setting example:
If you want to set the line capacitance as: None
The input command is: :SETUP:MODE:LENG 0
--Query example:
If the input command is: :SETUP:MODE:LENG?
The returned content is: 0, which means that there is no capacitance between the lines.

4. SETUP:MODE:EMPT
--Function: Set whether there is an empty point
--format:
Command Syntax::SETUP:MODE:EMPT <data>
Query Syntax::SETUP:MODE:EMPT?
--Data<data>
Data type: enumerated type, 1 byte
Data range:
0---None
1---Yes
Data accuracy:
Data unit:
--Setting example:
If you want to set the presence or absence of empty points as:
Then the input command is: :SETUP:MODE:EMPT 1
--Query example:
If the input command is: :SETUP:MODE:EMPT?
Then the content returned is: 1, indicating that there are empty points

5. SETUP:MODE:ABEG
--Function: Set the beginning point of end A
--format:
Command Syntax::SETUP:MODE:ABEG <data>
Query Syntax::SETUP:MODE:ABEG?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---A1~A32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the beginning point of end A as: A1
Then the input command is: :SETUP:MODE:ABEG 1
--Query example:
If the input command is: :SETUP:MODE:ABEG?
Then the content returned is: 1, indicating that the beginning point of end A is A1

6. SETUP:MODE:AEND
--Function: Set the end point of end A
--format:
Command Syntax::SETUP:MODE:AEND <data>
Query Syntax::SETUP:MODE:AEND?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---A1~A32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the end point of end A as: A2
The input command is: :SETUP:MODE:AEND 2
--Query example:
If the input command is: :SETUP:MODE:AEND?
Then the content returned is: 2, indicating that the end point of end A is A2

7. SETUP:MODE:BBEG
--Function: Set the beginning point of end B
--format:
Command Syntax::SETUP:MODE:BBEG <data>
Query Syntax::SETUP:MODE:BBEG?
--Data<data>

Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---B1~B32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the beginning point of end B as: B1
Then the input command is: :SETUP:MODE:BBEG 1
--Query example:
If the input command is: :SETUP:MODE:BBEG?
The content returned is: 1, indicating that the beginning point of the B end is B1

8. SETUP:MODE:BEND
--Function: Set the end point of B end
--format:
Command Syntax::SETUP:MODE:BEND <data>
Query Syntax::SETUP:MODE:BEND?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---B1~B32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the end point of end B as: B2
Then the input command is: :SETUP:MODE:BEND 2
--Query example:
If the input command is: :SETUP:MODE:BEND?
Then the content returned is: 2, indicating that the end point of the B end is B2

9. SETUP:MODE:CBEG
--Function: Set the beginning point of C terminal
--format:
Command Syntax::SETUP:MODE:CBEG <data>
Query Syntax::SETUP:MODE:CBEG?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---C1~C32
Data accuracy: 1
Data unit:

--Setting example:
If you want to set the beginning point of the C terminal as: C1
Then the input command is: :SETUP:MODE:CBEG 1
--Query example:
If the input command is: :SETUP:MODE:CBEG?
The content returned is: 1, indicating that the beginning point of the C terminal is C1

10. SETUP:MODE:CEND
--Function: Set C end end
--format:
Command Syntax::SETUP:MODE:CEND <data>
Query Syntax::SETUP:MODE:CEND?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---C1~C32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the C terminal end point as: C2
Then the input command is: :SETUP:MODE:CEND 2
--Query example:
If the input command is: :SETUP:MODE:CEND?
Then the content returned is: 2, which means that the end point of the C terminal is C2

11. SETUP:MODE:DBEG
--Function: Set the beginning point of D end
--format:
Command Syntax::SETUP:MODE:DBEG <data>
Query Syntax::SETUP:MODE:DBEG?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---D1~D32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the beginning point of end D as: D1
Then the input command is: :SETUP:MODE:DBEG 1
--Query example:
If the input command is: :SETUP:MODE:DBEG?
Then the content returned is: 1, indicating that the beginning point of the D end is D1

12. SETUP:MODE:DEND
--Function: Set D end end
--format:
Command Syntax::SETUP:MODE:DEND <data>
Query Syntax::SETUP:MODE:DEND?
--Data<data>
Data type: integer, 1 byte
Data range: 0~32
0---off
1~32---D1~D32
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the end point of the D end to: D2
The input command is: :SETUP:MODE:DEND 2
--Query example:
If the input command is: :SETUP:MODE:DEND?
Then the returned content is: 2, which means that the end point of D is D2

13. SETUP:MODE:ALL
--Function: Screen setting of MODE parameters, that is, set 12 parameters in MODE at one time
--format:
Command Syntax: :SETUP:MODE: ALL product name, wire type, capacitance between wires, whether there is an empty point, A begin point, A end point, B begin point, B end point,
C begin point, C end point, D begin point, D end point
The above parameters are separated by commas (,)
--Setting example:
If you want to set the parameters in the MODE interface as follows:

Product name:	TONGHUI---------TONGHUI
Wire type:	normal ----------0
Line-to-line capacitance:	None ----------0
Is there any empty point:	None----------0
Beginning point of A end:	A1----------1
End point of A end:	A32----------32
Beginning point of B end:	OFF ----------0
End point of B end:	OFF ----------0
Beginning point of C end:	OFF ----------0
End point of C end:	OFF ----------0
Beginning point of D end:	OFF ----------0
End point of D end:	OFF ----------0

Then the command entered is:
:SETUP:MODE:ALL TONGHUI,0,0,0,1,32,0,0,0,0,0,0
If the setting is successful, it returns: OK

4.3.1.2 OSC Setup Command

1. SETUP:OS:RSTD
--Function: Set on-off standard
--format:
Command Syntax: :SETUP:OS:RSTD <data>
Query Syntax: :SETUP:OS:RSTD?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 1k~50k
Data accuracy: 1k
Data unit: Ω
--Setting example:
If you want to set the on-off standard as: 10kΩ
Then the input command is: :SETUP:OS:RSTD 10000
--Query example:
If the input command is: :SETUP:OS:RSTD?
The returned content is: 10000, which means that the on-off standard is set to 10kΩ

2. SETUP:OS:CSTD
--Function: Set single-end sensitivity standard
--format:
Command Syntax: :SETUP:OS:CSTD <data>
Query Syntax: :SETUP:OS:CSTD?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~9.999nF
Data accuracy:
Data unit: pF
--Setting example:
If you want to set the single end sensitivity standard as: 100pF
Then the input command is: :SETUP:OS:RSTD 100
--Query example:
If the input command is: :SETUP:OS:RSTD?
The returned content is: 1E-10, which means that the single end sensitivity standard is set to 100pF

3. SETUP:OS:SIDE
--Function: Set side judgment
--format:
Command Syntax: :SETUP:OS:SIDE <data>
Query Syntax: :SETUP:OS:SIDE?
--Data<data>
Data type: enumerated type, 1 byte
data range:
0---off

1---Open
2---Separate side
3---%
Data accuracy:
Data unit:
--Setting example:
If you want to set the side judgment to: On
The input command is: :SETUP:OS:SIDE 1
--Query example:
If the input command is: :SETUP:OS:SIDE?
The returned content is: 1, which means that the side judgment is On

4. SETUP:OS:SPEED
--Function: Set test speed
--format:
Command Syntax: :SETUP:OS:SPEED <data>
Query Syntax: :SETUP:OS:SPEED?
--Data<data>
Data type: enumerated type, 1 byte
Data range:
0-slow
1---medium speed
2---fast
Data accuracy:
Data unit:
--Setting example:
If you want to set the test speed to: fast
Then the input command is: :SETUP:OS:SPEED 2
--Query example:
If the input command is: :SETUP:OS:SPEED?
Then the content returned is: 2, indicating that the test speed is fast

5. SETUP:OS:OSTM
--Function: Set intermittence OS time
--format:
Command Syntax: :SETUP:OS:OSTM <data>
Query Syntax: :SETUP:OS:OSTM?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~999.9
Data accuracy: 0.1
Data unit: second
--Setting example:
If you want to set the intermittence OS time as: 5 seconds

The input command is: :SETUP:OS:OSTM 5
--Query example:
If the input command is: :SETUP:OS:OSTM?
The returned content is: 5, which means that the intermittence OS is set to 5 seconds

6. SETUP:OS:OPTM
--Function: Set intermittence open circuit time
--format:
Command Syntax: :SETUP:OS:OPTM <data>
Query Syntax: :SETUP:OS:OPTM?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~999.9
Data accuracy: 0.1
Data unit: second
--Setting example:
If you want to set the intermittence open circuit time as: 5 seconds
Then the input command is: :SETUP:OS:OPTM 5
--Query example:
If the input command is: :SETUP:OS:OPTM?
The returned content is: 5, which means that the intermittence open circuit time is set to 5 seconds

7. SETUP:OS:HULL
--Function: Set hull pin
--format:
Command Syntax: :SETUP:OS:HULL <data>
Query Syntax: : SETUP:OS:HULL?
--Data <data>: pin number
Data type: integer, 1 byte
Data range:
1~32: A1~A32
33~64:B1~B32
65~96: C1~C32
97~128: D1~D32
--Setting example:
If you want to set the hull pin to: A01
Then the input command is: :SETUP:OS:HULL 1
--Query example:
If the input command is: :SETUP:OS:HULL?
The returned content is: 1, which means that the hull pin is A01

8. SETUP:OS:DISC
--Function: Set the discharge time
--format:

Command Syntax: :SETUP:OS:DISC <data>
Query Syntax: :SETUP:OS:DISC?
--Data<data>
Data type: integer, 1 byte
Data range: 0~255
Data accuracy: 1
Data unit: ms
--Setting example:
If you want to set the discharge time as: 5ms
Then the input command is: :SETUP:OS:DISC 5
--Query example:
If the input command is: :SETUP:OS:DISC?
The returned content is: 5, which means that the discharge time is set to 5ms

9. SETUP:OS:DELAY
--Function: Set the OSC delay time
--format:
Command Syntax::SETUP:OS:DELAY<data>
Query Syntax::SETUP:OS:DELAY?
--Data<data>
Data type: integer, 2 bytes
Data range: 0~60000
Data accuracy: 1
Data unit: us
--Setting example:
If you want to set the OSC delay time as: 200us
Then the input command is: :SETUP:OS:DELAY200
--Query example:
If the input command is: :SETUP:OS:DELAY?
The returned content is: 200, which means that the OSC delay time is set to 200us

10. SETUP:OS:METH
--Function: Set scan method
--format:
Command Syntax: :SETUP:OS:METH<data>
Query Syntax: :SETUP:OS:METH?
--Data<data>
Data type: enumerated type, 1 byte
Data range:
0--Dichotomy
1—a pair of others
Data accuracy:
Data unit:
--Setting example:

If you want to set the scanning method as: one pair to others
Then the input command is: :SETUP:OS:METH1
--Query example:
If the input command is: :SETUP:OS:METH?
Then the returned content is: 1, which means that the scanning method is set to one pair to others

11. SETUP:OS:FIO
--Function: Set fast intermittence open circuit
--format:
Command Syntax: :SETUP:OS:FIO<data>
Query Syntax: :SETUP:OS:FIO?
--Data<data>
Data type: integer, 2 bytes
Data range: 5~999, 0 is off
Data accuracy: 1
Data unit: us
--Setting example:
If you want to set the fast intermittence open circuit as: 5us
Then the input command is: :SETUP:OS:FIO 5
--Query example:
If the input command is: :SETUP:OS:FIO?
The returned content is: 5, which means that the fast intermittence open circuit is set to 5us

12. SETUP:OS:FAILT
--Function: Set the number of fail times
--format:
Command Syntax: :SETUP:OS:FAILT<data>
Query Syntax: :SETUP:OS:FAILT?
--Data<data>
Data type: integer, 1 byte
Data range: 0~100
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the number of defects to: 5 times
The input command is: :SETUP:OS:FAILT 5
--Query example:
If the input command is: :SETUP:OS:FAILT?
The returned content is: 5, indicating that the number of fail times is set to 5

13. SETUP:OS:AFAIL
--Function: After fail setting
--format:
Command Syntax::SETUP:OS:AFAIL<data>

Query Syntax::SETUP:OS:AFAIL?
--Data<data>
Data type: enumerated type, 1 byte
data range:
Empty stop
Short circuit stop
Open circuit stop
Repeat stop
Data accuracy:
Data unit:
--Setting example:
If you want to set the bad post as: empty stop
Then the input command is: :SETUP:OS:AFAIL0
--Query example:
If the input command is: :SETUP:OS:AFAIL?
Then the returned content is: 0, which means it is set to empty stop after fail.

14. SETUP:OS:RIGID
--Function: set accurate OSC
--format:
Setting format::SETUP:OS:RIGID<data>
Query format::SETUP:OS:RIGID?
--Data<data>
Data type: integer, 2 bytes
Data range: 0~950
Data accuracy: 1
Data unit: ohm
--Setting example:
If you want to set the accurate OSC to: 10Ω
Then the input command is: :SETUP:OS:RIGID10
--Query example:
If the input command is: :SETUP:OS:RIGID?
The returned content is: 10, which means that the accurate OSC is set to 10

15. SETUP:OS:ALL
--Function: OS parameter screen setting, that is to set 14 parameters in OS at one time
--format:
Setting format: :SETUP:OS:ALL
All above 1-14.
The above parameters are separated by commas (,)
--Setting example:
If you want to set the parameters in the OS interface as follows:
RSTD: 10k----------10000
CSTD: 200pF----------200

Side: open ----------1
Speed: fast ----------2
OSTM: 0s----------0
OPTM: 0s----------0
Hull : None ----------0
DISC: 0----------0
DELAY: 0----------0
METH: dichotomy----------0
FIO: off ----------0
FAILT: 7----------7
AFAIL: empty stop ----------0
RIGID: off ----------0
Then the command entered is: SETUP:OS:ALL 10000,50,1,2,0,0,0,0,0,0,7,0,0
If the setting is successful, it returns: OK

4.3.1.3 COND Setup Command

1. SETUP :COND:UPPER
--Function: SETUP COND UPPER
--format:
Command Syntax: :SETUP:COND:UPPER <data>
Query Syntax: :SETUP:COND:UPPER?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~2000
Data accuracy:
Data unit: ohm
--Setting example:
If you want to set the COND UPPER to: 1Ω
Then the input command is: :SETUP:COND:UPPER 1
--Query example:
If the input command is: :SETUP:COND:UPPER?
Then the content returned is: 1, indicating that the COND UPPER is 1Ω.
2. SETUP： COND : LOWER
--Function: SETUP COND LOWER
--format:
Command Syntax: :SETUP:COND:LOWER <data>
Query Syntax: :SETUP:COND:LOWER?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~2000
Data accuracy:
Data unit: ohm
--Setting example:
If you want to set the COND LOWER to: 0.1Ω
Then the input command is: :SETUP:COND:LOWER 0.1

--Query example:
If the input command is: :SETUP:COND:LOWER?

Then the content returned is:0.1, indicating that the COND: LOWER is 0.1Ω.

3. SETUP:COND :SPEC
--Function: SETUP COND SPEC
--format:
Command Syntax: :SETUP:COND:SPEC <data>
Query Syntax: :SETUP:COND:SPEC?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~2000
Data accuracy:
Data unit: ohm
--Setting example:
If you want to set the COND:SPEC to: 2Ω
Then the input command is: :SETUP:COND:SPEC 2
--Query example:
If the input command is: :SETUP:COND:SPEC?
Then the content returned is: 2, indicating that the COND:SPEC is 2Ω.

4. SETUP:COND:TIME
--Function: SETUP COND TIME
--format:
Command Syntax: :SETUP:COND:TIEM <data>
Query Syntax: :SETUP:COND:TIME?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~999.9
Data accuracy: 0.1
Data unit: SEC
--Setting example:
If you want to set the COND TIME to: 5 SEC
Then the input command is: :SETUP:COND:TIME 50
--Query example:
If the input command is: :SETUP:COND:TIME?
Then the content returned is:50, indicating that the COND TIEM is 5 SEC.

5. SETUP:COND:SPEED
--Function: SETUP COND SPEED
--format:
Command Syntax: :SETUP:COND:SPEED <data>
Query Syntax: :SETUP:COND:SPEED?
--Data<data>
Data type: Enumerated,type, 1 bytes

Data range:
0-slow
1---medium speed
2---fast
Data accuracy:
Data unit:
--Setting example:
If you want to set the COND SPEED FAST
Then the input command is: :SETUP:COND:SPEED 2
--Query example:
If the input command is: :SETUP:COND:SPEED?
Then the content returned is:2, indicating that the COND SPEED is FAST.

6. SETUP :COND:IFAIL
--Function: SETUP COND IFAIL
--format:
Command Syntax: :SETUP:COND:IFAIL <data>
Query Syntax: :SETUP:COND:IFAIL?
--Data<data>
Data type: Enumerated,type, 1 bytes
Data range:
0-STOP TESTING
1--ALL TESTED
Data accuracy:
Data unit:
--Setting example:
If you want to set the COND SPEED IFAIL to Stop Testing
Then the input command is: :SETUP:COND:IFAIL 0
--Query example:
If the input command is: :SETUP:COND:IFAIL?
Then the content returned is:0, indicating that the COND SPEED IFAIL is Stop Testing

7. SETUP:COND:NFAIL
--Function: SETUP COND NFAIL
--format:
Command Syntax: :SETUP:COND:NFAIL <data>
Query Syntax: :SETUP:COND:NFAIL?
--Data<data>
Data type: Enumerated,type, 1 bytes
Data range:
0-OFF
1---ON
Data accuracy:
Data unit:

--Setting example:
If you want to set the COND NFAIL OFF
Then the input command is: :SETUP:COND:NFAIL 0
--Query example:
If the input command is: :SETUP:COND:NFAIL?
Then the content returned is:0, indicating that the COND NFAIL is OFF.

8. SETUP:COND:CURR

-- FUNCTION: SETUP COND CURR
--FORMAT:
Command Syntax : :SETUP:COND:CURR<data>
Query Syntax : :SETUP:COND:CURR?
--Data<data>
Data type: integer, 1 bytes
Data range: 0~20
Data accuracy: 1
Data unit: mA
--Setting example:
If you want to set the COND current to: 10mA
Then the input command is: :SETUP:COND:CURR 10
--Query example:
If the input command is: :SETUP:COND:CURR?
The returned content is: 10, which means that the COND current is set to 10mA

9. SETUP:COND:PIN1

-- FUNCTION: SETUP COND PIN1
--FORMAT:
Command Syntax : :SETUP:COND:PIN1<data>
Query Syntax : :SETUP:COND:PIN1?
--Data<data>
Data type: integer, 2 bytes
Data range: 0~256
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the COND PIN1 to: A2
Then the input command is: :SETUP:COND:PIN1 2
--Query example:
If the input command is: :SETUP:COND:PIN1?
The returned content is: 2, which means that the COND PIN1 is set to A2

10. SETUP:COND:PIN2

-- FUNCTION: SETUP COND PIN2
--FORMAT:
Command Syntax : :SETUP:COND:PIN2<data>
Query Syntax : :SETUP:COND:PIN2?
--Data<data>
Data type: integer, 2 bytes
Data range: 0~256
Data accuracy: 1
Data unit:
--Setting example:
If you want to set the COND PIN2 to: A2
Then the input command is: :SETUP:COND:PIN2 2
--Query example:
If the input command is: :SETUP:COND:PIN2?
The returned content is: 2, which means that the COND PIN2 is set to A2

11. SETUP:COND:ITEM

--Function: SETUP COND ITEM
--format:
Command Syntax: :SETUP:COND:ITEM <data>
Query Syntax: :SETUP:COND:ITEM?
--Data<data>
Data type: Enumerated,type, 1 bytes
data range:
0-To TEST ALL
1--Common conduction
2---Point measurement conduction
Data accuracy:
Data unit:
--Setting example:
If you want to set the COND COND ITEM to test all
Then the input command is: :SETUP:COND:ITEM 0
--Query example:
If the input command is: :SETUP:COND:ITEM?
Then the content returned is:0, indicating that the COND ITEM is TO TEST ALL.

12. SETUP:COND:ZERO
--Function: SETUP COND ZERO
--format:
Command Syntax: :SETUP:COND:ZERO <data>
Query Syntax: :SETUP:COND:ZERO?
--Data<data>
Data type: Floating point, 4 bytes

Data range: 0~10Ω
Data accuracy:
Data unit: Ω
--Setting example:
If you want to set the COND ZERO to: 100mΩ
Then the input command is: :SETUP:COND:ZERO0.1
--Query example:
If the input command is: :SETUP:COND:ZERO?
Then the content returned is:0.1, indicating that the COND ZERO is set to100mΩ

13. SETUP:COND:NET
--Function: SETUP COND NET
--format:
Command Syntax: :SETUP:COND:NET <data>
Query Syntax: :SETUP:COND:NET?
--Data<data>
Data type: Enumerated,type, 1 bytes
Data range:
0-ordinary
1--Common ground
2---A to B
3--complex
Data accuracy:
Data unit:
--Setting example:
If you want to set the COND COND NET to Ordinary
Then the input command is: :SETUP:COND:NET 0
--Query example:
If the input command is: :SETUP:COND:NET?
Then the content returned is:0, indicating that the COND NET is SET to Ordinary.

14. SETUP:COND:BAL

--Function: SETUP COND BAL
--format:
Command Syntax: :SETUP:COND:BAL <data>
Query Syntax: :SETUP:COND:BAL?
--Data<data>
Data type: Floating point, 4 bytes
Data range: 0~950Ω
Data accuracy:
Data unit: ohm
--Setting example:
If you want to set the COND BAL to: 0.1Ω
Then the input command is: :SETUP:COND:BAL 0.1

--Query example:
If the input command is: :SETUP:COND:BAL?
Then the content returned is:0.1, indicating that the COND: BAL is 0.1Ω.

15. SETUP:COND:ALL

--Function: Screen setting of COND parameters, that is, set 14 parameters in COND at one time
--format:
Command Syntax: :SETUP:COND:ALL UPPER, LOWER, SPEC, TIME, SPEED, IFAIL ,NFAIL, CURR, PIN1, PIN2,ITEM, ZERO, NET, BAL
All above 1-14.
The above parameters are separated by commas (,)
--Setting example:
If you want to set Screen setting the parameters of COND as follows;

UPPER：1.000Ω----------1
LOWER：0Ω----------0
SPEC： 1.000Ω----------1
TIME： 0s----------0
SPEED：FAST----------2
IFAIL：STOP----------0
NFAIL：OFF----------0
CURR：10mA----------10
PIN1： A1----------1
PIN2： ----------0
ITEM：To test all ----------0
ZERO：0.0mΩ----------0
NET：Ordinary----------0
BAL：OFF----------0
Then the command entered is:SETUP:COND:ALL 1,0,1,0,2,0,0,10,1,0,0,0,0,0
If the setting is successful, it returns: OK

4.3.1.4 LCRD Setup Command

1. SETUP:LCR:SN
--FUCTION :SETUP LCR SN
--FORMAT:
Command Syntax: :SETUP:LCR:SN:<sn> :<data>
Query Syntax: :SETUP:LCR:SN:<sn>?
--DATA<sn> (Series)
Data type: integer, 1 bytes
Data range: 0~63
--Data<data>
Data type: Enumerated,type, 1 bytes
Data range:
0---*

1---A/AA
2---B/AB
3---BB
4---BA
--Setting example:
If you set first component series as :*
The input : :SETUP:LCR:SN:0:0
--Query example:
If input command : :SETUP:LCR:SN:0?
Then the content returned is:0, indicating that the FIRST component is set to: *

2. SETUP:LCR:TYPE
--FUCTION :SETUP LCR TYPE
--FORMAT:
Command Syntax: :SETUP:LCR:TYPE:<sn> :<data>
Query Syntax: :SETUP:LCR:TYPE:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
DATA RANGE:0~63
--DATA<data> (COMPONENT TYPE)
Data type: Enumerated type, 1 bytes
Data range:
1---Inductance
2---Capacitor
3---Risistance
4---Diode
5---Capacitance polarity
6---Voltage drop
--Setting example:
If you set first component as :capacitor
The input command: :SETUP:LCR:TYPE:0:2
--Query example:
If input command: :SETUP:LCR:TYPE:0?
Then the content returned is:2, indicating that the FIRST component TYPE is set to: CAPACITOR

3. SETUP:LCR:PIN1
--FUCTION :SETUP LCR PIN+
--FORMAT:
Command Syntax: :SETUP:LCR:PIN1:<sn> :<data>
Query Syntax: :SETUP:LCR:PIN1:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
Data range:0~63
--DATE<data>

Data type: integer, 1 bytes
DATA RANGE:

1~32: A1~A32
33~64:B1~B32
65~96:C1~C32
97~128:D1~D32

--Setting example:
If you set pin + of first component as A01
The input command is :SETUP:LCR:PIN1:0:1
--Query example:
If input command : :SETUP:LCR:PIN1:0?
Then the content returned is:1, indicating that the PIN+ of FIRST component is set to: A01

4. SETUP:LCR:PIN2
--FUCTION :SETUP LCR PIN-
--FORMAT:
Command Syntax: :SETUP:LCR:PIN2:<sn> :<data>
Query Syntax: :SETUP:LCR:PIN2:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes

DATA RANGE:0~63

--DATE<data>
Data type: integer, 1 bytes
DATA RANGE:

1~32: A1~A32
33~64:B1~B32
65~96:C1~C32
97~128:D1~D32

--Setting example:
If you set pin - of first component as B01
The input command is :SETUP:LCR:PIN2:0:33
--Query example:
If input command : :SETUP:LCR:PIN2:0?
Then the content returned is:33, indicating that the PIN- of FIRST component is set to: B01

5. SETUP:LCR:SPEC
--FUNCTION SETUP LCR SPEC
--FORMAT:
Command Syntax: :SETUP:LCR:SPEC:<sn> :<data>
Query Syntax: :SETUP:LCR:SPEC:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
DATA RANGE:0~63

--DATE<data>

Data type: Floating point, 4 bytes
Data range:
Data accuracy:
Data unit: H/F/Ω/V
--Setting example:

IF you want to set SPEC of first component as 100
The input command is :SETUP:LCR:SPEC:0:100
--Query example:
If input command : :SETUP:LCR:SPEC:0?
Then the content returned is:100, indicating that the SPEC of first component is 100.

6. SETUP:LCR:OFFS
--FUNCTION: SETUP LCR OFFS
FORMAT:
Command Syntax: :SETUP:LCR:OFFS:<sn> :<data>
Query Syntax: :SETUP:LCR:OFFS:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
DATA RANGE:0~63
--DATE<data>
Data type: Floating point, 4 bytes
Data range: 0~0.99
Data accuracy:
Data unit:
--Setting example:
If you want to set OFFS of first component ±10%
The input command :SETUP:LCR:OFFS:0:0.1
--Query example:
If input command : :SETUP:LCR:OFFS:0?
Then the content returned is:0.1, indicating that the OFFS of first component is set to ±10%

7. SETUP:LCR:ADDI

--FUNCTION: SETUP LCR ADDI
(only for Diode, Capacitance polarity,Voltage drop)
FORMAT:
Command Syntax: :SETUP:LCR:ADDI:<sn> :<data>
Query Syntax: :SETUP:LCR:ADDI:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
DATA RANGE: 0~63
--DATE<data>

Data type: Floating point, 4 bytes
Data range:
Data accuracy:
Data unit:
--Setting example:
If you want to set ADDI of first component (test time) is 2s
The input command: :SETUP:LCR:ADDI:0:2
--Query example:
If input command : :SETUP:LCR:ADDI:0?
Then the content returned is:2, indicating that the ADDI of first component(test time) is set to 2s.

8. SETUP:LCR:TIME

--FUNCTION: SETUP LCR TIME
(only for Diode, Capacitance polarity,Voltage drop)
FORMAT:
Command Syntax: :SETUP:LCR:TIME:<sn> :<data>
Query Syntax: :SETUP:LCR:TIME:<sn>?
--DATA<sn> (SERIES)
Data type: integer, 1 bytes
DATA RANGE:0~63
--DATE<data>
Data type: integer, 2 bytes
DATA RANGE:
Data accuracy:
Data unit:
--Setting example:
If you want to set TIME of first component is 2s
The input command: :SETUP:LCR:TIME:0:2
--Query example:
If input command : :SETUP:LCR:TIMR:0?
Then the content returned is:2, indicating that the TIME of first componen is set to 2s.

9. SETUP:LCR:ALL:<sn>
--Function: Screen setting of LCR parameters, that is, set 6 parameters in LCR at one time
--Format:
Command Syntax: :SETUP:LCR:ALL:<sn>TYPE,PIN+,PIN-,SPEC,OFFS,ADDI
The above parameters are separated by commas (,)
--Setting example:
If you want to add 6 parameters of one component in Screen setting
Series ： * ----------0
TYPE：Capacitance----------2
PIN+：A1----------1
PIN-：A2----------2
SPEC：100nF---------100e-9

OFFS：10%----------0.1
ADDI：NO----------0
The input command: :SETUP:LCR:ALL:00,2,1,2,100e-9,0.1,0
If the setting is successful, it returns: OK
4.3.1.5 HV Setup Command
1. SETUP:HV:VOLT
--FUCTION :SETUP HV VOLT
--FORMAT:
Command Syntax: :SETUP:HV:VOLT:<type>:<data>
Query Syntax: : :SETUP:HV:VOLT:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range: 5~1000VAC/5~1500VDC
Data accuracy: 1
Data unit: V
--Setting example:
If you want to set voltage of AC HV: 100V
The input command is :SETUP:HV:VOLT:ACW :100
--Query example:
If input command : :SETUP:HV:VOLT:ACW?
Then the content returned is:100, indicating that the voltage of AC HV is set to100V.

2. SETUP:HV:SPEC
--FUCTION :SETUP HV SPEC
--FORMAT:
Command Syntax: :SETUP:HV:SPEC:<type>:<data>
Query Syntax: :SETUP:HV:SPEC:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range:
Data accuracy:
Data unit: A/Ω
--Setting example:
If you want to set SPEC of AC HV: 1mA
The input command is : :SETUP:HV:SPEC:ACW :0.001
--Query example:

If input command : :SETUP:HV:SPEC:ACW?
Then the content returned is:0.001, indicating that the SPEC of AC HV is set to1mA.

3. SETUP:HV:TIME
--FUCTION :SETUP HV TIME
--FORMAT:
Command Syntax: :SETUP:HV:TIME:<type>:<data>
Query Syntax: :SETUP:HV:TIME:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range: 1~50000
Data accuracy:
Data unit: 0.01s
--Setting example:
If you want to set TIME of AC HV: 1s
The input command is : : SETUP:HV:TIME:ACW :100
--Query example:
If input command : :SETUP:HV:TIME:ACW?
Then the content returned is:100, indicating that the TIME of AC HV is set to 1s.

4. SETUP:HV:RISE
--FUCTION :SETUP HV RISE
--FORMAT:
Command Syntax: :SETUP:HV:RISE:<type>:<data>
Query Syntax: :SETUP:HV:RISE:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range: 0~999.9
Data accuracy:
Data unit: 0.1s
--Setting example:
If you want to set RISE of AC HV: 1s
Command Syntax is: :SETUP:HV:RISE:ACW :10
--Query syntax:
If input command : :SETUP:HV:RISE:ACW?
Then the content returned is:10, indicating that the RISE of AC HV is set to1s.

5. SETUP:HV:ARC
--FUCTION :SETUP HV ARC
--FORMAT:
Command Syntax: :SETUP:HV:ARC:<type>:<data>
Query Syntax: :SETUP:HV:ARC:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: integer, 1 bytes
Data range: 0~7 0---OFF
Data accuracy:
Data unit:
--Setting example:
If you want to set ARC of AC HV: 5
Command Syntax : :SETUP:HV:ARC:ACW:5
--Query example:
If input command : :SETUP:HV:ARC:ACW?
Then the content returned is:5, indicating that the ARC of AC HV is set to 5.

6. SETUP:HV:METH
--FUCTION :SETUP HV METH
--FORMAT:
Command Syntax: :SETUP:HV:METH:<type>:<data>
Query Syntax: :SETUP:HV:METH:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Enumerated type, 1 bytes
Data range:
0--Dichotomy
1---one to others
2---Auto test
3---All to the ground
--Setting example:
If you want to setup METH of AC HV : one to others.
The input command is :SETUP:HV:METH:ACW:1
--Query example:
If input command : :SETUP:HV:METH:ACW?
Then the content returned is:1, indicating that the METH of AC HV is set to ONE TO OTHERS.
7. SETUP:HV:EMPT

--FUCTION :SETUP HV EMPT
--FORMAT:
Command Syntax: :SETUP:HV:EMPT:<type>:<data>
Query Syntax: :SETUP:HV:EMPT:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Enumerated type, 1 bytes
Data range:
0--OFF
1---ON
--Setting example:
If you want to setup EMPT of AC HV : ON.
The input command is :SETUP:HV:EMPT:ACW:1
--Query example:
If input command : :SETUP:HV:EMPT:ACW?
Then the content returned is:1, indicating that the EMPT of AC HV is set to ON
8. SETUP:HV:GND
--FUCTION :SETUP HV GND
--FORMAT:
Command Syntax: :SETUP:HV:GND:<type>:<data>
Query Syntax: :SETUP:HV:GND:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: integer, 1 bytes
Data range:
1~32: A1~A32
33~64:B1~B32
65~96:C1~C32
97~128:D1~D32
--Setting example:
If you want to setup GND of AC HV :A01
The input command : :SETUP:HV:GND:ACW:1
--Query example:
If input command : :SETUP:HV:GND:ACW?
Then the content returned is:1, indicating that the GND of AC HV is set to A01.
9. SETUP:HV:GVOLT
--FUCTION :SETUP HV GVOLT
--FORMAT:

Command Syntax: :SETUP:HV:GVOLT:<type>:<data>
Query Syntax: :SETUP:HV:GOVLT:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range: 5~1000VAC/5~1500VDC
Data accuracy: 1
Data unit: V
--Setting example:
If you want to set GVOLT of AC HV: 100V
The input command is : ::SETUP:HV:GVOLT:ACW :100
--Query example:
If input command : :SETUP:HV:GVOLT:ACW?
Then the content returned is:100, indicating that the GVOLT of AC HV is set to100V.
10. SETUP:HV:GSPEC
--FUCTION :SETUP HV GSPEC
--FORMAT:
Command Syntax: :SETUP:HV:GSPEC:<type>:<data>
Query Syntax: :SETUP:HV:GSPEC:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes
DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range:
Data accuracy:
Data unit: A/Ω
--Setting example:
If you want to set GSPEC of AC HV: 1mA
The input command is ::SETUP:HV:GSPEC:ACW :0.001
--Query example:
If input command : :SETUP:HV:GSPEC:ACW?
Then the content returned is 0.001, indicating that the GSPEC of AC HV is set to 1mA.
11. SETUP:HV:GTIME
--FUCTION :SETUP HV GTIME
--FORMAT:
Command Syntax: :SETUP:HV:GTIME:<type>:<data>
Query Syntax: :SETUP:HV:GTIME:<type>?
--DATA-<type> (HV type)
Data type: Enumerated type, 1 bytes

DATA RANGE:
ACW---AC HV DCW---DC HV IR---INSULATION RESISTANCE
--DATA<data>
Data type: Floating point, 4 bytes
Data range: 1~50000
Data accuracy:
Data unit: 0.01s
--Setting example:
If you want to set GTIME of AC HV: 1s
The input command is : :SETUP:HV:GTIME:ACW :100
--Query example:
If input command : :SETUP:HV:GTIME:ACW?
Then the content returned is 100, indicating that the GTIME of AC HV is set to 1s.
12. SETUP:HV:ACW
--Function: Screen setting of ACW parameters, that is, set 11 parameters in ACW at one time
--FORMAT:
Command Syntax:
:SETUP:HV:ACW VOLT,SPEC,TIME,RISE,ARC,METH,EMPT ,GND ,GVOLT ,GSPEC,GTIME
The above parameters are separated by commas (,)
--Setting example:
If you want to setup ACW in Screen setting as follows;
GVOLT：500V----------500
TIME：1s---------------1
SPEC：1mA------------0.001
METH：ONE TO OTHERS------1
ARC：OFF-------------0
RISE：0s----------------0
EMPT：OFF-------------0
GND：NO----------------0
GVOLT：50V-------------50
GTIME：0.01s----------0.01
GSPEC：0----------------0
The input command:
SETUP:HV:ACW500,1,0.001,1,0,0,0,0,50,0.01,0
If the setting is successful, it returns: OK

13. SETUP:HV:DCW
--Function: Screen setting of DCW parameters, that is, set 11 parameters in DCW at one time
--FORMAT:
Command Syntax:
:SETUP:HV:DCW VOLT,SPEC,TIME,RISE,ARC,METH,EMPT ,GND ,GVOLT ,GSPEC,GTIME
The above parameters are separated by commas (,)
--Setting example:
If you want to setup DCW in Screen setting as follows;

GVOLT：500V----------500
TIME：1s----------1
SPEC：1mA----------0.001
METH：ONE TO OTHERS------1
ARC：OFF----------0
RISE：0s----------0
EMPT：OFF----------0
GND：NO----------0
GVOLT：50V----------50
GTIME：0.01s----------0.01
GSPEC：0----------0
The input command：
SETUP:HV:DCW500,1,0.001,1,0,0,0,0,50,0.01,0
If the setting is successful, it returns: OK

14. SETUP:HV:IR
--Function: Screen setting of IR parameters, that is, set 11 parameters in IR at one time
--FORMAT:
Command Syntax: :SETUP:HV:IR
VOLT ,TIME,SPEC,METH,ARC,RISE,EMPT,GND,GVOLT,GTIME, GSPEC
The above parameters are separated by commas (,)
--Setting example:
If you want to setup IR in Screen setting as follows;
VOLT：500V----------500
TIME：1s----------1
SPEC：100MΩ--------100E+6
METH：ONE TO OTHERS------1
ARC：OFF----------0
RISE：0s----------0
EMPT：OFF----------0
GND：NO----------0
GVOLT：50V----------50
GTIME：0.01s----------0.01
GSPEC：0----------0
The input command：
SETUP:HV:IR 500,1,100E+6,1,0,0,0,0,50,0.01,0
If the setting is successful, it returns: OK
4.3.1.6 ITEM SETUP COMMAND
1. SETUP:ITEM:OS
--FUCTION :SETUP ITEM OS
--FORMAT
Command Syntax: :SETUP:ITEM:OS <data>
Query Syntax: :SETUP:ITEM:OS?
--DATA<data>

Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM OS : ON
The input command is :SETUP:ITEM:OS 1
--Query example:
If input command : :SETUP:ITEM:OS?
Then the content returned is 1:, indicating that the ITEM OS is set to ON.

2. SETUP:ITEM:IOS
--FUCTION :SETUP ITEM IOS
--FORMAT
Command Syntax: :SETUP:ITEM:IOS <data>
Query Syntax: :SETUP:ITEM:IOS?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM IOS : ON
The input command is :SETUP:ITEM:IOS 1
--Query example:
If input command : :SETUP:ITEM:IOS?
Then the content returned is 1, indicating that the ITEM IOS is set to ON.

3. SETUP:ITEM:IOPEN
--FUCTION :SETUP ITEM IOPEN
--FORMAT
Command Syntax: :SETUP:ITEM:IOPEN <data>
Query Syntax: :SETUP:ITEM:IOPEN?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:

--Setting example:
If you want to setup ITEM IOPEN : ON
The input command is :SETUP:ITEM:IOPEN 1
--Query example:
If input command : :SETUP:ITEM:IOPEN?
Then the content returned is 1:, indicating that the ITEM IOPEN is set to ON.

4. SETUP:ITEM:COND
--FUCTION :SETUP ITEM COND
--FORMAT
Command Syntax: :SETUP:ITEM:COND <data>
Query Syntax: :SETUP:ITEM:COND?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM COND : ON
The input command is :SETUP:ITEM:COND 1
--Query example:
If input command : :SETUP:ITEM:COND?
Then the content returned is i:, indicating that the ITEM COND is set to ON.

5. SETUP:ITEM:ICOND
--FUCTION :SETUP ITEM ICOND
--FORMAT
Command Syntax: :SETUP:ITEM:ICOND <data>
Query Syntax: :SETUP:ITEM:ICOND?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM ICOND : ON
The input command is :SETUP:ITEM:ICOND 1
--Query example:
If input command : :SETUP:ITEM:ICOND?
Then the content returned is i:, indicating that the ITEM ICOND is set to ON.

6. SETUP:ITEM:LCR
--FUCTION :SETUP ITEM LCR
--FORMAT
Command Syntax: :SETUP:ITEM:LCR <data>
Query Syntax: :SETUP:ITEM:LCR?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM LCR : ON
The input command is :SETUP:ITEM:LCR 1
--Query example:
If input command : :SETUP:ITEM:LCR?
Then the content returned is i:, indicating that the ITEM LCR is set to ON.

7. SETUP:ITEM:ACW
--FUCTION :SETUP ITEM ACW
--FORMAT
Command Syntax: :SETUP:ITEM:ACW <data>
Query Syntax: :SETUP:ITEM:ACW?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM ACW : ON
The input command is :SETUP:ITEM:ACW 1
--Query example:
If input command : :SETUP:ITEM:ACW?
Then the content returned is i:, indicating that the ITEM ACW is set to ON.

8. SETUP:ITEM:DCW
--FUCTION :SETUP ITEM DCW
--FORMAT
Command Syntax: :SETUP:ITEM:DCW <data>
Query Syntax: :SETUP:ITEM:DCW?
--DATA<data>

Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM DCW : ON
The input command is :SETUP:ITEM:DCW 1
--Query example:
If input command : :SETUP:ITEM:DCW?
Then the content returned is i:, indicating that the ITEM DCW is set to ON.

9. SETUP:ITEM:IR
--FUCTION :SETUP ITEM IR
--FORMAT
Command Syntax: :SETUP:ITEM:IR <data>
Query Syntax: :SETUP:ITEM:IR?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:
--Setting example:
If you want to setup ITEM IR : ON
The input command is :SETUP:ITEM:IR 1
--Query example:
If input command : :SETUP:ITEM:IR?
Then the content returned is i:, indicating that the ITEM IR is set to ON.

10. SETUP:ITEM:I2C
--FUCTION :SETUP ITEM I2C
--FORMAT
Command Syntax: :SETUP:ITEM:I2C <data>
Query Syntax: :SETUP:ITEM:I2C?
--DATA<data>
Data type: Enumerated type, 1 bytes
DATA RANGE:
0---OFF
1---ON
Data accuracy:
Data unit:

--Setting example:
If you want to setup ITEM I2C : ON
The input command is :SETUP:ITEM:I2C 1
--Query example:
If input command : :SETUP:ITEM:I2C?
Then the content returned is i:, indicating that the ITEM I2C is set to ON.

11. SETUP:ITEM:ALL
--Function: Screen setting of ITEM parameters, that is, set 9 parameters in ITEM at one time
--FORMAT:
Command Syntax: ::SETUP:ITEM:ALL OS,COND,LCR,ACW,DCW,IR,IOS,IOPEN,ICOND,I2C
The above parameters are separated by commas (,)
--Setting example:
If you want to setup ITEM as follows;
OS：ON----------1
COND：ON----------1
LCR：OFF----------0
ACW：OFF----------0
DCW：OFF---------0
IR：ON----------1
IOS：OFF----------0
IOS：OFF----------0
ICOND：OFF----------0
I2C：OFF----------0
The input command: :SETUP:ITEM:ALL 1,1,0,0,0,1,0,0,0,0
If the setting is successful, it returns: OK

4.3.2 MEASUREMENT COMMAND

4.3.2.1 :TRIG OR :START

--Function:
Start the test, provided that the trigger mode is bus trigger

--FORMAT: :TRIG / :START

--Command example:
You input command: TRIG

If the trigger mode is bus trigger,the tester will start.

You input command: START

If the trigger mode is bus trigger,the tester will start.

4.3.2.2 :STOP

--Function : Stop test

--Format: :STOP

--Command example:

You input command: :STOP

If it is testing, it will stop testing. If it is not testing , it will go to the main screen.

4.3.2.3 : LEARN

--Function: LEARN, provided that the trigger mode is bus trigger. It will send LEARN results and return when finished.

--Command format: :LEARN

--Command example:

Input Command: :LEARN

The tester will LEARN.

When finished, the results:

255,1,2,255,3,4,255,5,6,255,7,8,255,9,10,255,11,12,255,13,14,255,15,16,255,17,18,255,19,20,255,21,22,255,23,24,255,25,26,255,27,28,255,29,30,255,31,32,0

How to read the content, please go through following:

1/ 0 :nothing, no pin, we can neglect. Then:

255,1,2,255,3,4,255,5,6,255,7,8,255,9,10,255,11,12,255,13,14,255,15,16,255,17,18,255,19,20,255,21,22,255,23,24,255,25,26,255,27,28,255,29,30,255,31,32,

2/ 255 is net separator, then:

255,1,2,

255,3,4,

255,5,6,

255,7,8,

255,9,10,

255,11,12,

255,13,14,

255,15,16,

255,17,18,

255,19,20,

255,21,22,

255,23,24,

255,25,26,

255,27,28,

255,29,30,

255,31,32,

3/ between 255 the number is pin number.

1~32 for PIN：A1~A32;

33~64 for PIN：B1~B32;

65~96 for PIN：C1~C32;

97~128 for PIN：D1~D32;

Then,

255,A1,A2,

255,A3,A4,

255,A5,A6,

255,A7,A8,

255,A9,A10,

255,A11,A12,

255,A13,A14,

255,A15,A16,

255,A17,A18,

255,A19,A20,

255,A21,A22,

255,A23,A24,

255,A25,A26,

255,A27,A28,

255,A29,A30,

255,A31,A32,

4/ final LEARN results:

A1,A2,

A3,A4,

A5,A6,

A7,A8,

A9,A10,

A11,A12,

A13,A14,

A15,A16,

A17,A18,

A19,A20,

A21,A22,

A23,A24,

A25,A26,

A27,A28,

A29,A30,

A31,A32,

4.3.3 :FETCH Command

4.3.3 1 :FETCH:COND?

--Function: To check COND

--Format:

Query Syntax: :FETCH:COND?

--return data:

Judge1,data1; Judge1,data1;……Judgen,datan;

judge: comparator,

1---pass , 2---fail

Data: test data ,format:scientific notation:left two decimal. That is %.2e

unit:Ω

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:COND?

The return content : 1,1.01E+01;1,1.00E+01;9.99E+00;

It means 3 groups or results:

Group 1: 10.1Ω pass

Group 2: 10.0Ωpass

Group 3: 9.99Ωpass

4.3.3.2 :FETCH:ICOND?

--Function: To check ICOND results

--Format:

Query Syntax: :FETCH:ICOND?

--Return data:

Judge1,data1; Judge1,data1;……Judgen,datan;

judge: Comparator,

--pass, 2---fail

data: test data ,format:scientific notation:left two decimal. That is %.2e

unit:Ω

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:ICOND?

The return content : 1,1.01E+01;1,1.00E+01;9.99E+00;

It means 3 groups or results:

Group 1: 10.1Ω pass

Group2: 10.0Ωpass

Group 3: 9.99Ωpass

4.3.3.3 :FETCH:ICMAX?

--Function:To check ICMAS of each group of net.

--Format :

Query Syntax: :FETCH:ICMAX?

--Return data:

data1;data2;……datan;

judge: Comparator,

--pass, 2---fail

data: test data ,format:scientific notation:left two decimal. That is %.2e

unit:Ω

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:ICMAX?

The return content : 1,1.01E+01;1,1.00E+01;9.99E+00;

It means 3 groups results:

Group 1: 10.1Ω pass

Group 2: 10.0Ωpass

Group 3: 9.99Ωpass

:FETCH:ICMIN?

--Function:To check ICMIN of each group of net.

--Format :

Query Syntax: :FETCH:ICMIN?

--Return data:

data1;data2;……datan;

data: test data ,format:scientific notation:left four decimal. That is %.4e

unit:Ω

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:ICMIN?

The return: 1.00E+01;9.90E+00;9.95E+00;

It means the result of 3 group net:

Group 1: 10.0Ω

Group 2: 9.90Ω

Grpoup3: 9.95Ω

:FETCH:ACW?

--Function : To check ACW results

--format:

Query Syntax: :FETCH:ACW?

--returned data:

Judge1,data1; Judge1,data1;……Judgen,datan;

judge: comparator,

1---pass , 2---Fail

Data: test data ,format:scientific notation:left two decimal. That is %.2e

unit:A

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:ACW?

The return : 1,1.01E-3;1,1.00E-3;1.02E-3;

It means the results of 3 groups

Group 1: 1.01mA pass

Group 2: 1.00mA pass

Group3: 1.02mA pass

4.3.3.4 :FETCH:DCW?

--Function: To check DCW results--格式:

Query Syntax: : :FETCH:DCW?

--The returned data:

Judge1,data1; Judge1,data1;……Judgen,datan;

judge: comparator

1---Pass , 2---Fail

data: test data ,format:scientific notation:left two decimal. That is %.2e

unit:A

1~n: subscript 1~n, means which group test results

--Query example:

You input command : : :FETCH:DCW?

The return : 1,1.01E-3;1,1.00E-3;1.02E-3;

It means the results of 3 groups

Group 1: 1.01mA pass

Group 2: 1.00mA pass

Group3: 1.02mA pass

4.3.3.5 :FETCH:IR?

--Function : To check IR results

--Format:

--Query Syntax: :FETCH:IR?

--The returned :

Judge1,data1; Judge1,data1;……Judgen,datan;

judge: comparator,

1---Pass, 2---Fail

data: test data ,format:scientific notation:left four decimal. That is %.4e

unit:Ω

1~n: subscript 1~n, means which group test results

--Query example:

You input command : :FETCH:IR?

The returned : 1,1.01E+09;1,1.00E+09;1.02E+09;

It means the result of 3 group :

Group 1: 1.01GΩ Pass

Group 2: 1.00GΩ Pass

Grpoup3: 1.02GΩ Pass

4.3.3.6 :FETCH:AUTO

--Function:Setup if sending the signal :EOM(test completed) . When this is ON, the tester will send EOM signal through RS232 interface as soon as each test is completed. It means test is completed, you can check test data.

--Format:

Command Syntax: : :FETCH:AUTO <data>

Query Syntax: : :FETCH:AUTO?

--DATA<data>

Data type: Enumerated type, 1 bytes

DATA RANGE:0~3

0---OFF

1---Test completed, sending :"EOM"

2---Test completed, return to test data.

3---Testing, return to COND test data。

Data accuracy:
Data unit:
--Setting example:
If you want to setup to : return

The input command : :FETCH:AUTO 1

When test completed, the tester will send EOM

--Query Syntax:

Input command : :FETCH:AUTO?

The return content : 1, it means the test is set to RETURN.

4.3.3.7 :FETCH:ALL <step>?

--Function：To check all test data and results.

--Data <step>:

Step: It means test step.

If in normal test, step: 0.

If repeat and muti-step, first step: 0, second step: 1 ,-------.

--Format:

Query Syntax: :FETCH:ALL 0?

--The return data:

Format:

The parameters are separated by commas (,) in each line.
The lines are separated by (;).

Item1,pin11,pin12,data1,judge1;

Item2,pin21,pin22,data2,judge2;

……..……

Itemn,pinn1,pinn2,datan,judgen;

1/Item: Name of test item as follows;

0	empty
1	OS
2	IOS
3	IOPEN
4	COND
5	ICOND
6	LCRD：INDUCTANCE
7	LCRD ：CAPACITOR
8	LCRD ：RESISTANCE
9	LCRD：DIODE
10	LCRD：POLARITY
11	LCRD：VOLTAGE DROP
12	ACW- DICHOTOMY
13	ACW- ONE TO OTHERS
14	DCW- DICHOTOMY
15	DCW- ONE TO OTHERS
16	IR-DICHOTOMY
17	IR-ONE TO OTHERS
18	SHORT
19	OPEN
20	POINT OS
21	MISPARING/MALPOSITION
22	MAL ICOND
23	INSTANT SHORT

24	INSTANT OPEN
25	INSTANT MISPARING
26	ACW-ALL TO THE GROUND
27	DCW-ALL TO THE GROUND
28	IR-ALL TO THE GROUND
29	DYNAMIC RESISTANCE
30	LCRD：DIODE LEAKAGE CURRENT

2/ pin1/pin2: PIN NUMBER

1~32 : A1~A32

33~64 : B1~B32

65~96 :C1~C32

97~128 : D1~D32

3/data: TEST DATA

Format:data: test data ,format:scientific notation:left three decimal. That is %.3e

Some value has no sense like short open, you can neglect.

For COND AND IR, the data is the resistant value.

4/judge: comparator results,

1---Pass, 2---Fail

--Query example:

To check the test data and results

Input command : :FETCH:ALL 0?

The return content:

19,31,32,0.000e+00,2;

04,01,02,9.997e+01,1;

04,03,04,9.998e+01,1;

04,05,06,1.000e+02,1;

04,07,08,1.000e+02,1;

04,09,10,9.999e+01,1;

04,11,12,1.000e+02,1;

04,13,14,1.000e+02,1;

04,15,16,1.001e+02,1;

04,17,18,9.995e+01,1;

04,19,20,9.993e+01,1;

04,21,22,1.001e+02,1;

04,23,24,1.002e+02,1;

04,25,26,1.001e+02,1;

04,27,28,1.009e+02,1;

04,29,30,1.001e+02,1;

04,31,32,3.002e+03,2;

The test data and results：

Open	A31	A32	0	FAIL
COND (resistance)	A1	A2	9.997e+01	PASS
COND	A3	A4	9.998e+01	PASS
……..	…..	…..	……	……
COND	A29	A30	1.001e+02	PASS
COND	A31	A32	3.002e+03	FAIL

4.3.3.8 :FETCH:NCOND?

--Function:To check COND data and results

--Format:

Query Syntax: :FETCH:NCOND?

--The return format:

The parameters are separated by commas (,) in each line.
The lines are separated by (;).

4,pin11,pin12,data1,judge1;

4,pin21,pin22,data2,judge2;

……..……

4,pinn1,pinn2,datan,judgen;

1/pin1/pin2:PIN NUMBER

1~32 to A1~A32

33~64 to B1~B32

65~96 to C1~C32

97~128 to D1~D32

2/data: test data

Format:data: test data ,format:scientific notation:left three decimal. That is %.3e

3/judge: comparator results,

1---Pass, 2---Fail

--Query example:

If you want to check COND data and results.

The input command : :FETCH:NCOND?

The return content:

04,01,02,9.997e+01,1;

04,03,04,9.998e+01,1;

04,05,06,1.000e+02,1;

04,07,08,1.000e+02,1;

04,09,10,9.999e+01,1;

04,11,12,1.000e+02,1;

04,13,14,1.000e+02,1;

04,15,16,1.001e+02,1;

04,17,18,9.995e+01,1;

04,19,20,9.993e+01,1;

04,21,22,1.001e+02,1;

04,23,24,1.002e+02,1;

04,25,26,1.001e+02,1;

04,27,28,1.009e+02,1;

04,29,30,1.001e+02,1;

04,31,32,3.002e+03,2;

COND DATA AND RESULTS：

COND	A1	A2	9.997e+01	PASS
COND	A3	A4	9.998e+01	PASS
……..	…..	…..	……	……
COND	A29	A30	1.001e+02	PASS
COND	A31	A32	3.002e+03	FAIL

4.3.3.9 :FETCH:OS?

--Function : To check OS data and result

--Format:

Syntax: :FETCH:OS?

----The return format:

The parameters are separated by commas (,) in each line.
The lines are separated by (;).

Item1,pin11,pin12,data1,judge1;

Item2,pin21,pin22,data2,judge2;

……..……

Itemn,pinn1,pinn2,datan,judgen;

1/Item: NAME of item as follows:

0	empty
1	OS
18	short
19	open
21	mispairing

2/ pin1/pin2:PIN NUMBER

1~32 to A1~A32

33~64 to B1~B32

65~96 to C1~C32

97~128 to D1~D32

3/data: test data

Short open no results, this is 0.

4/judge: comparator results,

1---Pass, 2---Fail

--Query example:

You want to check OS data and results

Command Syntax: :FETCH:OS?

The return content :

19,31,32,0.000e+00,2;

Test results:

OPEN	A31	A32		FAIL

4.3.3.10 :FETCH:CROSS?

--Function: To check mispairing PIN number.

When test completed, you send this command, you can check the PIN number of mispairing. If no, the return will be 0.

--Format:

Query Syntax: :FETCH:CROSS

--Query example:

To check PIN number of mispairing ,

The command: :FETCH:CROSS?

The return content:

0 means no mispairing

The return:A01,B02;A02,B01

The PIN number of mispairing: A01 X B02 A02 X B01

4.3.3.11 :FETCH:STAT?

--Function: To check statistics data

--Format:

Query Syntax: :FETCH:STAT?

--Return :

Data format: total test, number of Pass, number of Fail

--Query example:

Command Syntax: :FETCH:STAT?

The return: 64,58,6

Total test: 64; Pass:58; Fail: 6

4.3.3.12 :FETCH:FILE?

--Function: to check file list in the tester.

--Format:

Command : :FETCH:FILE?

--The return:

Data format: File 1, File2……..File n

--query example :

Command: :FETCH:FILE?

The return: 1.wire,2.wire,,

It means 2 file in the tester:

1.wire

2.wire

4.3.3.13 :FETCH:USB?

--Function: To check the File List in USB.

--Format :

Query Syntax: :FETCH:USB?

--The return:

Data Format: File 1, File 2……..File n

--Query example:

Input Command: :FETCH:USB?

The return: 1.wire,2.wire,,

It means 2 file in the USB:

1.wire

2.wire

4.3.3.14 :FETCH:ITEM?

--Function: To check present ITEM

--Format:

Query Syntax: :FETCH:ITEM?

--The return:

Data format: OS, COND,LCRD,ACW,DCW,IR, IOS, IOPEN,ICOND

--Query example:

To check ITEM, the input command: :FETCH:ITEM?

The return : 1,1,0,0,0,0,0,0,0

It means that there are 2 Item:

OS

COND

4.3.3.15 :FETCH:NET:COND?

--Function: To check the COND NET

Query Syntax: :FETCH:NET:COND?

--The return:

Data format : pin11,pin12;pin21,pin22;……pinn1,pinn2;

--Query example:

To check test connection, the input command : :FETCH:NET:COND?

The return: 1,33;2,34;3,35

It means COND NET:

A01-B01

A02-B02

A03-B03

4.3.3.16 :FETCH:NET:HV?

--Function: To check HV net

--Format :

Query Syntax : :FETCH:NET:HV?

--The return :

Data format : pin11,pin12….pin1m;

pin21,pin22….pin2m;

……..……

pinn1,pinn2….pinnm;

--Query example:

To check HV NET, the input command: :FETCH:NET:HV?

The return: 1,33;2,34;3,35

It means HV net:

A01-B01

A02-B02

A03-B03

4.3.3.17 :FETCH:NET:LCR?

--Function : To check LCRD NET

--Format :

Query Syntax: :FETCH:NET:LCR?

--The return:

Data format: type1,pin11,pin12;type2,pin21,pin22;……typen,pinn1,pinn2;

--query example:

To check LCRD NET, the input command: :FETCH:NET:LCR?

The return: 2,1,33;3,2,34;

It means LCRD NET:

Capacitor: A01-B01n

Resistance: A02-B02

4.3.4 SYSTEM COMMAND

4.3.4.1 MEASUREMENT SYSTEM COMMAND

1.SYS:MEAS:TRIGM

--Function: Setup TRIGM (TRIG MODE)

--FORMAT:

SETUP Syntax: :SYS:MEAS:TRIGM <data>

Query Syntax: :SYS:MEAS:TRIGM?

--DATA<data>

Data type: Enumerated type, 1 bytes

DATA RANGE:

0---manual

1---external

2---bus

3---auto

Data accuracy:

Data unit:

--Query example:

If you want to setup TRIGM: BUS trigger

The input command : :SYS:MEAS:TRIGM 2

--query example:

The input command : :SYS:MEAS:TRIGM?

The return content : 2, it means TRIGM is BUS trigger Mode.

2.SYS:MEAS:DELAY

--Function : to Setup trigger DELAY time

--Format :

Setup Syntax: :SYS:MEAS:DELAY <data>

Query Syntax: :SYS:MEAS:DELAY?

--DATA<data>

Data type: flouting Point ,4byte

Data range: 0~999.9

Data accuracy: 0.1
Data unit: s

--Setup example :

If you want to setup trigger delay: 5s

The input command : :SYS:MEAS:DELAY 5

--Query example :

The input command : :SYS:MEAS:DELAY?

The return content : 5, it means the trigger delay time is 5 s.

3.SYS:MEAS:MEASM

--Function : To setup MEASM

--Format :

Setup Syntax : :SYS:MEAS:MEASM <data>

Query Syntax: :SYS:MEAS:MEASM?

--Data<data>

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--Normal test

1---Repeat test

2--Cycle test

Data accuracy:
Data unit:

--Setup example :

If you want to setup MEASM: Normal

The input command : :SYS:MEAS:MEASM 0

--Query Syntax:

The input command : :SYS:MEAS:MEASM?

The return content : 0, it means MEASM: Normal

4.SYS:MEAS:RPT

--Function : To setup RPT

--Format :

Setup Syntax : :SYS:MEAS:RPT <data>

Query Syntax: :SYS:MEAS:RPT?

--Data <data>

Data type: integral ,1byte

Data range : 0~999

Data accuracy: 1

Data unit:

--setup example:

If you want to setup RPT: 5

The input command : :SYS:MEAS:RPT 5

--Query Syntax:

The input command : :SYS:MEAS:RPT ?

The return content : 5, it means RPT is set to 5

5.SYS:MEAS:INTV

--Function : To Setup INTV

--Format :

Setup Syntax : :SYS:MEAS:INTV <data>

Query Syntax : :SYS:MEAS:INTV?

--Data<data>

Data type : Floating point,4byte

Date range : 0~999.9

Data accuracy : 0.1

Data unit: s

--setup example:

To setup INTV : 1s

The input command : :SYS:MEAS:INTV 1

--Query Syntax :

The input command : :SYS:MEAS:INTV?

The return content : 1, it means INTV is set to 1S

6.SYS:MEAS:FAIL

--Function : To setup after FAIL

--Format :

Setup Syntax : :SYS:MEAS:FAIL <data>

Query Syntax: :SYS:MEAS:FAIL?

--DATA<data>

Data type: Enumerated type, 1 bytes
data range:

0--test all

1---Stop test

2--No HV

Data accuracy:
Data unit:

--Setup example:

If setup after FAIL : Test all

The input command : :SYS:MEAS:FAIL 0

--Query Syntax:

The input command : :SYS:MEAS:FAIL?

The return content : 0, it means after FAIL is set to TEST ALL

7.SYS:MEAS:DISP

--Function : Setup DISP

--Format :

Setup Syntax : :SYS:MEAS:DISP <data>

Query Syntax : :SYS:MEAS:DISP?

--DATA<data>

Data type: Enumerated type, 1 bytes

Data range:
0--Display all

1---Display Fail

2--Auto

Data accuracy:
Data unit:

--Setup example :

To setup DISP : Display all

The input command : :SYS:MEAS:DISP 0

--Query example:

The input command : :SYS:MEAS:DISP?

The return : 0, it means Display All

8.SYS:MEAS:PROGM

--Function: To setup PROGM

--Format:

Setup Syntax: :SYS:MEAS:PROGM <data>

Query Syntax: :SYS:MEAS:PROGM?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--Button trigger

1---Continue trigger

2--Auto trigger

Data accuracy:
Data unit:

--Setup example:

To setup PROGM : Button trigger

The input command : :SYS:MEAS:PROGM 0

--Query Syntax :

The input command : :SYS:MEAS:PROGM?

The return content : 0, it means PROGM is set to Button trigger

9.SYS:MEAS:PIN

--Function : To setup after PIN fail

--format:

Setup Syntax: :SYS:MEAS:PIN <data>

Query Syntax: :SYS:MEAS:PIN?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0---Repeat test

1--Next test

Data accuracy:
Data unit:

--Setup example:

To setup after PIN fail : Repeat test

The input command: :SYS:MEAS:PIN 0

--Query Syntax :

The input command : :SYS:MEAS:PIN?

The return content: 0, it means after PIN fail is set to repeat test.

10.SYS:MEAS:TYPEC

--Function : Setup TYPE-C function

--Format :

Setup Syntax : :SYS:MEAS:TYPEC <data>

Query Syntax: :SYS:MEAS:TYPEC?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup example :

To set TYPEC function : ON

The input command : :SYS:MEAS:TYPEC 1

--Query Syntax :

The input command : :SYS:MEAS:TYPEC?

The return content : 1, it means TYPEC function is set to ON.

11.SYS:MEAS:EARLY

--Function : Setup EARLY

--Format :

Setup Syntax : :SYS:MEAS:EARLY<data>

Query Syntax : :SYS:MEAS:EARLY?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup example :

To setup EARLY : OFF

The input command : :SYS:MEAS:EARLY0

--Query Syntax :

The input command : :SYS:MEAS:EARLY?

The return content : 0, it means EARLY is set to OFF.

12.SYS:MEAS:PULL

--Function : To Setup PULL

--Format :

Setup Syntax: :SYS:MEAS:PULL <data>

Query Syntax: :SYS:MEAS:PULL?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup example :

To setup PULL : OFF

The input command : :SYS:MEAS:PULL 0

--Query Syntax:

The input command: :SYS:MEAS:PULL?

The return content : 0, it means PULL is set to OFF

4.3.4.2. ENVIROMENT SYSTEM COMMAND

1.SYS:ENVI:KEYV

--Function: To setup KEYV

--Format :

Setup Syntax: :SYS:ENVI:KEYV <data>

Query Syntax: :SYS:ENVI:KEYV?

---DATA<data>

Data type: Enumerated type, 1 bytes
DATA range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup Example:

To setup KEYV: OFF

The input command : :SYS:ENVI:KEYV 0

--Query Syntax :

The input command : :SYS:ENVI:KEYV?

The return content : 0, it means KEYV is set to OFF.

2.SYS:ENVI:VOLM

--Function : To setup VOLM

--Format :

Setup Syntax: :SYS:ENVI:VOLM <data>

Query Syntax: :SYS:ENVI:VOLM?

---Data<data>

DATA type: Enumerated type, 1 bytes
DATA range:
-OFF

1---Bass

2---Alto

3---Treble

Data accuracy:
Data unit:

--Setup example :

To setup VOLM: Off

The input command : :SYS:ENVI:VOLM 0

--Query Syntax :

The input command : :SYS:ENVI:VOLM?

The return content : 0, it means VOLM is set to OFF.

3.SYS:ENVI:KLOCK

--Function: To setup KLOCK

--Format :

Setup Syntax: :SYS:ENVI:KLOCK <data>

Query Syntax: :SYS:ENVI:KLOCK?

---Data<data>

DATA type: Enumerated type, 1 bytes

DATA range:
0--Manual

1---Bus

Data accuracy:
Data unit:

--Setup Example:

To setup KLOCK : manual

The input command: :SYS:ENVI:KLOCK 0

--Query example:

The command : :SYS:ENVI:KLOCK?

The return content: 0, it means KLOCK is set to manual.

4.SYS:ENVI:PASSV

--Function: Setup PASSV

--Format:

Setup Syntax: :SYS:ENVI:PASSV <data>

Query Syntax: :SYS:ENVI:PASSV?

---DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup example:

To setup PASSV: OFF

The input command :SYS:ENVI:PASSV 0

--Query example:

The input command: :SYS:ENVI:PASSV?

The return content: 0, it means PASSV is set to OFF.

5.SYS:ENVI:FAILV

--Function : To setup FAILV

--Format:

Setup Syntax: :SYS:ENVI:FAILV <data>

Query Syntax :SYS:ENVI:FAILV?

--DATA<data>

Data type: Enumerated type, 1 bytes
Data range:
0--OFF

1---ON

Data accuracy:
Data unit:

--Setup example :

To setup FAILV : OFF

The input command : :SYS:ENVI:FAILV 0

--Query Syntax:

The input command : :SYS:ENVI:FAILV?

The return content : 0, it means FAILV is set to OFF.

6.SYS:ENVI:BRI

--Function : Setup BRI

--Format :

Setup Syntax: :SYS:ENVI:BRI <data>

Query Syntax: :SYS:ENVI:BRI?

--Data<data>

Data type: Integral, 1 byte

Data range:1~10

Data accuracy:1

Data unit:

--Setup Example :

To setup BRI: 5

The input command : :SYS:ENVI:BRI 5

--Query Syntax:

The input command : :SYS:ENVI:BRI ?

The return content : 5, it means BRI is set to 5.

7.SYS:ENVI:DATE

--Function : To Setup system DATE

--Format :

Setup Syntax: :SYS:ENVI:DATE <year>, <month>, <day>

Query Syntax: :SYS:ENVI:DATE?

--Data<year>

Data type : Integral , 2 byte

Data range: 1000~9999

--Data<month >

Data type: integral, 1byte

Data range: 1~12

--Data <day >

Data type: integral, 1byte

Data range: 1~31

--Setup example:

To setup date: 2014-10-30

The input command: :SYS:ENVI:DATE 2014,10,30

--Query Syntax:

The input command: :SYS:ENVI:DATE ?

The return content: 2014,10,30, it means the date of system is set to 2014-10-30.

8.SYS:ENVI:TIME

--Function: To setup system TIME

--Format:

Setup Syntax: :SYS:ENVI:TIME <hour>, <min>, <sec>

Query Syntax: :SYS:ENVI:TIME?

--Date<hour >

Data type: integral,1byte

Data range: 0~23

--Data<min >

Data type : integral ,1byte

Data range : 0~59

--Data<sec >

Data type: integral,1byte

Data range: 0~59

--Setup example:

To setup system TIME: 17:00:00

The input command: :SYS:ENVI:TIME 17,0,0

The return content: 17,0,0 it means system TIME is set to 17:00:00

4.3.5 File Command

4.3.5.1 :FILE:SAVE

--Function : To save file

--Format :

Setup Syntax: :FILE:SAVE <name>

--Data<name>

Data type: Character String , 10 byte

Data range:

Data accuracy :

Data unit:

--Setup example:

To save the present Setup : TONGHUI

The input command : :FILE:SAVE TONGHUI

If successful, the return content : OK

4.3.5.2 :FILE:LOAD

--Function : To read file

--Format :

Setup Syntax : :FILE:LOAD <name>

--Data<name>

Data type: Character String , 10 byte

Data range:

Data accuracy :

Data unit:

--Setup example:

To read File TONGHUI

The input command : :FILE:LOAD TONGHUI

If successful : OK

4.3.5.3:FILE:SEND

--Function : To send Setup File , 6k File is sent from PC to Tester.

--Format :

Command Syntax: :FILE:SEND

Setup File is sent to Tester.

--Example :

To send: sample.wir to tester

The input command : :FILE:SEND

Then send binary File , 13k.

If successful, the return content : OK otherwise Error.

4.3.5.4.:FILE:RECE

--Function : To get setup File in tester and send it to PC.

--Format:

Command Syntax: :FILE:RECE<sn>?

--Data<sn>

Data type: Integral , 1 byte

Data range: 0~100

0: present File

1 ~100: File 1 ~100

Data accuracy : 1

Data unit:

Example:

To read File 3 in the tester,

The input command : :FILE:RECE 3?

If successful, it is 13k byte binary File.

4.3.6 DISP COMMAND

4.3.6.1 :DISP SREEN COMMAND
--Function : To Display varies modular.
--Format:
Setup Syntax: :DISP <data>
--Data<data>
Data type: Enumerated type, 1 bytes
Data range:
OFF--- DISP OFF
ON--- DISP OFF
MAIN---MAIN DISP
MEAS---MEASUREMENT DISP
SETUP---SETUP DISP
LEARN---LEARN DISP
STAT---STAT DISP
FILE---FILE DISP
SYS --- SYS DISP
UTIL --- UTIL DISP

Data accuracy:
Data unit:
--Setup example:
To display Measurement
The input command : :DISP MEAS

4.3.7 Other Commands

4.3.7.1.:STAT:CLEAR
--Function : To setup STAT CLEAR

--Command Syntax: :STAT:CLEAR

--example:

The input command : :STAT:CLEAR

Then total number, Pass number, Fail number and Pass rate all are reset to 0.

4.3.8 Public Command

4.3.8.1. *IDN
--Function: To check series No. Version No.

--Query format: *IDN?

--Query example:

You input command: *IDN?

The return content:TH8601 Ver 1.00"

4.3.8.2. *TRG
--Function: Start test, then return to test data--

Format: *TRG

--Query example:

You input command: *TRG

The tester will start testing, when finished, it returns to data automatically.

Chapter 5 Technical Specifications

	Parameters	Range		Detailed Specifications
1-1	Test Signal Source	Sine signal source: 50Hz~300kHz, with programmable amplitude and frequency capacitance element test 1Vrms		Frequency 0.02%, 1Vrms Voltage 10%
		Programmable DC signal source: 5Vdc MAX		10%±1Digit
		Programmable DC current source: 1~20mA		10%±1Digit
		Programmable DC high voltage source:	5V~100Vdc	10%±1Digit
			100Vdc~1500Vdc	5%±1Digit
		Programmable AC high voltage source:	50V~100Vac	10%±1Digit
			100Vdc~1000Vdc	5%±1Digit
		Channel Plate on-off scanning Signal Source:5Vdc		
1-2	Test Speed	interval OSC（128points）：		10ms（sample standard）
		Single-sided sensitivity scan test (64 Channels)：		150ms
		Network table scan test （64 Channels）：		5ms
		Basic value of test speed：		100ms
1-3	Capacitance Measurement	range：10pF ~ 1000uF		10%±1Digit
1-4	Resistance Measurement	0.01Ω~1MΩ		2%±1Digit
1-5	Cond./Interval Cond.	0.1Ω~50Ω		2%±1Digit
1-6	OSC	1kΩ~50kΩ		10%±1Digit
1-7	Diode Measurement	0~10V		10%±1Digit
1-8	Insulation Resistance	1MΩ~100MΩ		5%±5Digit
		100MΩ~1000MΩ		10%±5Digit
1-9	DC Leakage Current	1uA~5mA		5%±2Digit
	AC Leakage Current	0.01mA~5mA		10%±5Digit

Chapter 6 Warranty

Warranty period: The user purchases the instrument from the company, calculated from the company's shipping date, the warranty period is 1 year. The warranty card shall be issued for the instrument. During the warranty period, if the instrument is damaged due to improper operation by the user, the maintenance cost shall be borne by the user. The company is responsible for lifetime maintenance of the instrument.

The maintenance of this device requires professional and technical personnel; please do not replace the internal components of the instrument without authorization; after the instrument is repaired, it must be re-measured and calibrated to avoid affecting the accuracy of the test. Due to blind maintenance by the user, damage to the instrument caused by replacement of instrument parts is not covered by the warranty, and the user shall bear the maintenance cost.

The instrument should be protected from sun and moisture, and the instrument should be used correctly in the environment described in 1.2.
If the instrument is not used for a long time, the instrument should be packaged and sealed in the shipping box at the factory.

Chapter 7 Appendix

Manual Change Instructions

Version history:

This manual will be continuously improved to facilitate use.

Due to possible errors or omissions in the manual, improvement and perfection of instrument functions, technical updates and software upgrades, the manual will be adjusted and revised accordingly.

Please pay attention to the software version and manual version you are using.