OPERATION MANUAL

TH610

Cable/Harness Tester

V1.0@2024.05

CONTENTS

Chapter 1 Overview

This chapter delineates the inspections that must be conducted following the receipt of the appliance and the prerequisites that must be ascertained prior to installation and utilization.

1.1 Unpacking and Inspection

We would like to express our gratitude for your purchase and utilization of our products. Following the unpacking process, it is imperative that you meticulously examine the instrument to ascertain whether it has sustained any external damage during transportation. We strongly advise against powering on the instrument in the event that it is damaged. Subsequently, we kindly request that you refer to the following packing list to facilitate your inspection.

Packing list	Quantity
TH610 Wire Comprehensive Tester	1
Power cable	1
Instruction manual	1
Automatic point finding probe	1
Adapter fixture	1 channel board with 2 sets

If there is any discrepancy, please contact our company or distributor as soon as possible to protect your rights.

1.2 Power Connection

Supply voltage range: 100 to 242 Vac.

Power supply frequency range: 47 to 63 Hz.

Power supply range: not less than 100 VA.

The power input phase line L, zero-line N and ground line E should be the same as the power plug of this instrument.

This instrument has been carefully designed to minimize spurious interference due to inputs from the AC power supply side, however, it should still be used in as low a noise environment as possible, and if this cannot be avoided, install a power supply filter.

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WARNING: ***In order to prevent leakage of electricity from harming the instrument or people, the user must ensure that the ground wire of the power supply is reliably connected to earth.***

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1.3 Fuse

The instrument is equipped with a fuse from the factory, and the user should use

the fuse provided by our company.

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WARNING: ***Before powering up the unit, note that your fuse location matches the supply voltage range***.

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1.4 Environment

1. Do not use in dusty areas, near vibrating equipment, or in direct sunlight or corrosive gas environments.
2. The instrument should be used at temperatures between 0° C and 40° C and at a relative humidity of ≤75%.
3. This testing instrument is equipped with a heat dissipation device on the rear panel to prevent the internal temperature from rising. To ensure good ventilation, do not block the left and right ventilation holes. This will maintain the accuracy of the instrument.
4. This instrument has been carefully designed to reduce interference caused by AC power input, but it should still be used in a low-noise environment as much as possible. If this is unavoidable, please install a power filter.
5. If you won't use the instrument for a long time, please store it in its original box or a similar box. Store it in a ventilated room with a temperature between 5 and 40 degrees Celsius and a relative humidity of no more than 85%RH. The air should not contain harmful impurities that will corrode the measuring instrument, and direct sunlight should be avoided.
6. To avoid interference with the measurement, keep the instrument, especially the test leads connected to the measured part, away from strong electromagnetic fields.

1.5 Precautions

When using external fixtures and adapters, please use the test fixture or test cable provided by our company. Using user-made or test fixtures or test cables from other companies may lead to incorrect measurement results.

1. The shorter the adapter, the better.

   Longer external cables carry more current, which can lead to incorrect measurements when testing continuity, resistance, or judging short circuits.

2. Always replace adapters.

   If you reuse adapters, the continuity may become unstable when making contact, causing inaccurate results during low continuity resistance specification tests. Therefore, when measuring the same good wire multiple times, the continuity may be poor or momentarily disconnected, and the adapter needs to be replaced.

3. Keep the fixture and adapter clean.

   After using the machine for a long time, dust will build up on the fixture. In rainy weather or when the air is very humid, poor insulation can occur. This can affect the insulation resistance specification test and lead to incorrect results.

1.6 Preheating

To get an accurate measurement, let the instrument warm up for at least 15 minutes before use.

Don't turn the instrument on and off too often, because this can cause it to lose data.

1.7 Electromagnetic Compatibility

It meets the safety requirements of Directive 2006/95/EC.

EN 61010-1:2010+A1:2019 Safety requirements for electrical equipment for measurement, control and laboratory use

Electromagnetic compatibility requirements

It also meets the electromagnetic compatibility requirements of Directive 2004/108/EC.

EN 61326-1:2021 Electromagnetic compatibility requirements for electrical equipment for measurement, control and laboratory use

- CISPR 11:2015+A1:2016+A2:2019 Levels of emitted and conducted radiation, group 1, category A
- EN 61000-4-2:2009 Electrostatic discharge immunity
- EN 61000-4-3:2020 Radiated immunity to RF electromagnetic fields
- EN 61000-4-4:2012 Electrical fast transient impulse group immunity
- EN 61000-4-5:2014+A1:2017 Power line surge impulse immunity
- EN 61000-4-6:2014 Conducted radio frequency immunity
- EN 61000-4-11:2020 Voltage dips and interruption immunity

EN 61000-3-2:2019+A1:2021 Harmonic radiation from AC power lines

EN 61000-3-3:2013+A1:2019+A2:2021 Voltage changes, fluctuations and flicker

1.8 Other Features

Power consumption: power consumption ≤ 100VA.

Overall dimensions (W*H*D): 425mm*189mm*357mm.

Weight: about 13kg.

Chapter 2 Panel Description

This chapter describes the basic operating characteristics of the TH610 series instruments. Before using the TH610 series instruments, please read this chapter in detail so that you can quickly learn the operation of the TH610.

2.1 Front Panel Description

Figure 2-1 provides a brief description of the TH610 front panel.

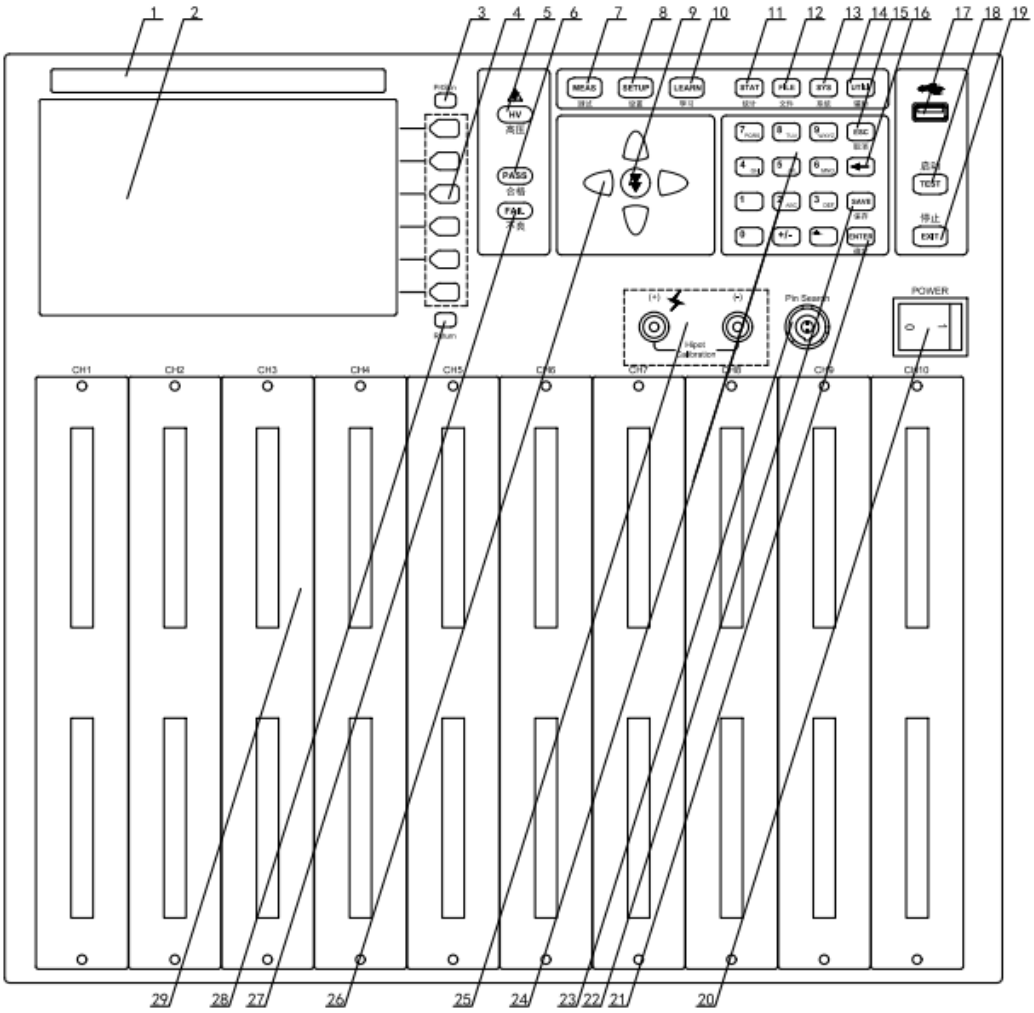


Figure 2-1 Front Panel Description

1. Trademarks & Models

Instrument trademark and model number.

2. LCD liquid crystal display

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

3. [PrtScn] key

Copy screen key, you can intercept the current LCD screen and save it to U disk in picture format.

4. Menu key

Six menu keys are available for menu control, each with a corresponding menu function to the left of the menu key. The menu key definitions vary with the displayed page and cursor position.

5. HV (High Voltage) indicator

It indicates that a high voltage test is in progress and warns of a high voltage hazard.

6. PASS indicator

Test Pass LED indicator.

7. [MEAS] (Test) page keys

Press the [MEAS] key to enter the screen that displays information about the measurement steps, measurement results, etc. for the current file.

8. [SETUP] (Setup) page key

Press the [SETUP] key to enter the current measurement parameter setting page.

9. [ ] key

This key is used for quick page turning for easy viewing of measurement results, or for parameter item setting.

Example: If you set the end-edge judgment function to be on or off, when this key is pressed, the end-edge judgment is set to be on; when it is pressed again, it is set to be off; and when it is pressed again, it is set to be on; in this way, the setting value is changed every time it is pressed, and every time it is pressed, until the desired setting value appears.

10. [LEARN] (Learning) page keys

Pressing the [LEARN] key, the instrument will perform a learning test, and when finished, it will enter the learning page and display the results of the learning.

11. [STAT] (Statistics) page keys

Press the [STAT] key to enter the statistical measurement results page.

12. [FILE] page keys

Press the [FILE] key to enter the file management setting screen.

13. [SYS] (System) page keys

Press the [SYS] key to enter the system setup page.

14. [UTILI] (Auxiliary) page keys

Press the [UTILI] key to enter the auxiliary function setting or measurement page.

15. [ESC] key

The [ESC] key is used to cancel data entry.

16. [←] key

BACKSPACE key. Used to delete the last number or letter of the entered value.

17. USB HOST interface

Used to connect to USB flash drive memory for file saving and recalling. Or for program upgrade.

18. [TEST] key

Press the [TEST] key to start the test.

19. [EXIT] key

Press the [EXIT] key to stop the test.

20. Power switch (POWER)

Power switch.

21. [ENTER] key

The [ENTER] key is used to confirm data entry.

22. [SAVE] key

[SAVE] key, save key. Used to save the file.

23. [Pin Search] interface

This interface is connected to a meter pen for point searching and also for point measurement testing.

24. Numeric key

The numeric keys are used for inputting the data. The numeric keys consist of the numeric keys [0] through [9], the decimal [...] and [+/-] keys. It can also be used for text input. In addition to 0 to 9, the 26 letters A to Z can be entered.

25. [Hipot Callbration] interface

This connector is a pair of high voltage output terminals, red for the high side and black for the low side. Used for voltage output during high voltage calibration Rear Panel Description

26. Cursor keys (CURSOR)

The cursor keys are used to move the cursor between domains and fields on the LCD display page. When the cursor moves to a domain, the domain is displayed as highlighted on the LCD display.

27. FAIL indicator

Test Bad LED Indicator.

28. [RETURN] key

Return key, used to return the cursor of the current interface to the starting position. It can also be used to return to local during remote communication.

29. Test end [UNKNOWN]

Each channel board card has 2 slots for connectors, each slot is a 32PIN fixture connector.

2.2 Rear Panel Description

Figure 2-2 provides a brief description of the TH610 rear panel.

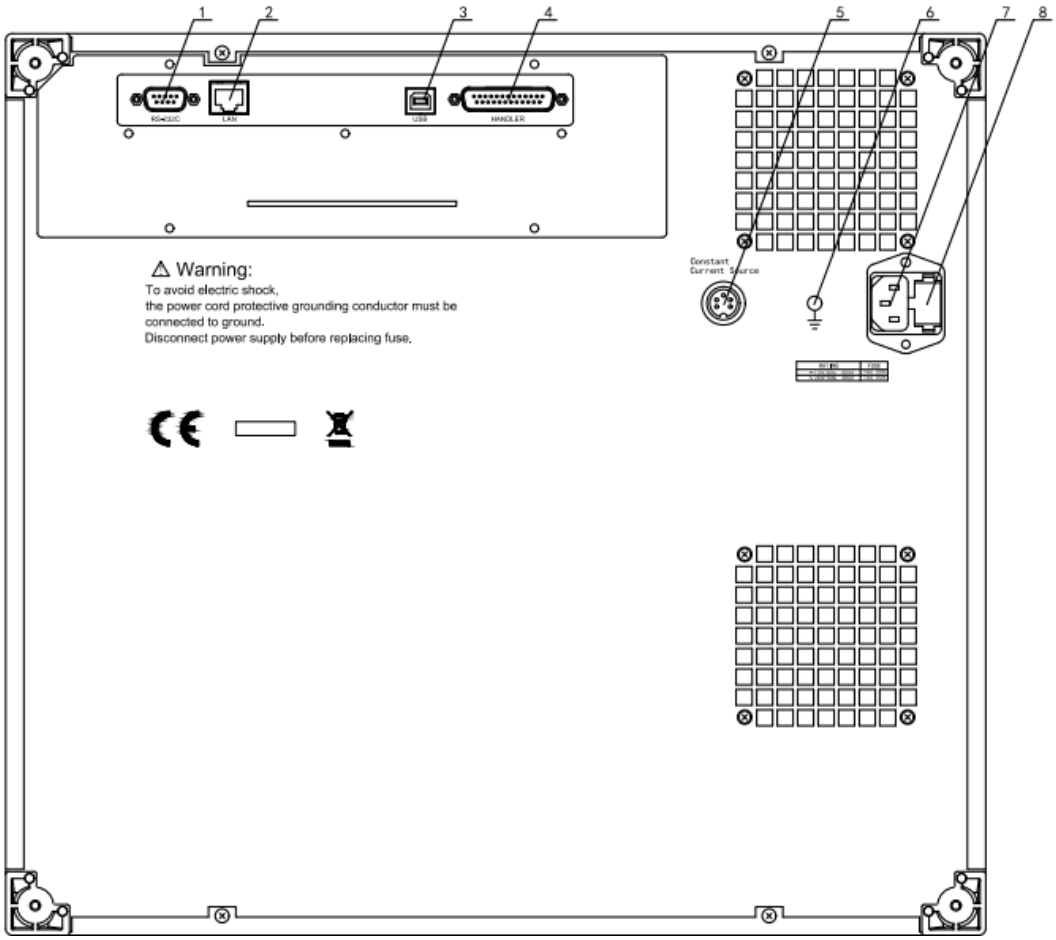


Figure 2-2 Rear Panel Description

1. RS232C serial interface

Serial communication interface for on-line communication with the computer through commands.

2. LAN interface

Network interface for on-line communication with a computer through commands.

3. USB DEVICE interface

USB communication interface, through the command to realize the on-line communication with the computer.

4. HANDLER interface

HANDLER interface for control and communication with a computer via level signals.

5. Aviation outlet

Retain for backup.

6. Enclosure ground terminal

This terminal is connected to the instrument case. It can be used for protective or shielded ground connections.

7. Electric socket

For input of AC power.

8. Fuse

AC source	Fuse
~110V/60Hz 400VA	T6AL 250V
~220V/50Hz 400VA	T4AL 250V

2.3 Power on

Plug in the three-wire power plug to turn on the power supply, press the power switch at the lower left corner on the front panel, the instrument will turn on and display the power-on screen.

Note: The power supply voltage, frequency and other conditions should be maintained in accordance with the above provisions. The power input phase line L, zero-line N, ground line E should be the same as the phase line and zero line on the power plug of this instrument.

The power-up display shows the TH610 series power-up screen, which also shows the company logo, the model number of the instrument (TH610), and the software version number (Ver 1.00).

2.4 Main Page

After booting up, the page you enter is the main page: it displays information about the software and the company's contact information. This is shown in the picture below:

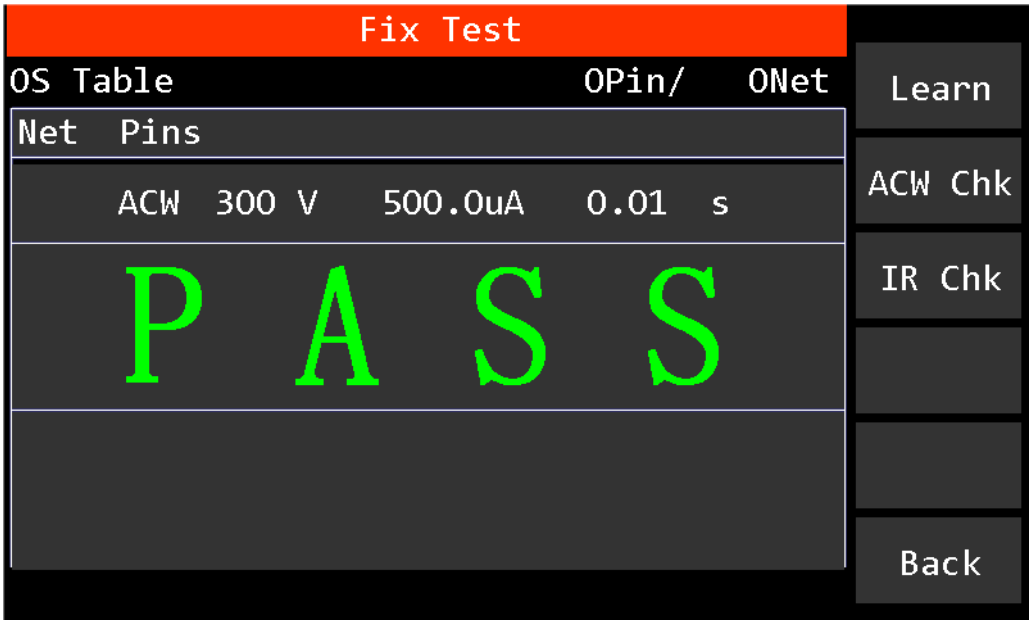
The menu functions are the following 3 items:

1. **Brightness+** is to turn up the brightness of the display.
2. **Brightness -** is to turn down the brightness of the display.

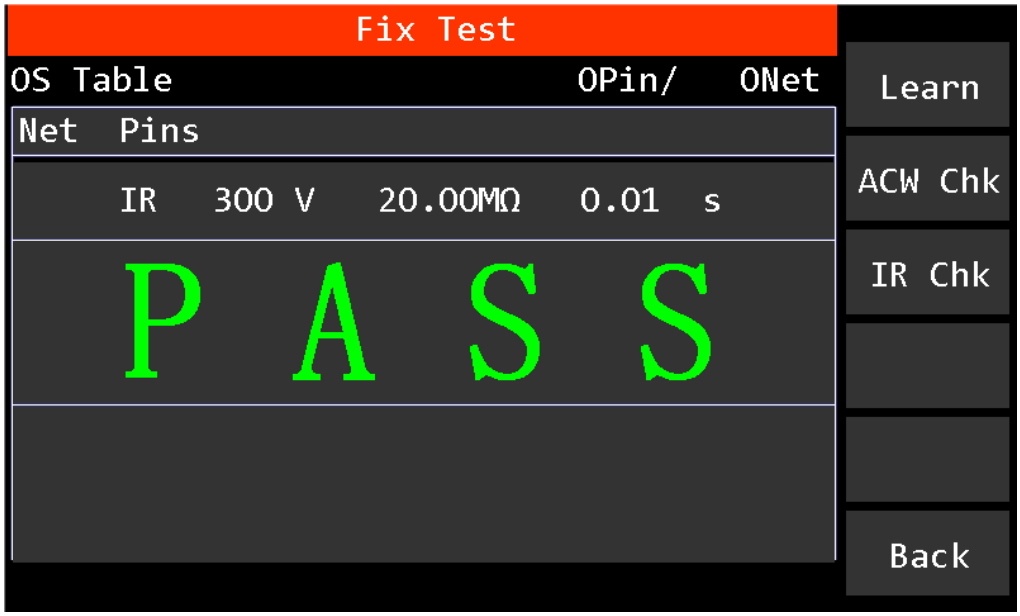
3. **Fixture check** allows for AC voltage testing and insulation testing of fixtures.
4. **OS List** is used to view the network table for the current test file (study page).
5. **Keylock** is used for key locking.

2.4.1 Fixture Testing

AC withstand voltage testing:

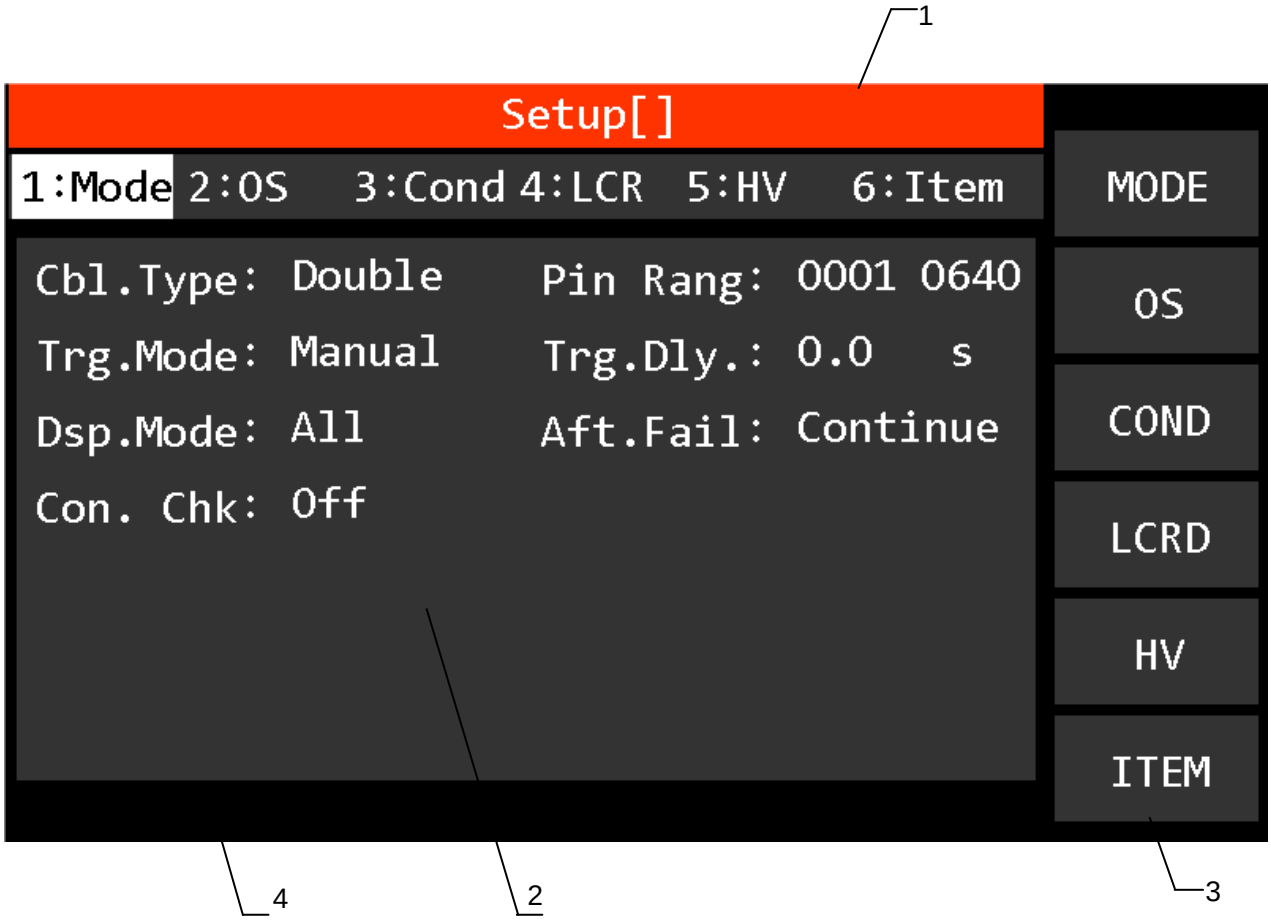


Insulation testing:



2.5 Display Area Definition

The TH610 features a 65k-color, 7" widescreen TFT display. The display shows the content divided into the following display areas as shown in the diagram at :



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, 6 in total

4. **Information area**
   Used to display prompt messages, inquiry messages, error messages, etc.

2.6 Basic Operation

The basic operation of the TH610 is described below:

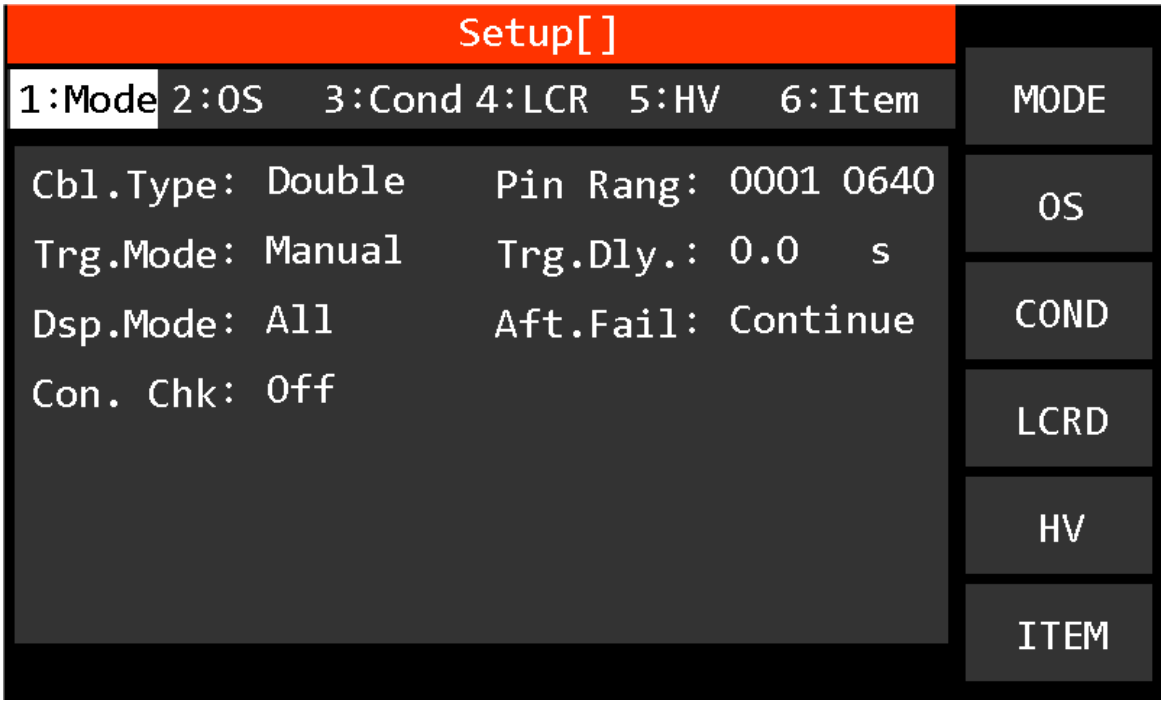
1. Use the menu keys ([MAES], [SETUP], [LEARN], [STAT], [FILE], [SYS], [UTILI]) and soft keys to select the page you want to display.
2. Use the cursor keys ([↑] [↓] [←] [→]) to move the cursor to the domain you want to set. When the cursor moves to a field, the field will be highlighted. The so-called field is the area where you can set the cursor.
3. The menu function corresponding to the field in which the current cursor is

located is displayed in the "Menu Area". Select and press the desired soft key. The numeric keys, [←] key and [ENTER] key are used for data entry.

4. When a numeric key is pressed, the soft key area will display the corresponding letters and numbers to select and press the desired software. When the [ENTER], key is used to end data entry, the data unit is the default unit for the corresponding domain parameter: Hz, V or Ω. For example, the default unit for test frequency is Hz.

Chapter 3 <Setting> Description

Press the module key **[SETUP]** to enter the **<Setup>** page. As shown in the figures:



The **<Setup>** page includes **six sub-pages for Mode**, **OS**, **Cond**, **LCR**, **HV**, and **Item**. The following paragraphs provide a detailed description of each of the settings sub-pages.

3.1 <Mode>

The information page mainly sets some characteristics about the wire, including the following:

3.1.1 Cable Type

Move the cursor to the **Cbl. Type** field. The menu area displays the following options.

- **Double**: Both ends of the wire are connected to the tester for testing, also called bilateral wire.
- **Single**: One end of the wire is plugged into the tester for testing, also called single-sided wire.
- **Probe**: This is a test using a meter pen.

3.1.2 Pin Range

Move the cursor to **Pin Rang** field, the first bit is the start of the pin range, and the second bit is the end of the pin range.

Use the numeric keys to enter as many test points as needed, ranging from 1 ～ to the maximum test point; if an endpoint is not used, it can also be set to **Off**.

3.1.3 Trigger Mode

Move the cursor to the **Tri. Mode** Setting field and the following options are displayed in the soft key area of the screen.

- **Manual:** Use the TEST key on the front to start the test.
- **External:** Use the Handle interface on the rear panel for startup testing.
- **Bus:** Start-up test using trigger commands through the communication interface.
- **Automatic**: The instrument automatically determines whether the DUT is plugged in or not and triggers the test automatically.

3.1.4 Trigger Delay

Move the cursor to the **Trg. Dly** setting field and use the numeric keypad to directly input a value, the allowed input range is 0~99.9s

Trigger delay means that after initiating a test, instead of starting the test immediately, the test is delayed for a certain amount of time before starting the test.

3.1.5 Display Mode

When a DUT test is completed, the test data is displayed.

Move the cursor to the **Dsp. Mode** Settings field and the following options are displayed in the soft key area of the screen.

- **All**: Displays all data, including passing and failing data.
- **NG:** Only the failed data is displayed.
- **Auto:** First display the unqualified data, if necessary, press ENTER to display all the data.

3.1.6 After the Failure

The common file is in bad condition during the testing process, which should be handled as follows.

Move the cursor to the **Aft. Fail** Settings field and the following options are displayed in the soft key area of the screen.

- **Continue:** Continue testing until all test items have been tested.
- **Stop:** Stop the test immediately and give a FAIL judgment.
- **Skip HV:** Continue testing, but high voltage items are not tested, other items are allowed to be tested.

3.1.7 Contact Check

Before the test begins, first verify that the connection between the product under the test and the instrument is good.

Move the cursor to the **Con.Chk** Settings field and the following options are displayed in the soft key area of the screen.

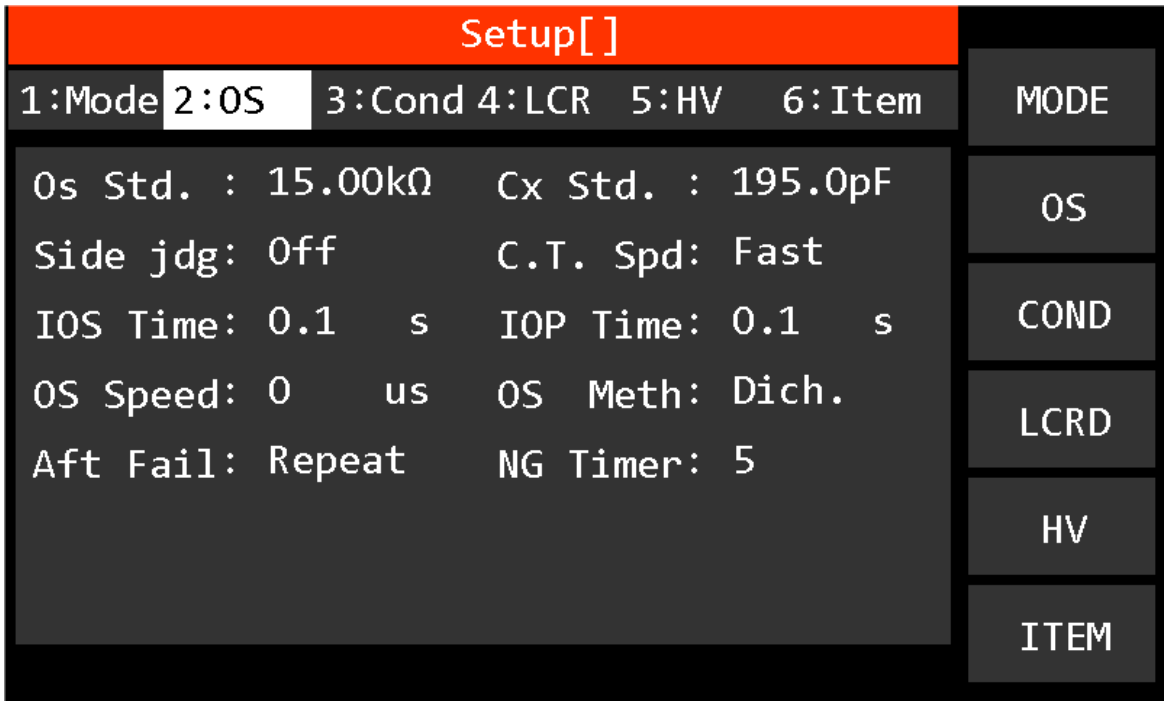
- **Off:** Disables the contact check function

- **On:** Enable contact check function

Note: For the above start and end point settings, the start pin number must be less than or equal to the end pin.

3.2 <Short Break>

It is used to set test conditions related to short breaks, as shown in the following figure: Setting page for short breaks



3.2.1 Short Break Standard

Move the cursor to **the Os Std.** field. Use the numeric key input to set the threshold value for judging the short circuit, which ranges from 0.01kΩ to 100kΩ, as required.

A judgment criterion used to determine whether a bilateral wire is on or off.

Example: short break standard: set to 2k

If the resistance between the two ends of the wire is greater than 2k, then it indicates a broken circuit

If the resistance between the two ends of the wire is less than 2k, then it indicates a through or short circuit

3.2.2 One-sided Sensitivity

Move the cursor to the **Cx Std.** field. Utilize the capacitance value that can be entered manually with numeric keys or obtained by learning the standard as needed and set the range from 0pF to 9.999nF.

Whether a One-sided wire is disconnected or not is determined by measuring the magnitude of its distribution capacitance. The distributed capacitance of a one-sided wire is the one-sided sensitivity.

For example, One-sided sensitivity: set to 100pF

If the one-sided sensitivity of the wire is greater than 100pF, then the wire is not disconnected

If the one-sided sensitivity of the wire is less than 100pF, then there is a break in the wire.

3.2.3 Side Judgment

Move the cursor to **the Side jdg** field. The menu area displays the following options.

- **Off**: Turns off the end edge judgment function.
- **On**: Turns on the end-edge judgment function.

3.2.4 One-sided Speed

Move the cursor to the **C.T. spd** field. The menu area displays the following options.

- **Slow**
- **Medium**
- **Fast**

For example: a certain wire under test, the wire length is only 5cm, its One-sided sensitivity is very small, only about 5pF. To ensure the accuracy of the test, the test speed is set to slow, and its test stability reaches 1pF, which meets the test requirements.

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Note: ***The slower the scan test speed, the higher the accuracy of the test.***

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3.2.5 Instantaneous OS Time

Move the cursor to the **IOS time** field. Use the numeric key input to set the instantaneous short break test time as needed, with a setting range of 0 to 999.9S.

Note: Setting 0 seconds indicates that the test time is infinite until the DUT is withdrawn or the STOP key is pressed to terminate the test.

3.2.6 Interruption Time

Move the cursor to the **IOP time** field. Use the numeric key input to set the instantaneous break test time as required, the setting range is 0 to 999.9S

Note: Setting 0 seconds indicates that the test time is infinite until the DUT is withdrawn or the STOP key is pressed to terminate the test.

3.2.7 OS Speed

Move the cursor to the **OS Speed** field. Enter as needed using the numeric keys, default is 0μs.

When scanning the wire loop, how much delay is required before reading back the level. The size of this parameter depends on the size of the capacitance between the wires, the larger the delay the longer.

3.2.8 OS Meth

Move the cursor to the **OS Meth** field. The menu area displays the following options.

- **Dich.**
- **One**

Dichotomous test: The number of scans is less and faster, the number of times is log2 (N), where N is the total number of feet, for example, a 32Pin wire needs 5 times. This method is suitable for products with pure wire.

One pair of other: Scanning one pin position by one pin position, the number of times is N, that is to say, N pin positions, we have to scan N times. This method is much slower than the bisection method, but it is suitable for products with passive components.

3.2.9 After Failure

Move the cursor to the **After Fail** field. The menu area displays the following options.

- **Empty**
- **Short**
- **Open**
- **Repeat**

When testing a short break with the trigger mode being automatic, what conditions are required to end the test and report the short break as bad if a bad occurs.

Empty: When the measured part is moved away, that is, the scanning end presents the state of empty network, the instrument ends the test.

Short: The instrument ends the test when a bad short circuit occurs.

Open: The instrument ends the test when a bad break occurs.

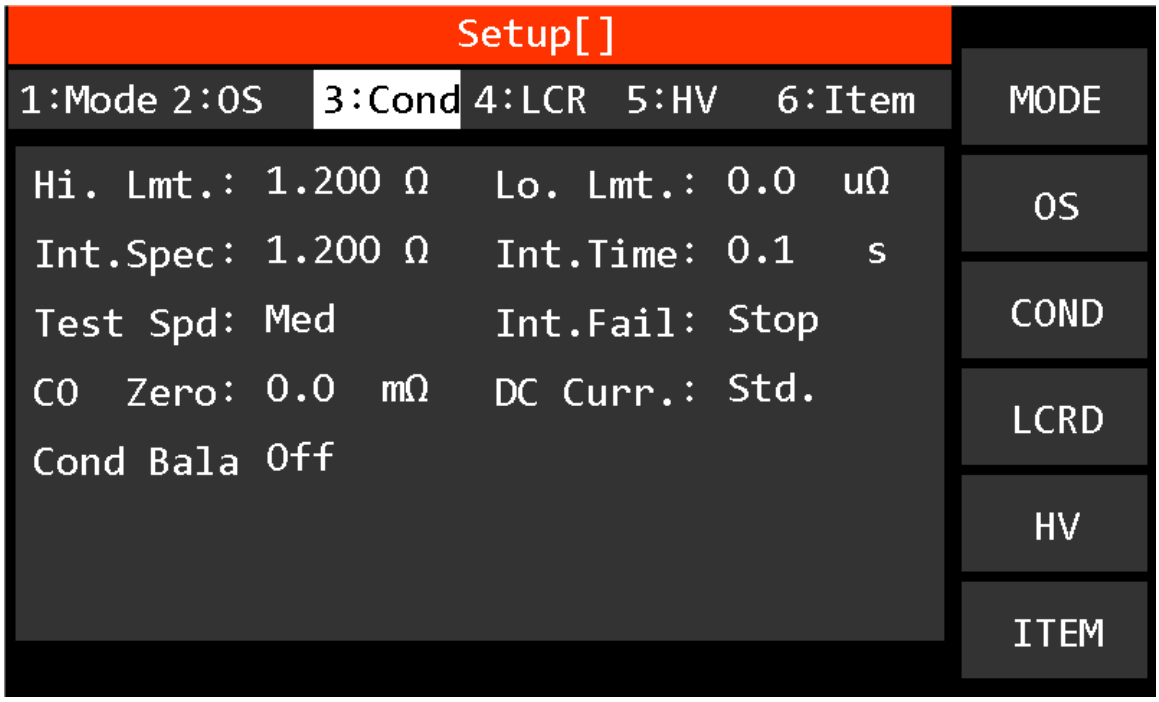
Repeat: When the same bad condition occurs N times (N can be set), the instrument ends the test.

3.2.10 Number of Failures

Move the cursor to the **NG Timer** field. Utilize the numeric key inputs as needed, see 3.2.9 **Repeat Stop**, N times bad, instrument ends test, this N times, is where the setting is made.

3.3 <Conduction>

It is used to set the conduction-related test conditions as shown in Fig:



3.3.1 Conductivity High Limit

Move the cursor to the **Hi. Lmt** field of conductivity. Set the upper limit of the conductivity value, which can be entered using the numeric keys as required or connect to the sample under test and perform a learning operation to obtain a measured value as a reference value. The setting range is from 0.001Ω to 950Ω.

The high limit of the specification is used to judge whether the conductivity is qualified or not.

3.3.2 Conductivity Low Limit

Move the cursor to **Lo. Lmt** field of conductivity. Setting the lower limit of conductivity can be entered using the numeric keys as required, or the sample under test can be connected and a learning operation can be performed to obtain a measured value as a reference value. The setting range is from 0.001 Ω to 949.99 Ω.

The low limit of the specification is used to determine whether the conductivity passes or fails.

3.3.3 Instantaneous Specifications

Move the cursor to the **Int. Spec** field. Set the upper limit value for the instantaneous conduction test, either by entering it using the numeric keys as needed, or by directly copying the upper conduction limit value above.

The specification high limit for judging whether the instantaneous conductivity is qualified or not.

3.3.4 Instantaneous Time

Move the cursor to the **Int. Time** field. Use the numeric key input to set the time to measure the instantaneous conductivity as needed, with a setting range of 0.1s to 999.9s.

Note: It cannot be set to 0s, i.e. it does not support infinite time testing.

3.3.5 Test Speed

Move the cursor to the **Test Spd** field. The menu area displays the following options.

- **Slow**
- **Medium**
- **Fast**

Set the scanning test speed of conductivity, the slower the speed, the higher the test accuracy.

For example: a wire under test, the wire length is only 5cm, its conductivity is very small, only about 5mΩ. To ensure the accuracy of the test, the test speed is set to slow, the stability of the test up to 1mΩ, to meet the test requirements.

3.3.6 Transient Test Failures

Move the cursor to the **Int. Fail** field. The menu area displays the following options.

- **Stop**
- **All**

When the instantaneous conduction test appears to be bad, the treatment plan: immediately stop the test and report FAIL or continue to test and then report FAIL.

3.3.7 Conductivity Zero

If there is a fixed floor error in the test system, its value is measured, and then entered here, then all conductivity test values are subtracted from that floor value.

3.3.8 Test Current

Move the cursor to **DC Curr.** field. The menu area displays the following options.

- **Standard**

The standard default is 20mA.

It is also possible to set the conductivity test current by using the numeric key input as required, current range: 1mA~20mA.

3.3.9 Conductivity Balance

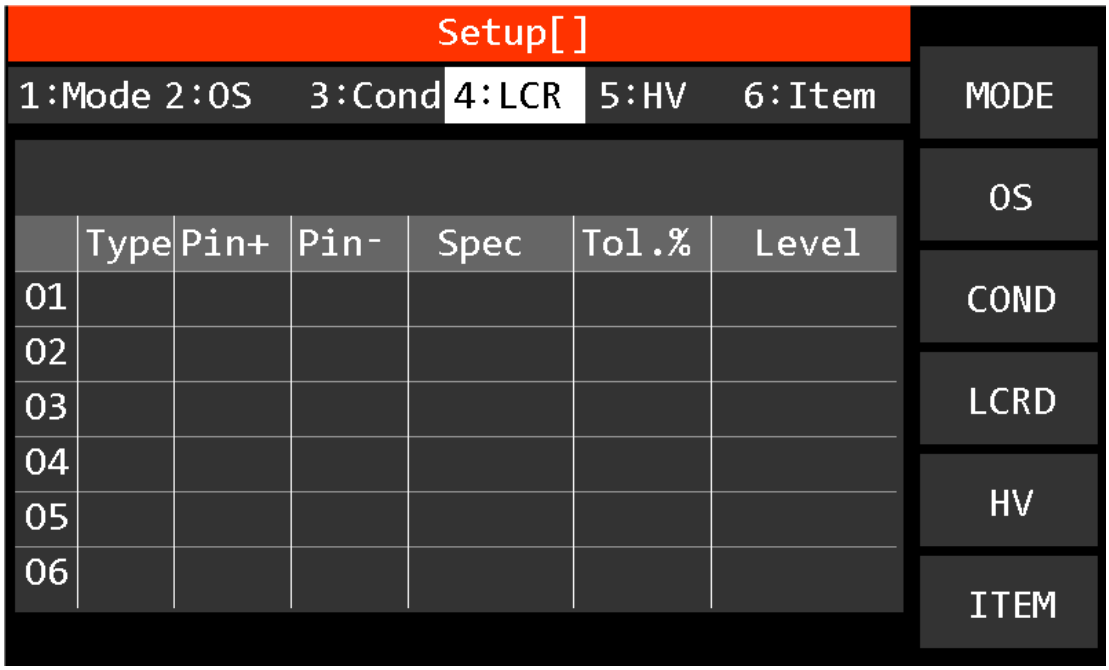
Move the cursor to the **Cond Bala** field. The menu area displays the following

options.

- **OFF**

3.4 <LCR>

It is used to set the test conditions related to passive components, as shown in Fig:



3.4.1 Type Setting

The types of passive components available are:

1. Resistance
2. Capacitance
3. Diode
4. Capacitor polarity
5. Voltage drop
6. Diode reverse
7. Temperature
8. NTC resistance
9. NTC temperature
10. Resistance difference
11. Temperature difference
12. Welding resistance
13. Inductance

3.4.2 Pin Setting

You need to set the two pin positions of the component, which are pin + and pin -. Please pay attention to the positive and negative of the pin positions, some components are oriented.

You can use the numeric keypad to enter numbers and set the pin position.

3.4.3 Specification Setting

Enter the specifications of the component, which are used as a basis for determining whether the component is qualified. Use the numeric keypad to enter the number of

And note the choice of units for the specification.

3.4.4 Tolerance Setting

Tolerance settings are categorized into 3 types of cases:

1. > Specified values

2.< Specified values

3. Specified values ± t%

3.4.5 Level Setting

The category and size of the test power supply for components can be changed to adapt to the various test needs of customers.

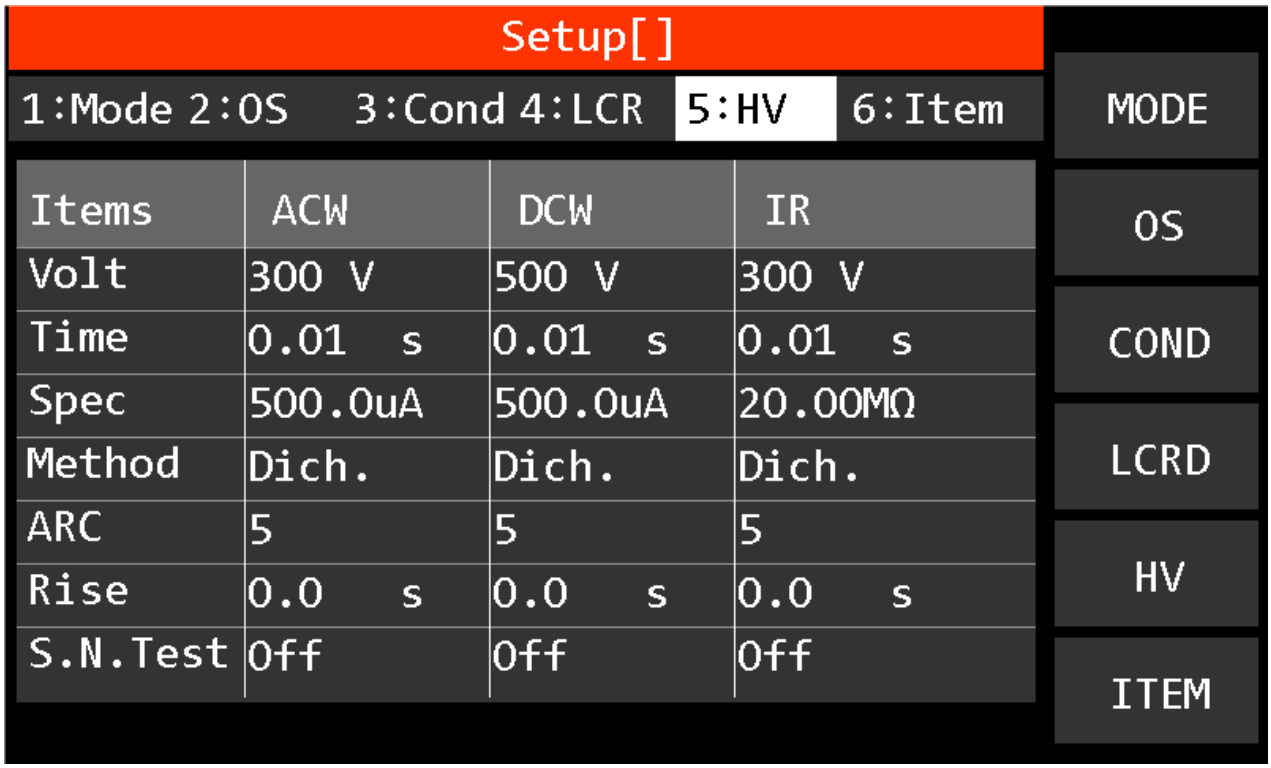
3.4.6 Additional Settings

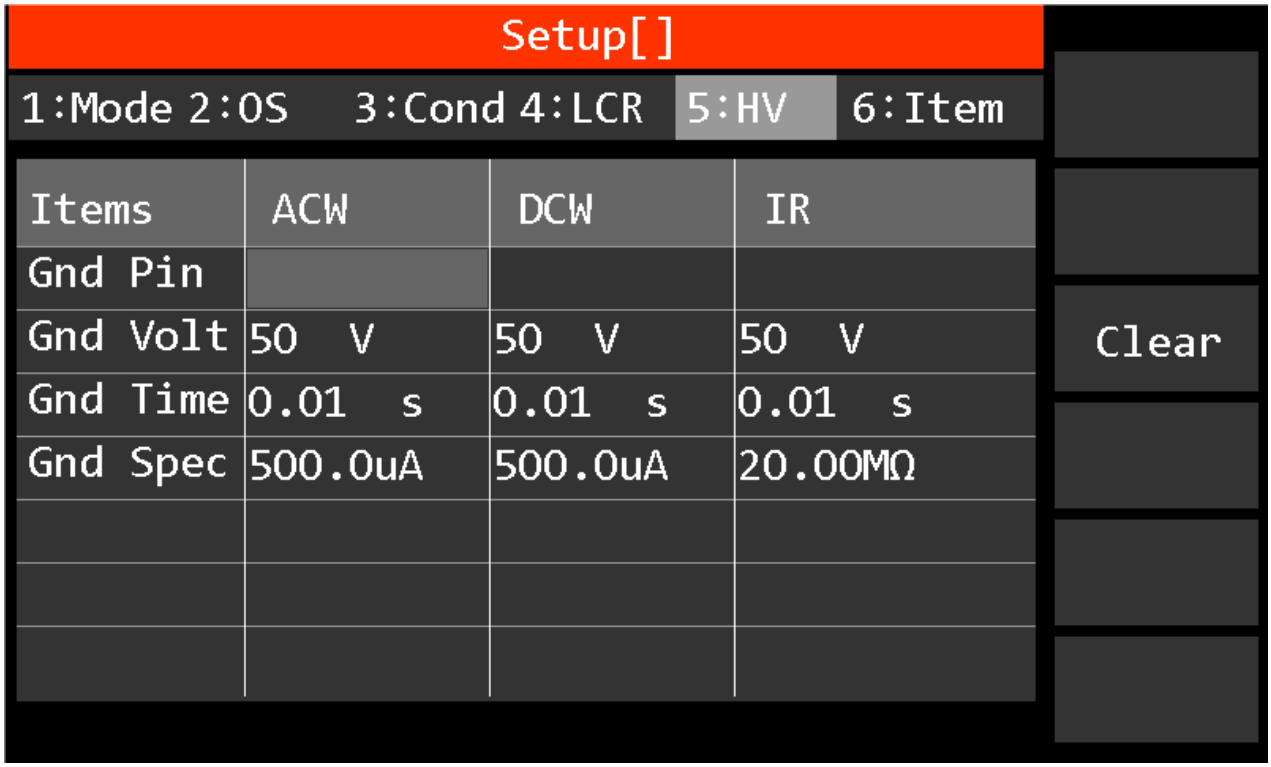
Additional settings for some components, for example:

1. Additional settings for diodes: duration, for testing light-emitting diodes

2. Accessory settings for capacitors: whether capacitors are tested for high voltage

3.5 <High Voltage>





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

There are 2 pages of project parameters, as shown above, and the pages can be switched by moving the cursor directly.

3.5.1 Test Voltage

Move the cursor to the **Volt** field. Set the value of the voltage by utilizing the manual numeric key entry as needed.

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

3.5.2 Testing Time

Move the cursor to the **Time** field. Set the duration of each test utilizing manual numeric key entry as needed.

Test time range is: 0.01s~500.0s

3.5.3 Test Specifications

Move the cursor to the **Spec** field. Use the manual numeric keys to enter, as needed, the criteria used to determine whether or not the test data passes.

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

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

Insulation resistance specification setting range is: 0.1MΩ~10GΩ.

3.5.4 Test Methods

Move the cursor to the **Method** field. The menu area displays the following options.

- **Dich.**
- **One**
- **Auto**
- **Gnd**

There are a total of 4 methods to choose from for high voltage testing, which can be selected via the menu below:

- **Dich.**: two-point rapid test method, fast, but can not accurately find out the specific bad pin position.
- **One**: A test method that scans each network one-by-one against the others, slow, but scans for specific bad feet.
- **Auto**:

  Dichotomous tests were **first** performed on the test piece:

  If it passes, the end of the test is reported as PASS.

  If bad, switch to a pair of other methods for testing.

  The latter pair of other law tests:

  If it passes, the end of the test is reported as PASS.

  If bad, the end of the test is reported as FAIL.

- **Gnd**: For testing shielded wire testing, centerline to ground insulation or voltage withstand testing.

  First of all, you have to specify a ground pin, and then the ground pin is connected to the high end of the test, and the other pins are connected to the low end of the test, so as to carry out the high-voltage test.

3.5.5 Arc Detection

The setting item can be set to off or 1 to 8 for a total of 8 arc levels.

3.5.6 Rising Time

Move the cursor to the **Rise** field. Set the time required for the voltage to climb to the specified test voltage utilizing manual numeric key entries as required.

3.5.7 Null point Test

Move the cursor to the **S.N.Test** field. The menu area displays the following options.

- **ON**
- **OFF**

  Used to determine if an empty spot on the DUT is to be tested or not

3.5.8 Grounding Pin

A ground pin must be specified in all tests to the ground.

Move the cursor to the **Gnd Pin** field. Select the menu item corresponding to the port as needed, use the manual numeric keys to enter the pin number, or use a meter pen for automatic point finding to obtain it.

The following three parameters are individually for high voltage testing of the grounded pin position.

3.5.9 Grounding Voltage

Move the cursor to the **Gnd Volt** field. Set the value of the voltage by utilizing the manual numeric key entry as needed.

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

3.5.10 Grounding Time

Move the cursor to the **Gnd Time** field. Set the duration of each test utilizing manual numeric key entries as needed.

Grounding time range is: 0.01s~500.0s

3.5.11 Grounding Specification

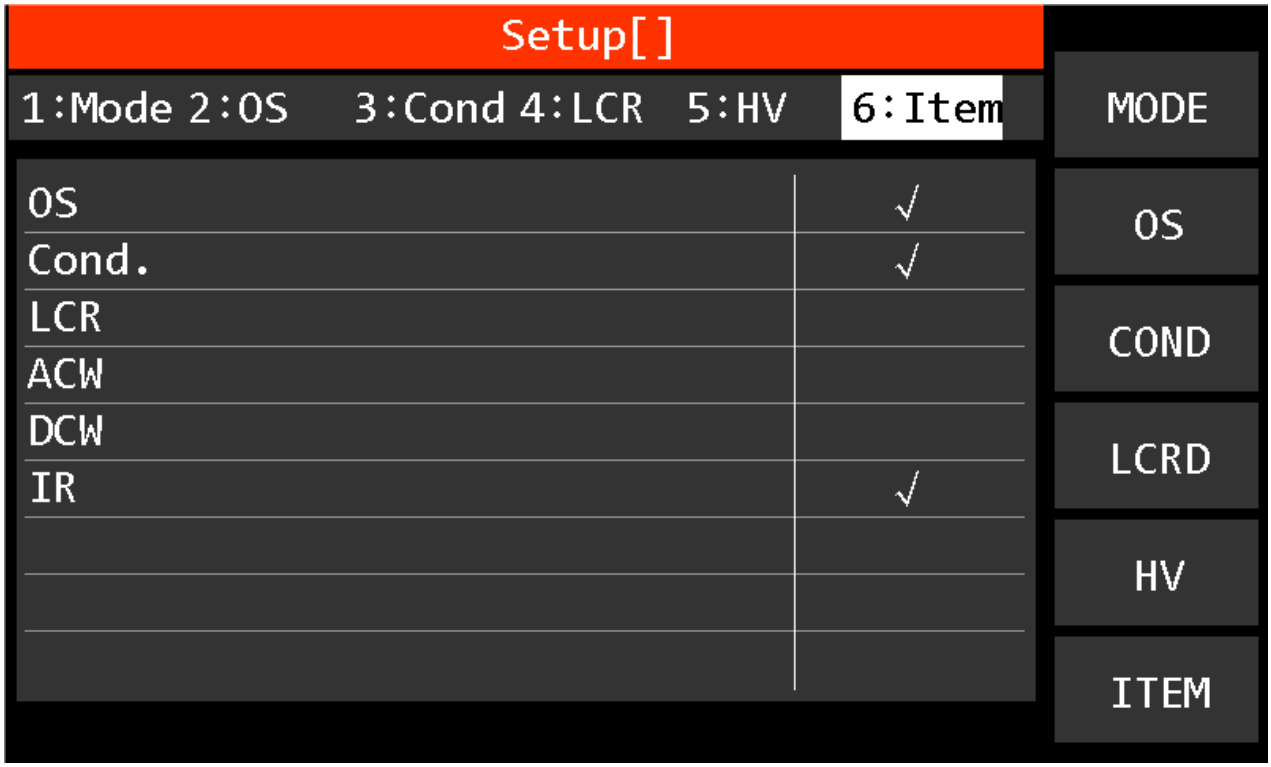
Move the cursor to the **Gnd Spec** field. Use the manual numeric keys to enter, as needed, the criteria used to determine if the grounding data is acceptable.

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

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

Insulation resistance specification setting range is: 0.1MΩ~10GΩ.

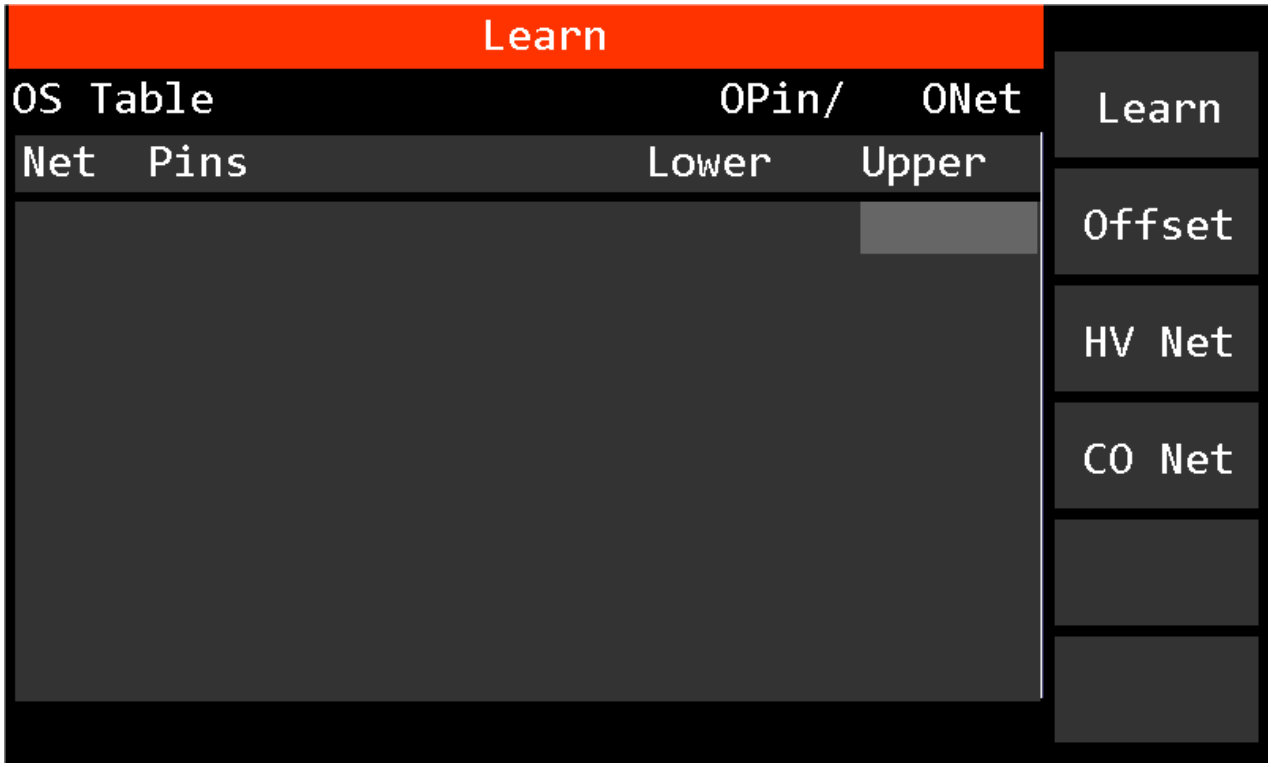
3.6 <Item>



Make selections for items that need to be tested for the current profile. For example, if a short break needs to be tested, check to turn the item on.

Chapter 4 <Learn> Page

Pressing the module key **[LEARN]** will immediately perform a network scan of the sample under test, and upon completion, it will enter the **<Learn>** page and display the scanning results. As shown in the figure below:



4.1 Learn

Before learning, plug the sample under the test into the test port.

Learning, mainly to get the DUT pin structure (i.e., short break network table), and then follow the short break network table to perform the relevant tests.

4.2 Short-circuit Table

The result of the learning, the short break network table, is shown on the display as a two-dimensional list.

1. Legs that are short-circuited to each other are grouped together and called: Network (Net).
2. A collection of multiple networks is called a network table. The network table is organized into four columns, which are headed by Net, Point, Learning Value, Criterion Value

(1) Net: indicates the number, the network table has more than one network (Net), and each network table is numbered from 001, 002.

(2) Pins: It's the pin position.

(3) The meaning of learning value and standard value is different for One-sided and bilateral wires.

- For single-sided wire:

Learned value: the measured one-sided sensitivity. After scanning the Net table, the instrument also continues to scan the sample under test for one-sided sensitivity. The value of the one-sided sensitivity for each Net is displayed here.

Criteria value: Single side sensitivity in the short breaks tab of the settings. It is the standard used to determine if a single side wire is broken or not. Move the cursor to the Standard Value column and use the up and down keys to move the cursor back and forth to the standard value for each Net. At the same time, you can enter a new standard value via the numeric keypad. Because TH610 supports each Net can set different standard values. This function is mainly for some single-sided wires with different lengths.

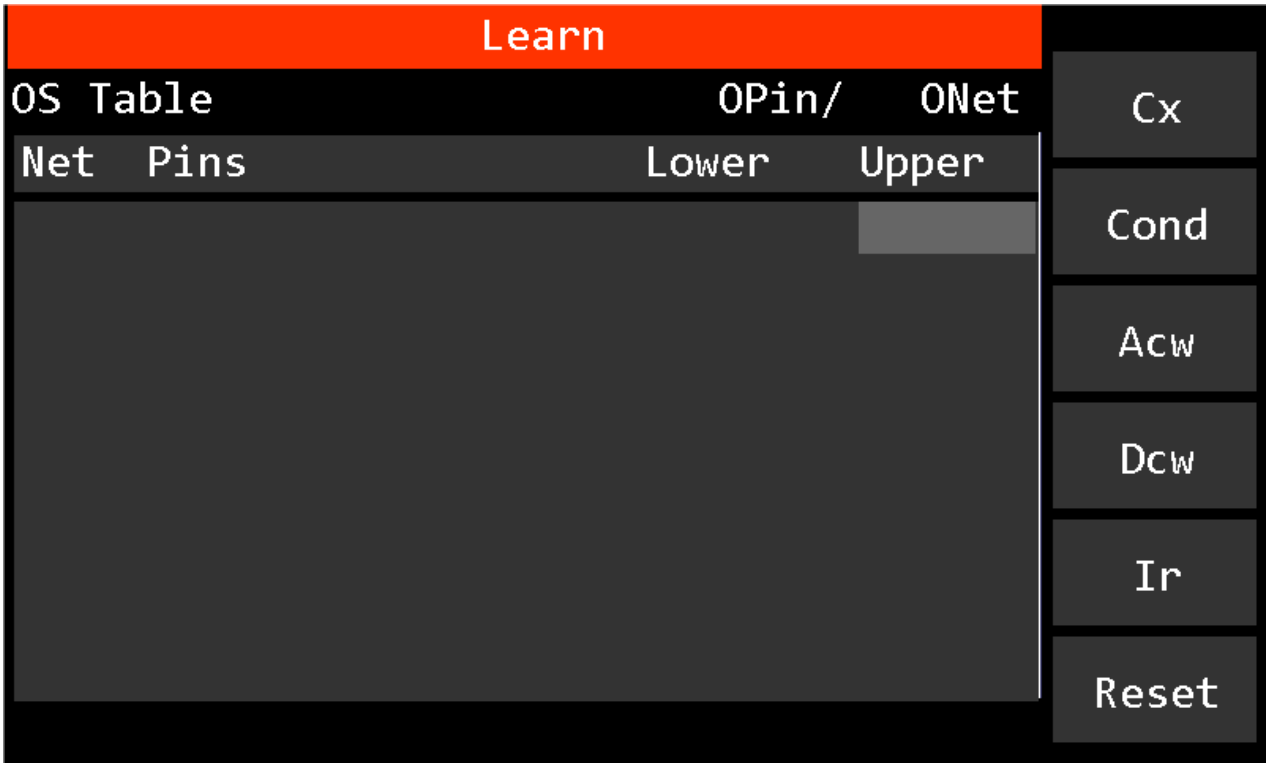
- For bilateral wires:

Learning value: none

Criteria Value: The upper limit of conductivity in the Conductivity tab of the setting. This is the standard used to determine if a bilateral wire is disconnected. Move the cursor to the Standard Value column and use the up and down keys to move the cursor back and forth to the standard value for each Net. At the same time, you can enter a new standard value via the numeric keypad. Because TH610 supports each Net can set different standard values. This function is mainly for some bilateral wires with different lengths.

4.3 Zero Function

The zero function is mainly to eliminate errors caused by temperature, humidity, fixtures and so on.



4.3.1 One-sided Zero

Put the instrument in the open circuit state, and then click the One-sided clearing, the instrument will start to scan the One-sided sensitivity of each leg one by one, and the value of the One-sided sensitivity obtained will be used as the clearing value of the One-sided sensitivity.

In practical tests, test data = actual measured One-sided sensitivity - One-sided sensitivity clear value.

4.3.2 Conductivity Zero

Plug in the short-circuit board, put the instrument in short-circuit state, and then click on the conductivity clearing, the instrument will start to scan the conductivity of each net one by one according to the network table, and the value of the conductivity obtained will be used as the clearing value of the conductivity.

In actual testing, test data = actual conductivity measured - conductivity cleared.

4.3.3 AC Withstand Voltage Zero

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

In practical tests, test data = actual leakage current - leakage current clearing value.

4.3.4 Insulation Zero

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

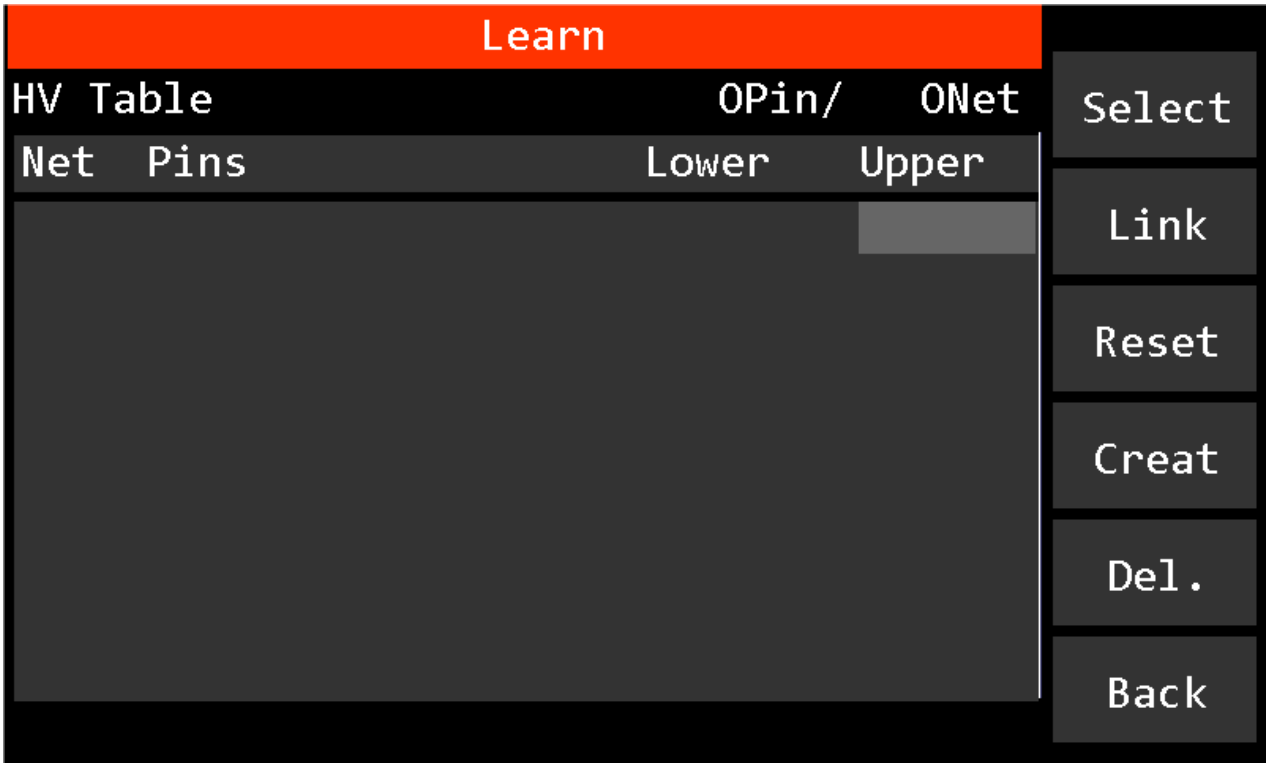
In practical tests, test data = actual leakage current - leakage current clearing value.

4.3.5 Reset to Zero

All of the above zero values, including one-sided sensitivity zero value, conductivity zero value, AC withstand voltage zero value, and insulation resistance zero value, are all set to zero.

4.4 High Voltage Network Editor

In order to protect the passive components or to improve the test efficiency, it is necessary to modify the high voltage test network, so it provides the function of high voltage merge, which can create, merge and delete the high voltage network.



4.4.1 Link

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

When the net to be merged is selected, click the menu item **Link**, you can see the network table is refreshed, and you can see that the selected several nets are merged into 1 net.

4.4.2 Delete

First select the net you need to delete, move the cursor to the net you want to delete, click the menu item **Select**, the background color of the net is programmed blue to indicate that the net has been selected. You can select more than one net.

When the net to be deleted is selected, click the menu item **Delete**, you can see that the network table is refreshed, and you can see that the selected several nets are gone, indicating that the deletion is successful.

4.4.3 Create

By creating, we mean create a new high-voltage network, which is One-sided by default.

First click on the menu item **Create** to display the prompt message: Please enter the starting pin position

Then enter the starting pin position, e.g. enter: A1

When the input is complete, the prompt message is then displayed: Please enter

the termination pin position

Then enter the termination pin position, e.g. enter: A8

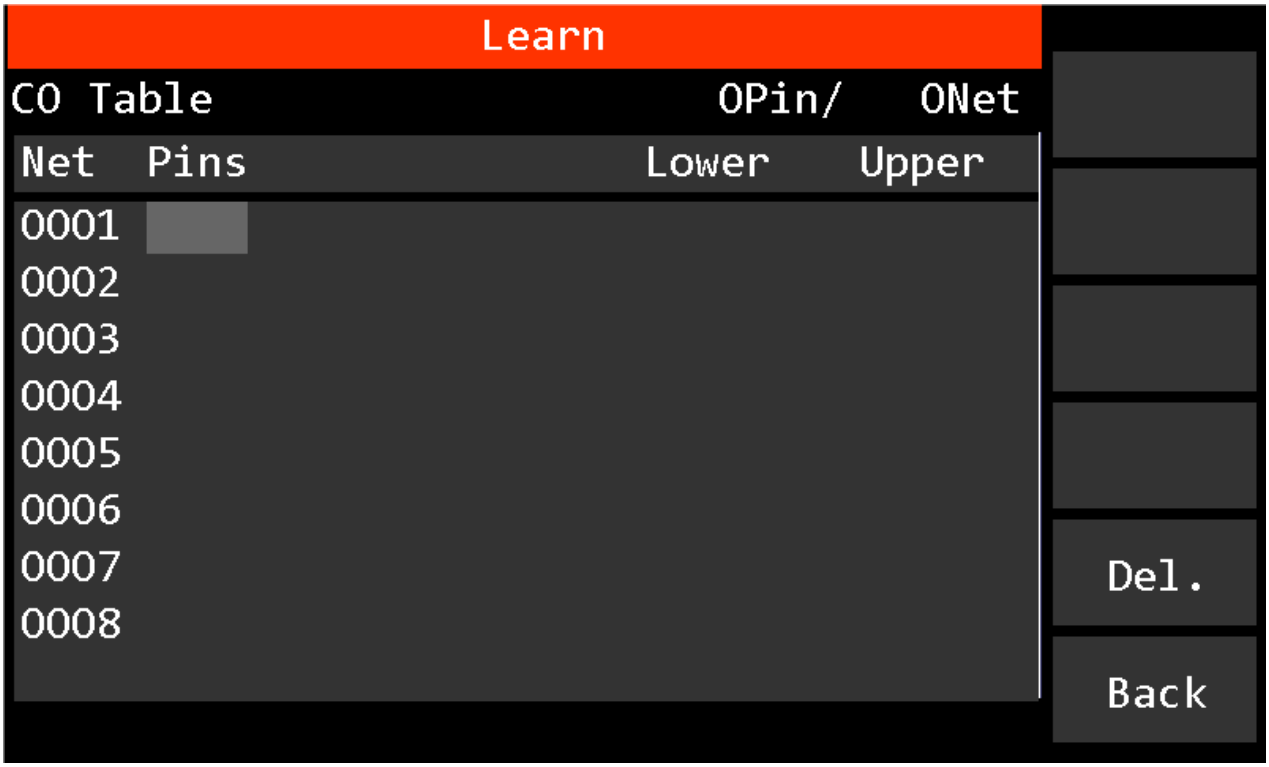
Once the entry is complete, a new network is displayed, as shown below:

4.4.4 Reset

Clicking on the menu item **Reset** is to restore the high voltage network table to its initial state.

4.5 Conductivity Network Editor

The setting of the pin position of the conduction test can be edited manually for the conduction network, note that the pin positions must correspond two by two.



4.5.1 Delete net

Move the cursor to the net to be deleted and click the Delete key in the menu item to delete this net.

4.5.2 Modify Pins

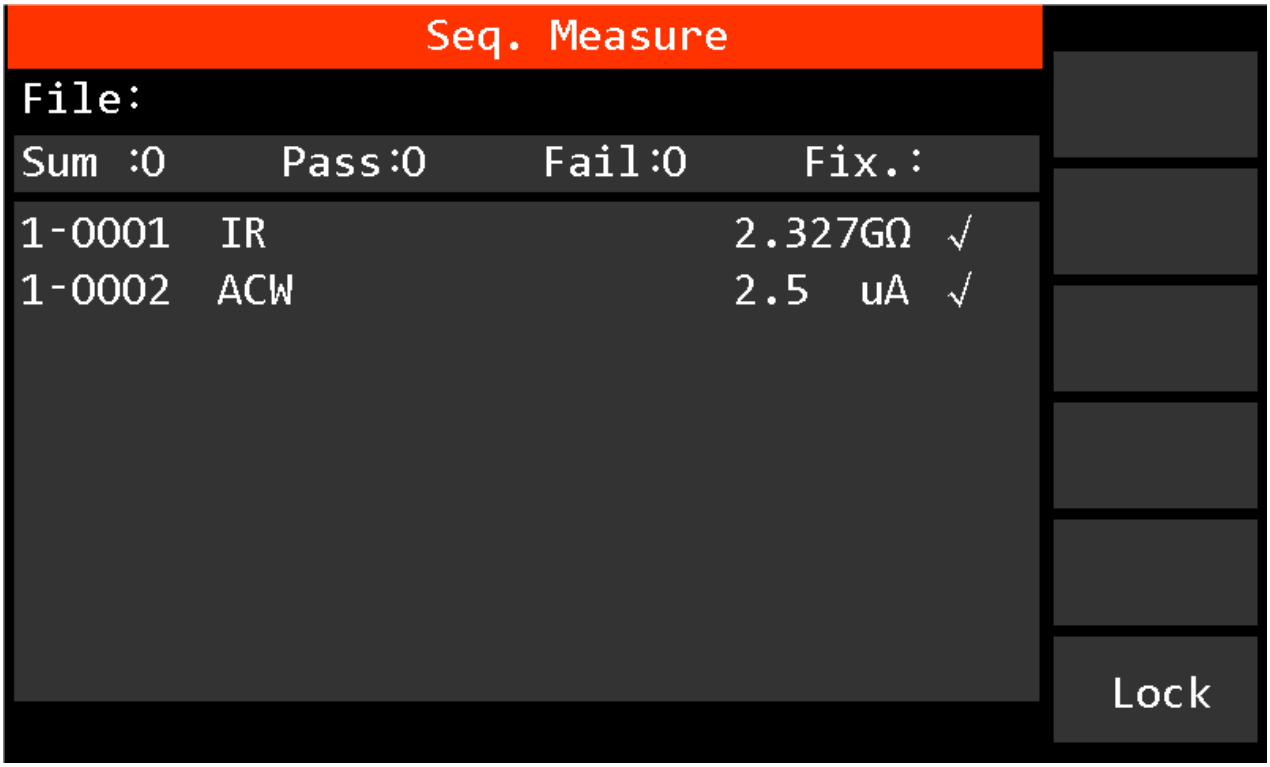
If you want to change a specified pin, just move the cursor to that pin and enter the new pin.

4.5.3 Modify Limit Values

Just move the cursor to the conductivity high/low limit value you want to modify and enter the new standard value.

Chapter 5 <MEAS> Page

Press the [MEAS] module key and the <Test> page will be displayed on the screen. As shown in Fig:



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

5.1 Title

The title indicates the type of the current test, and there are four types of tests as follows:

- General test: Tests on common wires
- Single-sided test: testing of one-sided wires
- Single test: meter pen spot test of the test
- Tests for sequencing: Tests for sequencing documents

In the above figure, for example, the current test type is Normal Test.

5.2 File

File indicates the name and type of file:

- File name: consists of numbers, letters and underscores (-), up to 12 bytes.
- File types: 2 types: normal for single test files; sequential for sequential files

5.3 Statistical Column

The statistics show the total number of tests, the total number of passes and the total number of failures for the current test.

5.4 Test Results

The main elements of the test results are:

- Test Item: Shows what the test item is.
- Test Pin: Shows which pin is being tested
- Test data: display the specific data of the test
- Sorting judgment: show whether the judgment result is qualified or defective

5.5 Menu Content

- **View Network**: You can switch to the learning interface to view the network table for the current profile.
- **Page** Up/Page **Down:** Page up or page down to view test results.
- **Lock**: In the Environment page in System Setup, the parameter item **Lock is** divided into two modes**: Manual** and **Bus**.

- The manual mode is as follows:

When **the key lock** is pressed, 4 functions are retained:

<TEST> key to start the test.

<STOP> key to stop the test.

<Unlock> key to unlock it.

Import File Function: You can press **<FILE>** key to enter the file module and perform the import file operation.

- In bus mode:

When **the key lock** is pressed, 3 functions are retained:

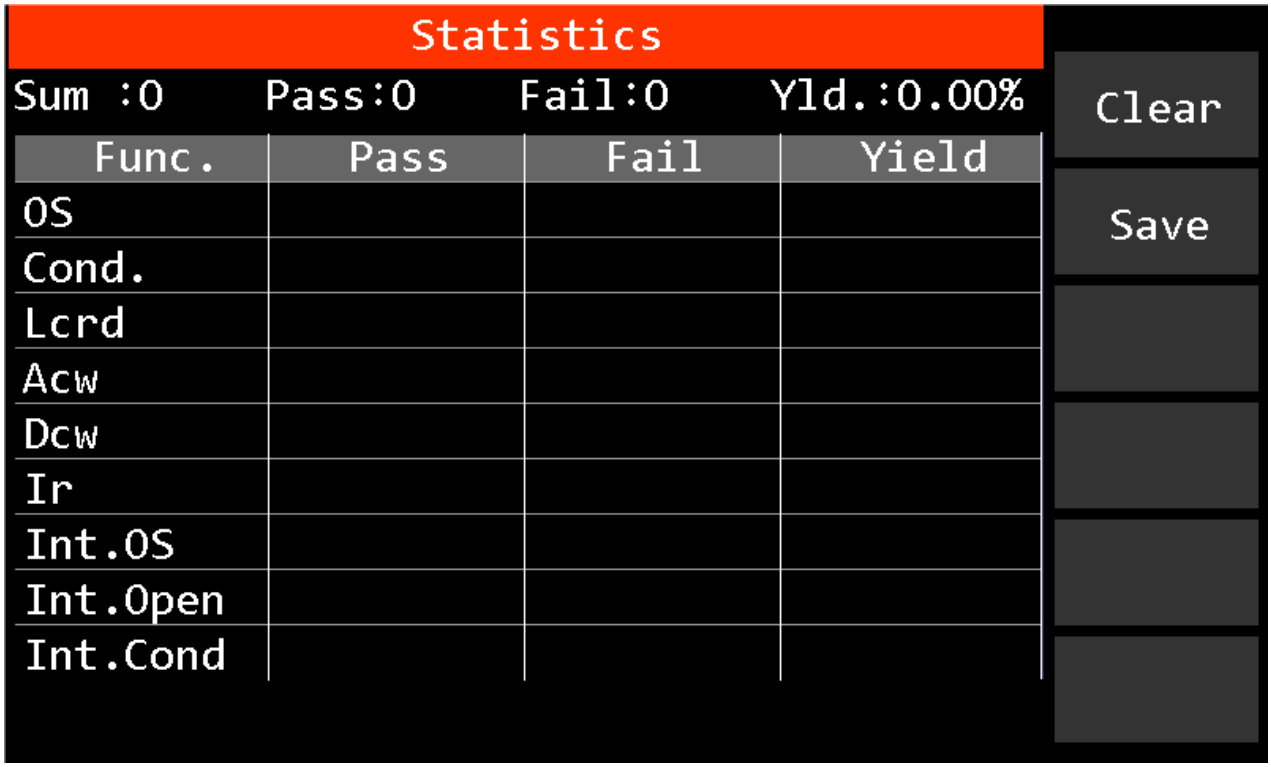
<TEST> key to start the test.

<STOP> key to stop the test.

<Unlock> key to unlock it;

Chapter 6 <STAT> Page

Press the module key **[STAT]** to enter the <**Statistics**> screen. This is shown in the figure below:



6.1 Overall Statistics

At the top, four statistics are shown: Sum, Pass, Fail, and Yield, which are the overall statistics of the testing work. You can visualize the total number of products tested and the yield rate.

6.2 Itemized Statistics

In the list, we have 9 test items, respectively, statistics, statistics of the number of qualified, the number of defective and the yield rate, to facilitate the analysis of product failure.

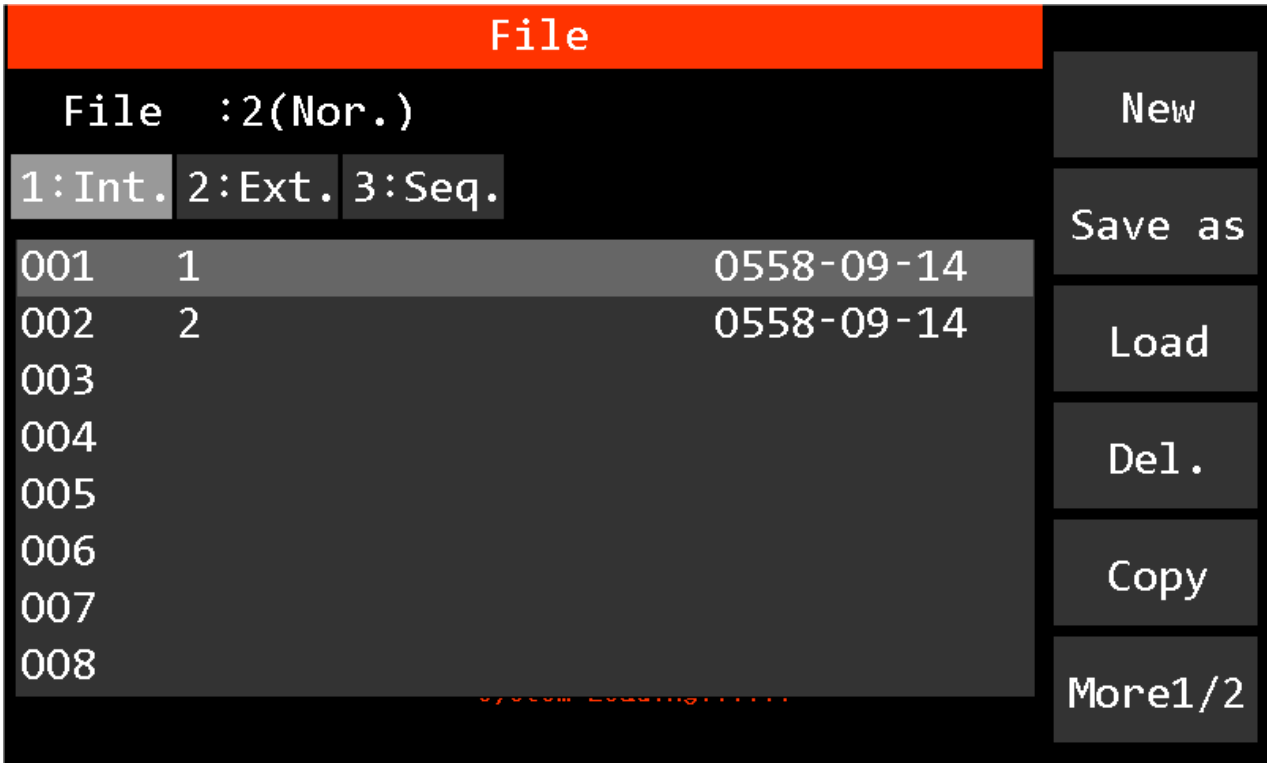
6.3 Menu Functions

Clicking the menu item **Clear** brings up the message Do you want to clear the statistics? Selecting Yes returns all previous statistics to 0.

Click on the menu item **Save** and the message area appears "Statistics have been saved!".

Chapter 7 <FILE> Page

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



The **<File>** page has 3 sub-pages, **Internal**, **External** and **Methodical.**

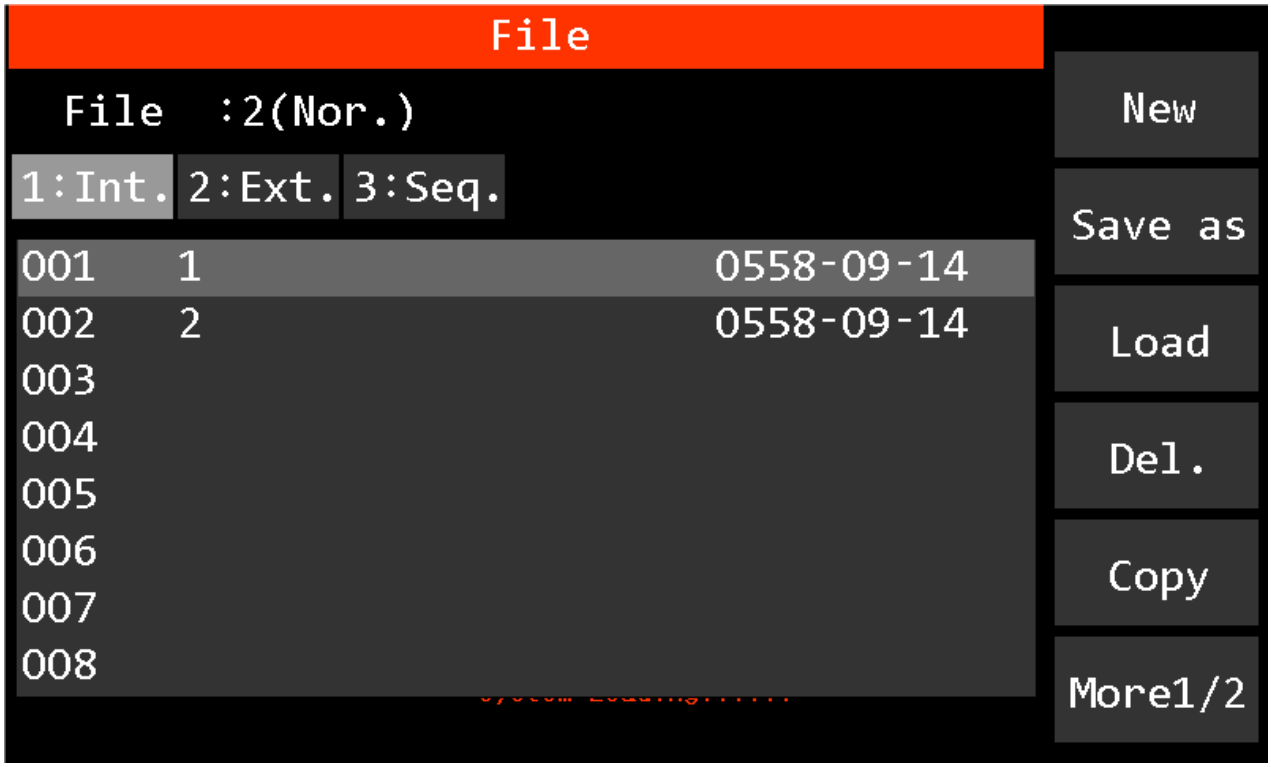
7.1 Title

Current file:UNNAME (Normal)

Contains the name of the test file being used, the test file type.

7.2 Internal

By internal we mean the files in the internal memory of the instrument. The following operations are performed on internal files:



1. **New**: Creates a new file with the factory settings.

Move the cursor to the blank space, and then click the menu **New**, a pop-up message will be prompted: Please enter the file name, and then enter the file name, click OK, a new file is created.

2. **Save as**: Save the current parameter settings.

Move the cursor to the blank space, and then click the menu **Save as**, it will pop up a prompt message: please enter the file name, and then enter the file name, click OK, a new file is saved.

3. **Load**: Import an existing file.

Move the cursor to the file you need, and then click the menu **Load**, a pop-up message will be prompted: Do you want to import the file? Click OK, the file you need is imported.

4. **Delete:** Delete the specified file

Move the cursor to the file you want to delete, and then click the menu **Delete**, a pop-up message: Do you want to delete the file? Click OK, you want to delete the file is gone, so that the deletion is complete.

5. **Copy:** Copy files to a USB flash drive, provided that the USB flash drive is plugged in first.

Move the cursor to the file you want to copy, and then click the menu **Copy**, a pop-up message will appear: Do you want to copy the file to the U disk? Click OK, the file you want to copy will be copied to the USB flash disk.

6. **Rename:** Change the file name of the specified file.

Move the cursor to the file you want to rename, and then click on the menu **Rename**, a pop-up message will prompt: Please enter the file name, use the numeric

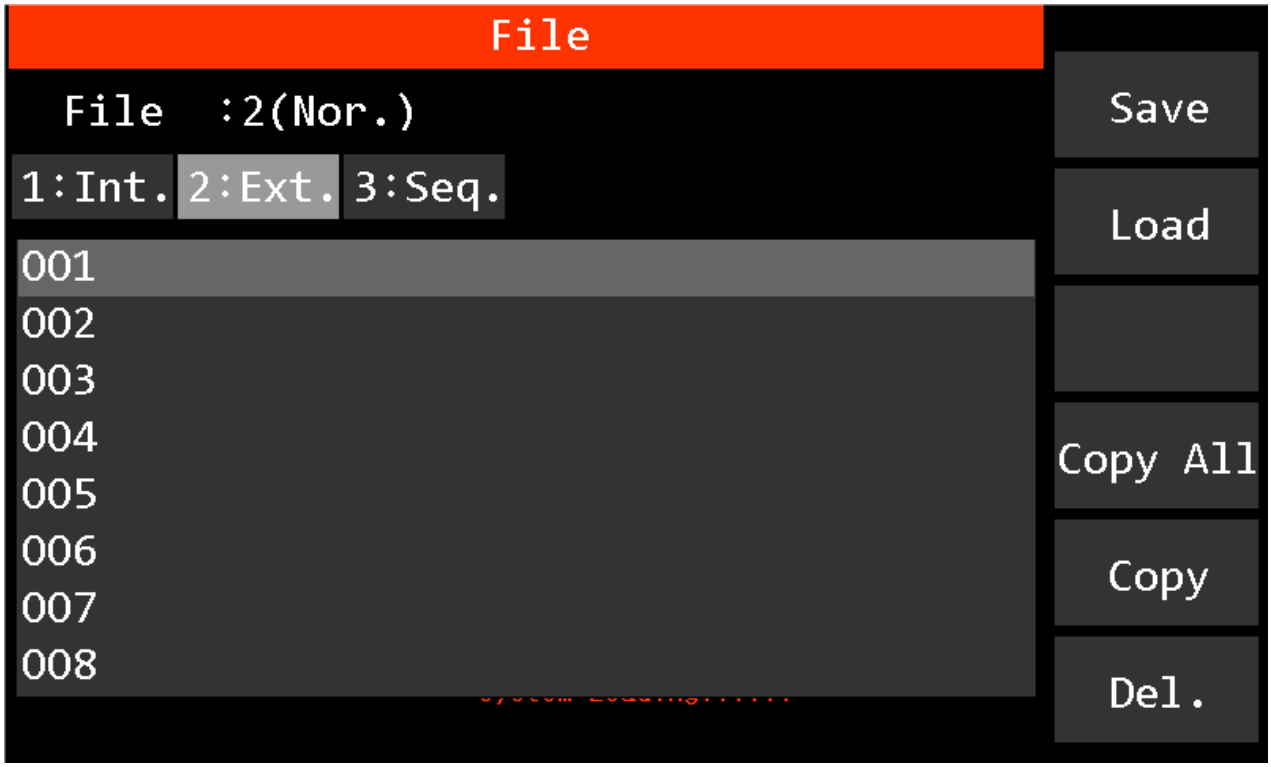
keyboard to enter the new file name, click OK, the rename is complete.

7. **Copy All:** Copy all internal files to a USB flash drive (provided that the USB flash drive is plugged in).

Click **Copy All** and a message will pop up: Do you want to copy all files to the USB flash disk? After clicking OK, all the files you want to copy will be copied to the USB flash disk.

7.3 External

External means external USB memory, and the following operations are performed on external files:



1. **Save:** Save the current parameter settings.

Move the cursor to the blank space, and then click the menu **Save**, it will pop up a prompt message: please enter the file name, and then enter the file name, click OK, a new file is saved.

2. **Load**: Import an existing file.

Move the cursor to the file you need, and then click the menu **Load**, a pop-up message will be prompted: Do you want to import the file? Click OK, the file you need is imported.

3. **Copy:** Copies the file to the instrument.

Move the cursor to the file you want to copy, and then click the menu **Copy**, it will pop up a prompt message: do you want to copy the file to the instrument? Click OK, the file you want to copy is copied to the instrument.

4. **Delete**: Delete the specified file

Move the cursor to the file you want to delete, and then click the menu **Delete**, a

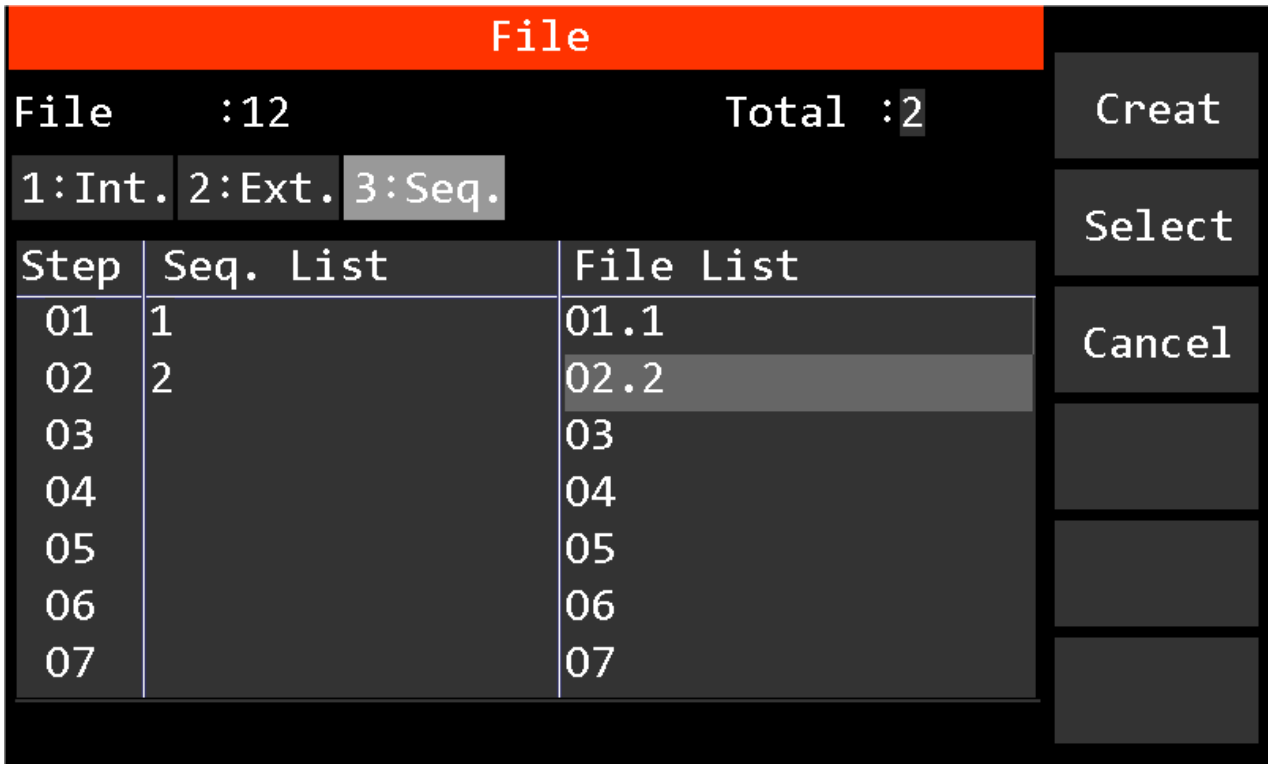
pop-up message: Do you want to delete the file? Click OK, you want to delete the file is gone, that the deletion is complete.

5. **Copy All**: Copy all external files to the instrument (provided that a USB flash drive is plugged in).

Click **Copy All**, a message will pop up: Do you want to copy all files to the instrument? After clicking OK, all the files in the USB flash disk you want to copy will be copied to the instrument.

7.4 Sequence

Sequential means sequential test file. For sequential test files, the main following operations are performed:



1. Create: Creates a new profile.

Move the cursor to the blank space, and then click the menu **Create**, a pop-up message will appear: Please enter the file name, and then enter the file name, click OK, it will enter the creation interface.

2. **Load**: Import an existing file.

Move the cursor to the file you need, and then click the menu **Load**, a pop-up message will be prompted: Do you want to import the file? Click OK, the file you need is imported.

3. **Edit:** Edit an existing file

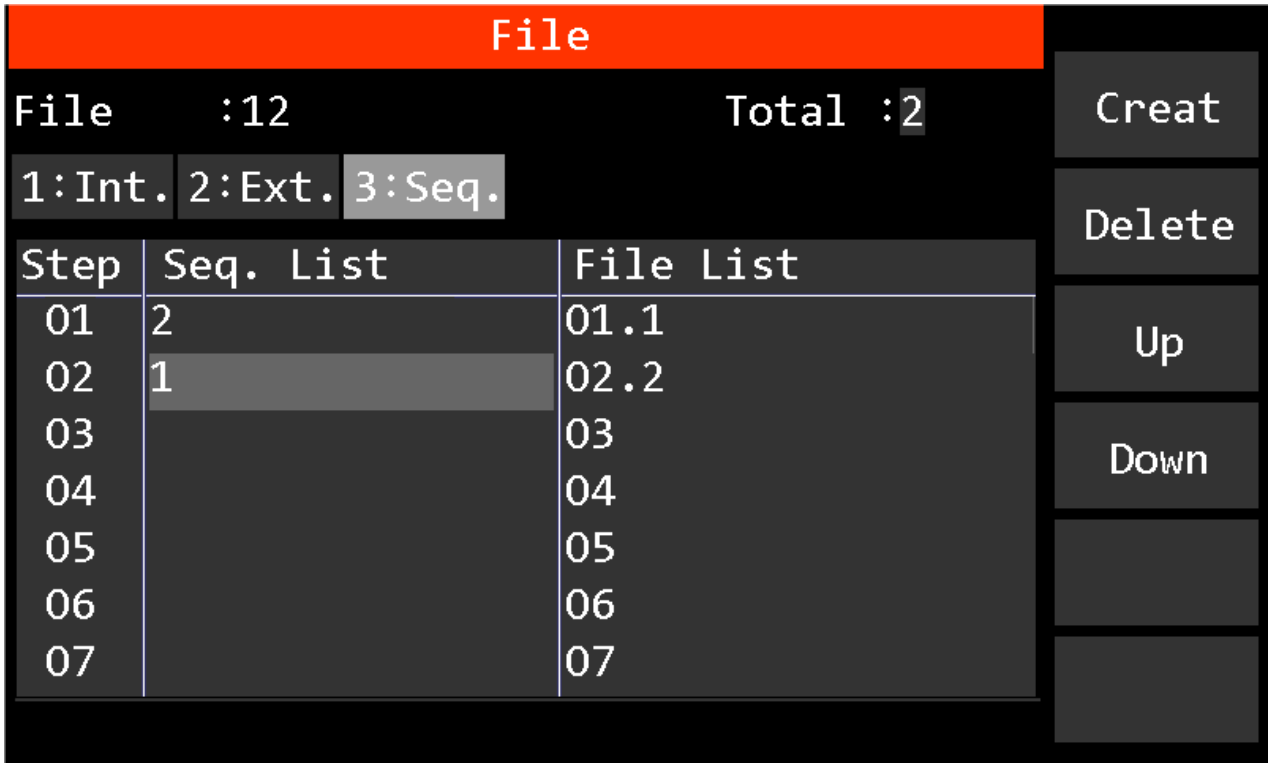
Move the cursor to the file you are editing, and then click the menu **Edit**, then you will enter the editing interface. After entering the editing interface, you can do the following 3 operations: add steps, delete steps, and adjust the order of steps.

(1) Adding Steps: To add an internal file to a sequential file, then simply move

the cursor to the file and click the menu item **Select,** to move the file to the sequential file. In this way, you can select more than one file to be added to the sequential file. Finally, click on the menu item **Finish** to successfully create a sequential file.

(2) Delete step: Move the cursor to a step in the test profile and click on the menu item **Delete**, the step will be deleted directly.

(3) Adjust the order of steps: Move the cursor to a step of the test file, click the menu item **up** or **down**, you can swap the step with the previous step or the next step position. (For example, step 02 becomes step 01 after moving up, and the original step 01 becomes step 02, as shown in the figure below.)



4. **Copy All:** Copy all files to a USB flash drive (provided that the USB flash drive is plugged in).

Click **Copy All** and a message will pop up: Do you want to copy all the files to the USB flash disk? After clicking **Yes**, all the files you want to copy will be copied to the USB flash drive.

5. **Copy:** Copy files to a USB flash drive, provided that the USB flash drive is plugged in first.

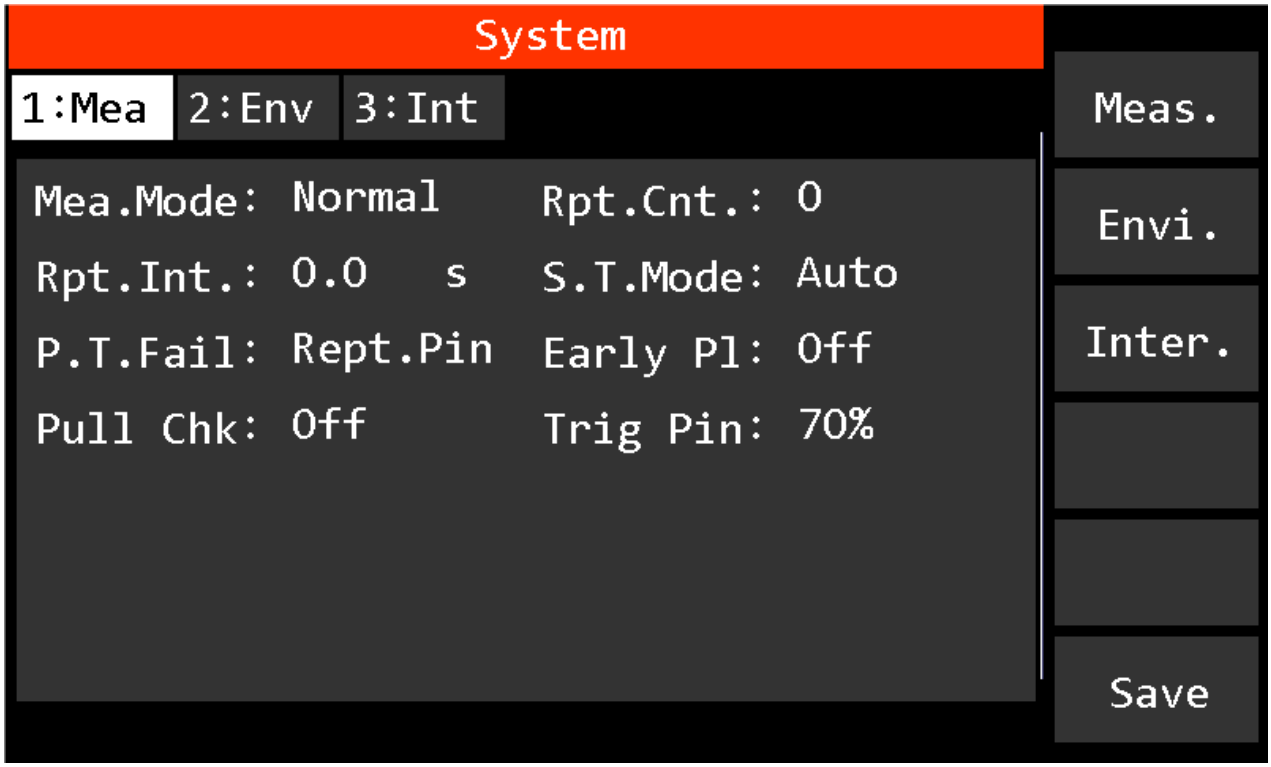
Move the cursor to the file you want to copy, and then click the menu **Copy**, a pop-up message will appear: Do you want to copy the file to the U disk? Click OK, the file you want to copy will be copied to the USB flash disk.

6. **Delete:** Delete the specified file

Move the cursor to the file you want to delete, and then click the menu **Delete**, a pop-up message: Do you want to delete the file? Click OK, the file you want to delete will be gone, so that the deletion is complete.

Chapter 8 <SYS> Page

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



The **<System>** page includes three subpages**: Meas.**, **Envi.**, and **Inter.**. After modifying the settings, click the **Save** key to save them. The following describes each sub-page one by one.

8.1 Measurement

8.1.1 Measurement Mode

Move the cursor to the **Meas. Mode** Settings field and the following options are displayed in the soft key area of the screen.

- **Normal:** One test per DUT.
- **Repeat:** Repeat the test a number of times, the exact number of times, set by the **number of repetitions of** the following parameter items.
- **Sequence:** Keep cycling through the test and it will not stop until you press the EXIT key to exit.

8.1.2 Repeat Count

Move the cursor to the **Rpt Cnt.** setting field and use the numeric keypad to directly enter a value, the allowable input range is 0~999

The Repeat Count sets the number of times the test is repeated when repeating the test (see 8.1.3 for details).

8.1.3 Repeat Interval

Move the cursor to the **Rep. Int.** setting field and use the numeric keypad to directly enter a value, the allowable input range is 0~99.9s

Test Interval: The time interval between the previous and subsequent tests when repeating or cycling a test.

8.1.4 Sequence Method

A test approach to sequential file.

Move the cursor to the Method Setting field and the following options are displayed in the soft key area of the screen.

- **Pushkey**: Use the TEST key on the front panel to initiate the test and the next test.
- **Continue:** Use the TEST key on the front panel to initiate the test and continuously complete all steps at once.
- **Auto:** The instrument will keep scanning the network table until the network table matches the learning network of the current profile, then it will start the test.

8.1.5 Spot Test Failure

How to handle a test failure if it occurs during spot test testing.

Move the cursor to the **P.T. Fail** Settings field and the following options are displayed in the soft key area of the screen.

- **Repeat:** The test will stop at the bad spot, repeat the test and display the bad data until the test PASSES, or you press the EXIT key to stop the test.
- **Next**: The test will stop at the bad place, repeat the test and display the bad data, there is a menu item **Next**, click on this menu item, it will skip this test and go to the next test.

8.1.6 Early Pull

To enable or disable the judgment function of whether the measured part is unplugged prematurely or not.

Move the cursor to the **Early Pl.** Settings field and the following options are displayed in the soft key area of the screen.

- **OFF**
- **ON**

8.1.7 Pull Check

After a DUT is tested, it must be unplugged before continuing to test the next DUT; otherwise the test cannot be performed. It can prevent DUT from being tested repeatedly.

Move the cursor to the **Pull Check** Settings field and the following options are

displayed in the soft key area of the screen.

- **OFF**
- **ON**

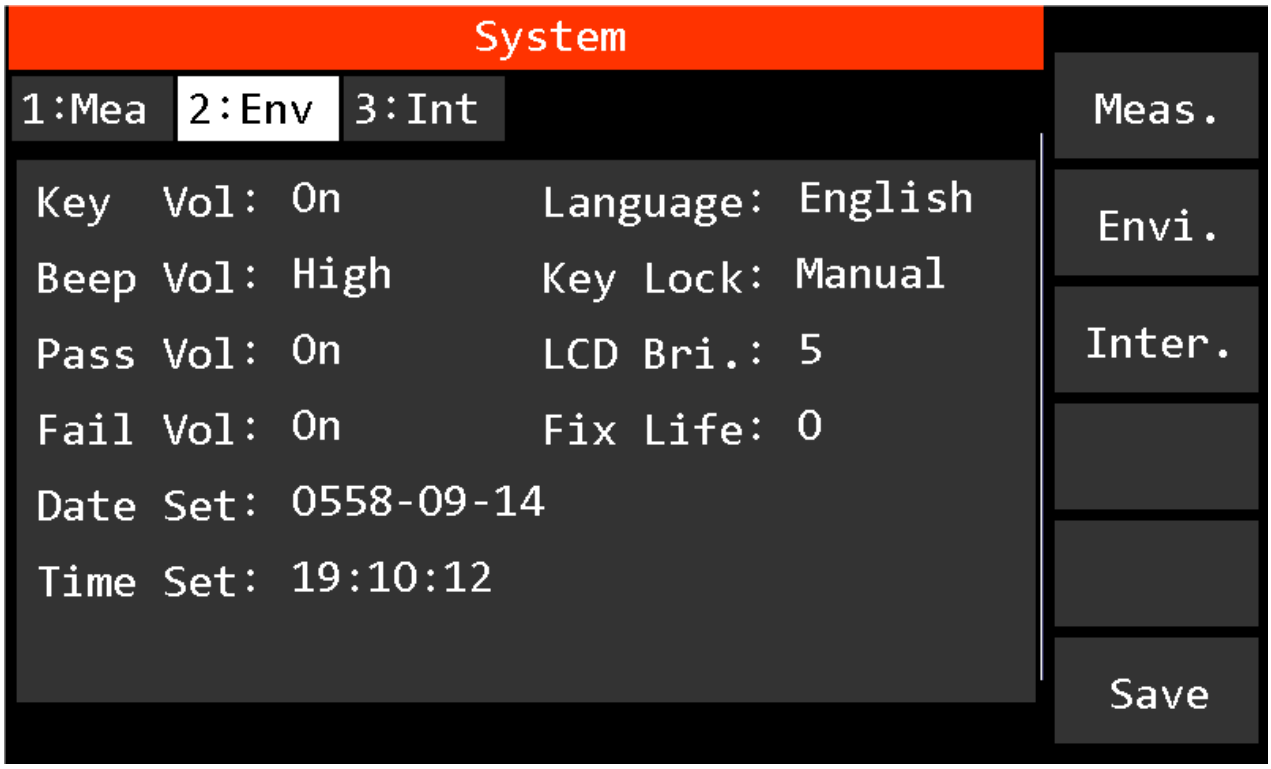
8.1.8 Trigger Pins

Trigger Pins: The number of pins that need to be inserted into the port to set the ratio in order to start the test.

8.2 Environment

Environment refers to settings such as the sound, system language, and date for the test.

As shown



8.2.1 Key Volume

Make a sound when you press a key.

Move the cursor to the **Key Volume** Setting field and the following soft keys are displayed in the softkey area of the screen.

- **OFF**
- **ON**

8.2.2 System Language

The instrument is available in two languages, Chinese and English.

Move the cursor to the **Language** Settings field and the following soft keys are displayed in the softkey area of the screen.

- **Chinese**
- **English**

8.2.3 Sound Volume

Adjust the volume of the speakers in the instrument, divided into high, medium and low three steps

Move the cursor to the **Sound Volume** Setting field and the following soft keys are displayed in the softkey area of the screen.

- **OFF**
- **Low**
- **Midium**
- **High**

8.2.4 Key Lock

When a key is locked, its authority is divided into the following two categories

Move the cursor to the **Key Lock** Settings field and the following soft keys are displayed in the softkey area of the screen.

- **Manual:** Allows to start and stop the test using the TEST, EXIT keys. It also allows access to the file module for importing files.
- **BUS:** Start and stop tests can only be performed using the TEST, EXIT keys.

8.2.5 Pass Volume

Do not make a sound when the tested part passes the test.

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

- **OFF**
- **ON**

8.2.6 LCD Brightness

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

Move the cursor to the **LCD Bri.** setting field and the following soft keys are displayed in the screen soft key area.

- **+:** Adjust the screen brightness upwards
- -: Adjust the screen brightness downward

8.2.7 Fail Volume

Whether or not a sound is made when the DUT tests poorly.

Move the cursor to the **Fail Vol** Settings field and the following soft keys are displayed in the soft key area of the screen.

- **OFF**
- **ON**

8.2.8 Fixture Life

For the test fixture, you can set the service life, set the number of times, and then reset, the test will display "Fixture:", followed by the set service life, every test will automatically reduce 1, zero will be prompted.

8.2.9 Date Setting

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 daypart and enter the daypart value to set the daypart;

8.2.10 Time Setting

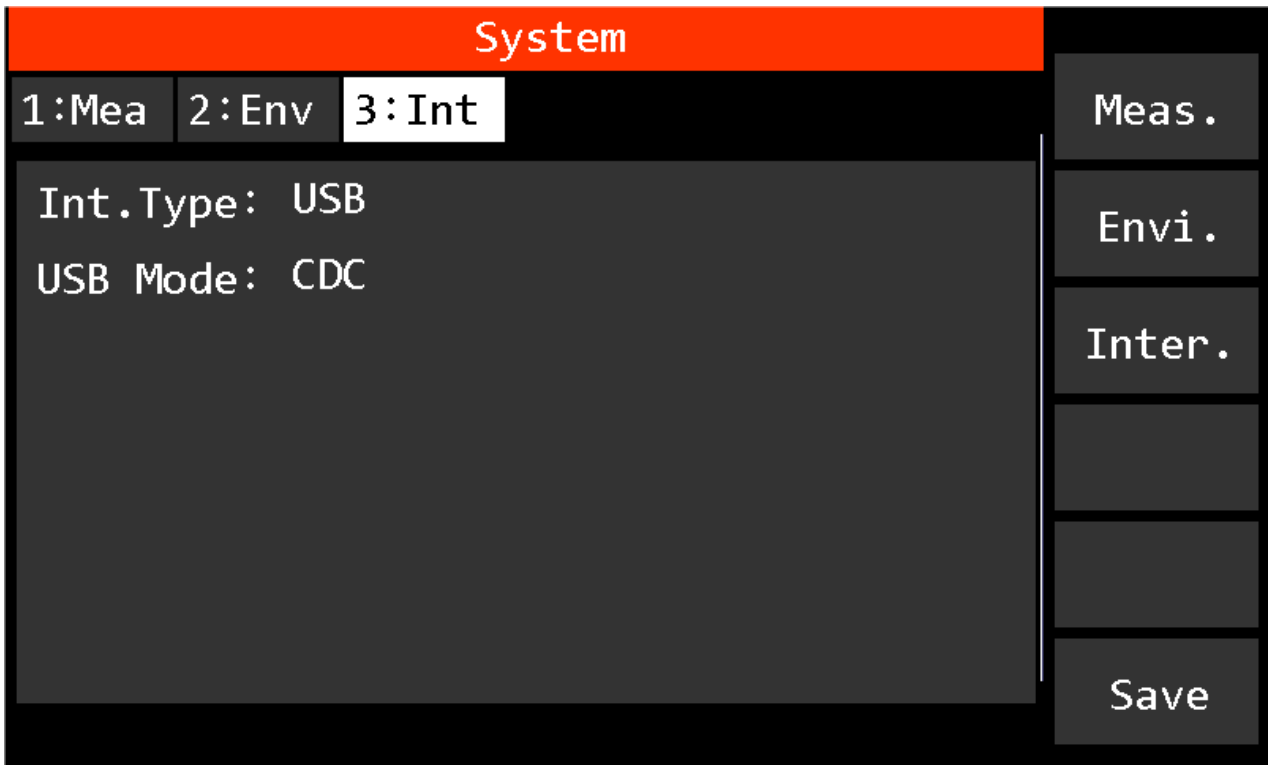
Move the cursor to the hour and enter the hour value to set the hour;

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

Move the cursor to seconds and enter the seconds value to set the seconds;

8.3 Communication

Communication refers to the setting of the system communication method, as shown in Fig:



8.3.1 Int. Type

The instrument provides 5 kinds of communication ports, which are RS232, GPIB, USB, LAN, and RS485.

Move the cursor to **the Port Type** setting field and the following soft keys are displayed in the soft key area of the screen.

- **RS232**
- **GPIB**
- **USB**
- **LAN**
- **RS485**

8.3.2 RS232 communication setting

1. Baud rate

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

   Move the cursor to the **Baud Rate** Setting field and the following soft keys are displayed in the soft key area of the screen.

   - **9600**
   - **19200**
   - **38400**
   - **115200**

2. Data bit

   There are a total of 2 data bits available: 8, 7

   Move the cursor to the **Data Bit** Setting field and the following soft keys are displayed in the soft key area of the screen.

   - **8**
   - **7**

3. Stop bit

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

   Move the cursor to the **Stop Bit** Setting field and the following soft keys are displayed in the soft key area of the screen.

   - **1**
   - **2**

4. Parity

   There are a total of 3 types of parity available: none, odd parity, even parity

   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 Parity Check**
   - **Even Parity Check**

8.3.3 GPIB Communication Setting

Address Number Move the cursor to **the Address Code** Setting field and enter

the address value, set the range to 1～ 32.

8.3.4 USB Communication Setting

USB Mode: Move the cursor to the **USB Mode** setting field and the following soft keys are displayed in the soft key area of the screen.

- **TMC**
- **CDC**

8.3.5 LAN Communication Setting

1. Dynamic protocol

   Move the cursor to the **Dynamic Protocol** Settings field and the following softkeys are displayed in the softkey area of the screen.

   - **OFF**
   - **ON**

2. Address code

   Move the cursor to **the Address Code** Setting field and enter the address value in the range 1～ 32.

3. Auto IP

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

   - **OFF**
   - **ON**

4. IP address

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

5. Subnet mask

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

6. Default gateway

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

7. DNS service 1

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

8. DNS service 2

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

8.3.6 RS485 Communication Setting

Address Number: Move the cursor to the **Address Code** setting field and enter the address value, set the range to 0～ 32.

Chapter 9 <UTILI> Page

Press the module key **[UTILI]** to enter **the< Auxiliary Functions>** page.

9.1 Pin Search

Move the cursor to **the Pin Search** icon and press the Menu soft key **to enter the< Pin Search>** page.

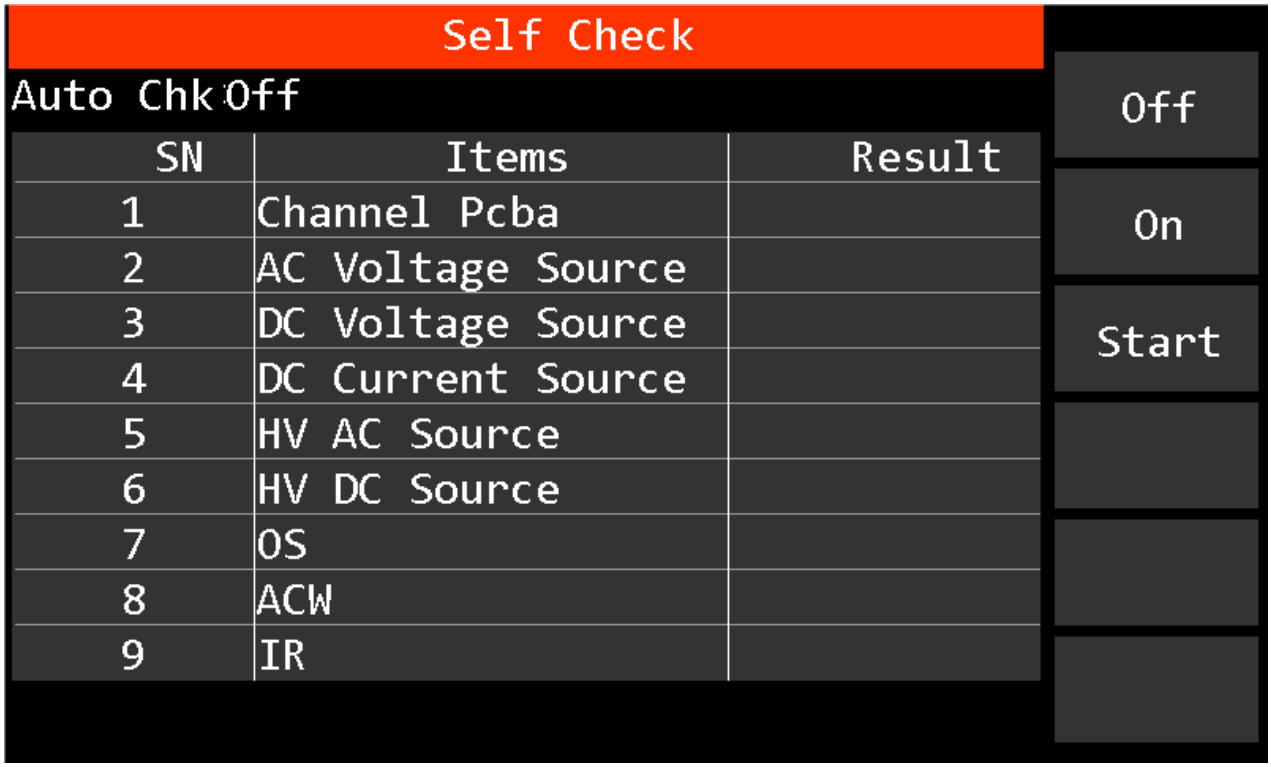
Click on the menu item: **Start** and the instrument will start to detect points continuously.

Then, using the meter pen, tap the pin you want to know its number, and the result of the search will be instantly displayed on the screen.

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

4-wire point finding: If you are sure that it is a four-wire type, you can turn on this function, and all four points will have test results.

9.2 System Self-test



Move the cursor to the **Self check** icon and press the Menu soft key to enter the< **Self check** > page.

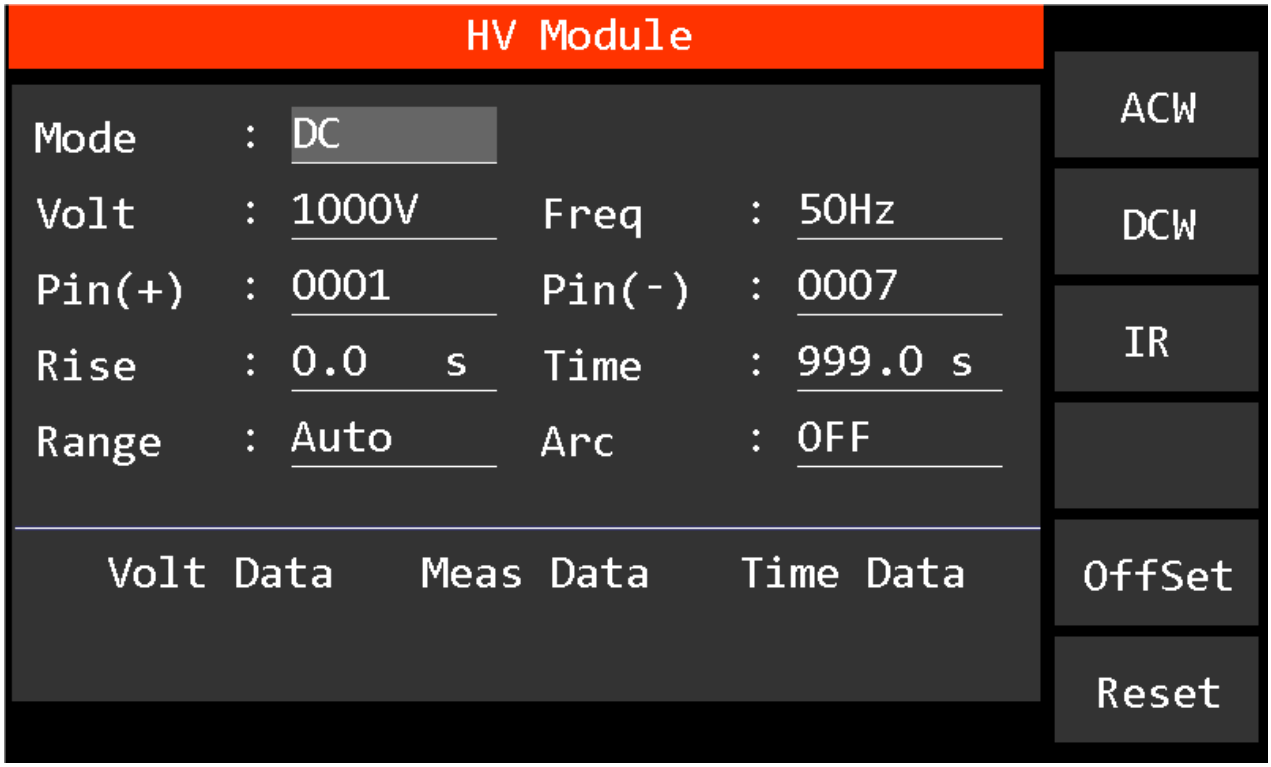
Whether or not to perform a self-test when powering up, the menu items: off and on are used to control this function.

Startup self-test, you can click the menu item start and START key

9.3 High Voltage Module

Move the cursor to the **High Voltage** icon and press the Menu soft key **to enter the< High Voltage Module>** page.

This function can be used as a simple pressure resistance meter.

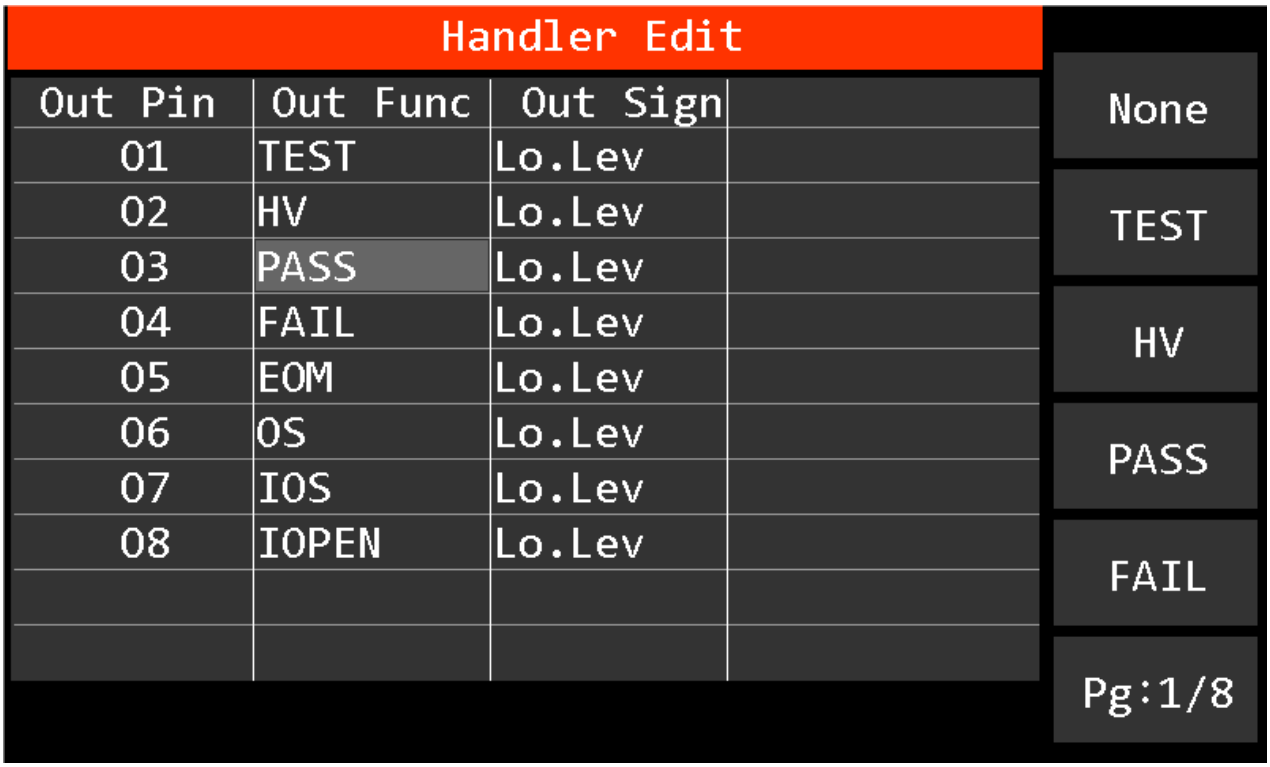


In this interface, you can select three test functions: AC withstand voltage, DC withstand voltage, and insulation resistance.

Moving the cursor, you can set the test voltage, test frequency, test pin position, rising time, test time, test range, arc level and other parameters at will.

Below is a real-time display of test voltage, test data, and test time.

9.4 I/O Editor



Move the cursor to **the I/O** icon and press the Menu soft key to enter the< **Handler Edit**> page.

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

Except for the input signals on pins 11 and 12, which cannot be edited, the remaining pins 1 to 8 are output signals whose signals and levels can be set at will.

1. Signal Setting

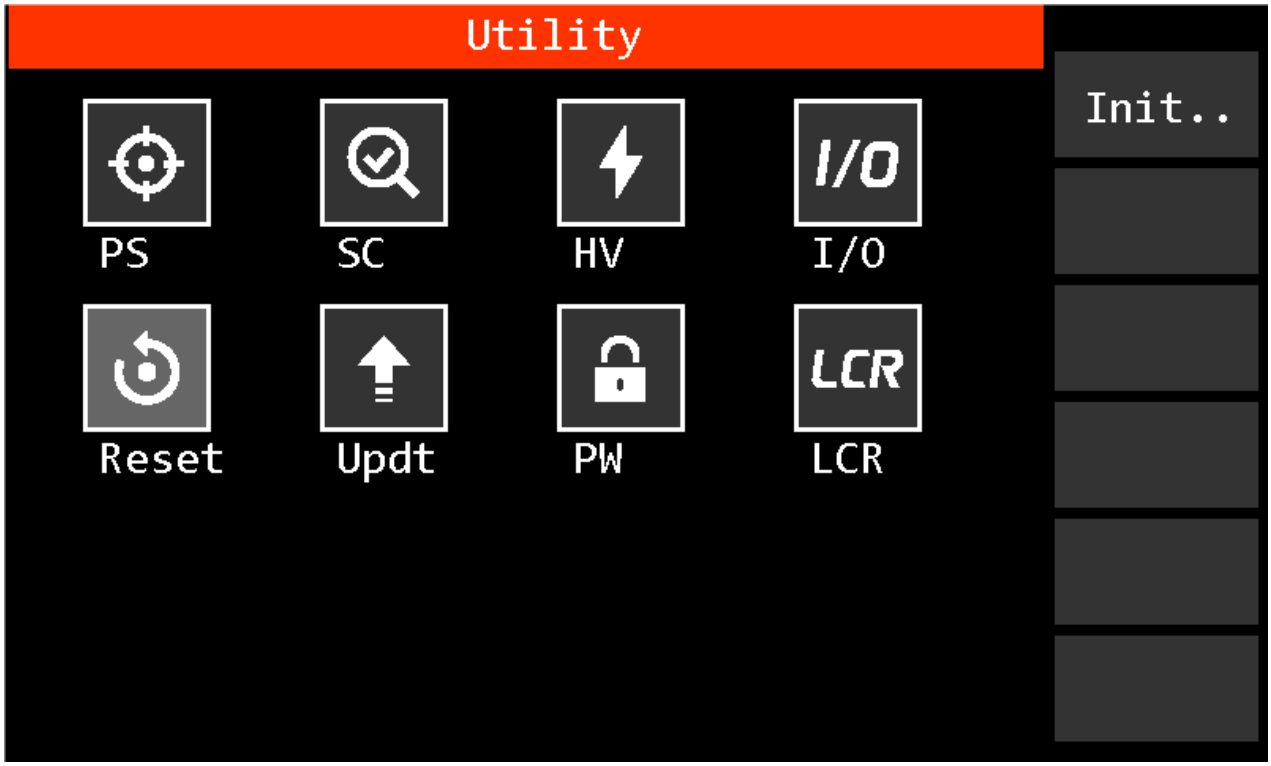
The instrument provides nearly 40 signals to choose from.

For example, qualified signals, bad signals, bad conduction, and so on.

2. Level Setting

The instrument provides 4 level types, which are high level, low level, high pulse, and low pulse.

9.5 Memory Initialization



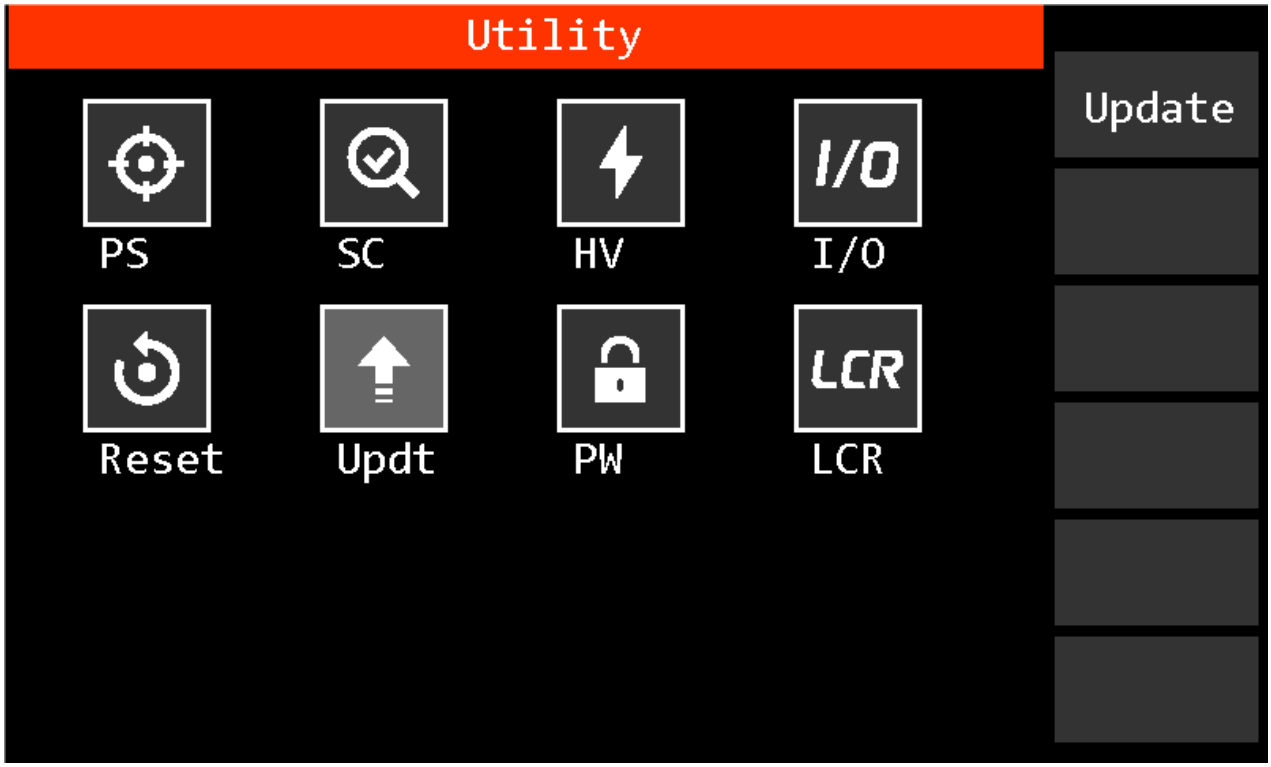
Move the cursor to the **reset** icon and press the Menu softkey **Initialize**, this function allows you to restore the instrument's memory to factory settings operation.

Note: This operation will empty all archives, so please make a backup beforehand.

9.6 Program Update

Move the cursor to **the update** icon, insert the USB flash drive with the upgrade program (TH610.sec), click on the menu item **Update** and confirm, then the upgrade program will start, a progress bar will appear at the bottom of the information column,

when the progress bar reaches 100%, the instrument will automatically reboot, which means that the program has been successfully upgraded.

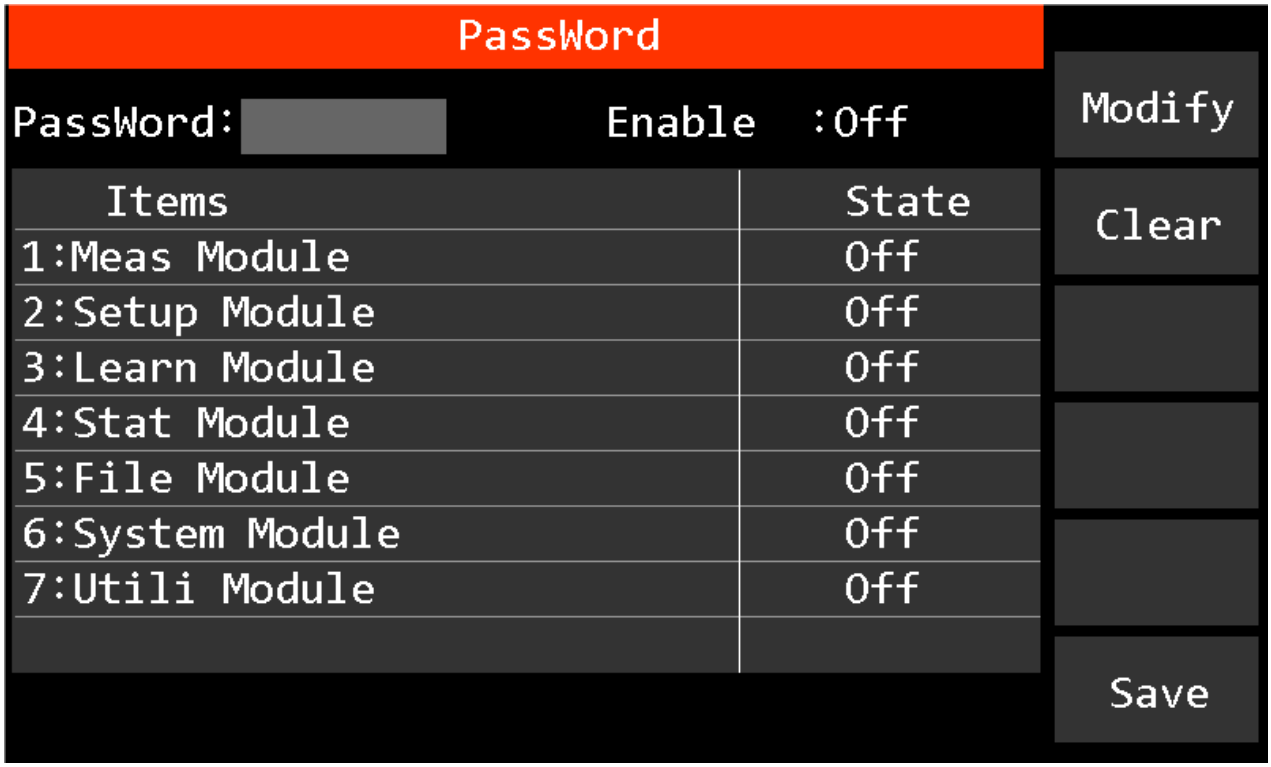


9.7 System Password

Move the cursor to **the Password** icon and press the Menu soft key to enter the **<Password>** page.

Here you can set a system password.

During the actual test, you can lock the keypad to prevent the operator from changing the test conditions. After setting a password, both keypad locking and keypad unlocking require the entry of that password for successful operation.



9.8 LCR Module

Move the cursor to **the LCR** icon and press the Menu soft key to enter the< **LCR module**> page.

This function can be used as a simple LCR bridge. The interface can test inductance, capacitance, AC resistance, DC resistance, conductivity, diode, voltage drop.

Where, DC resistance is used to test large resistances greater than 1k.

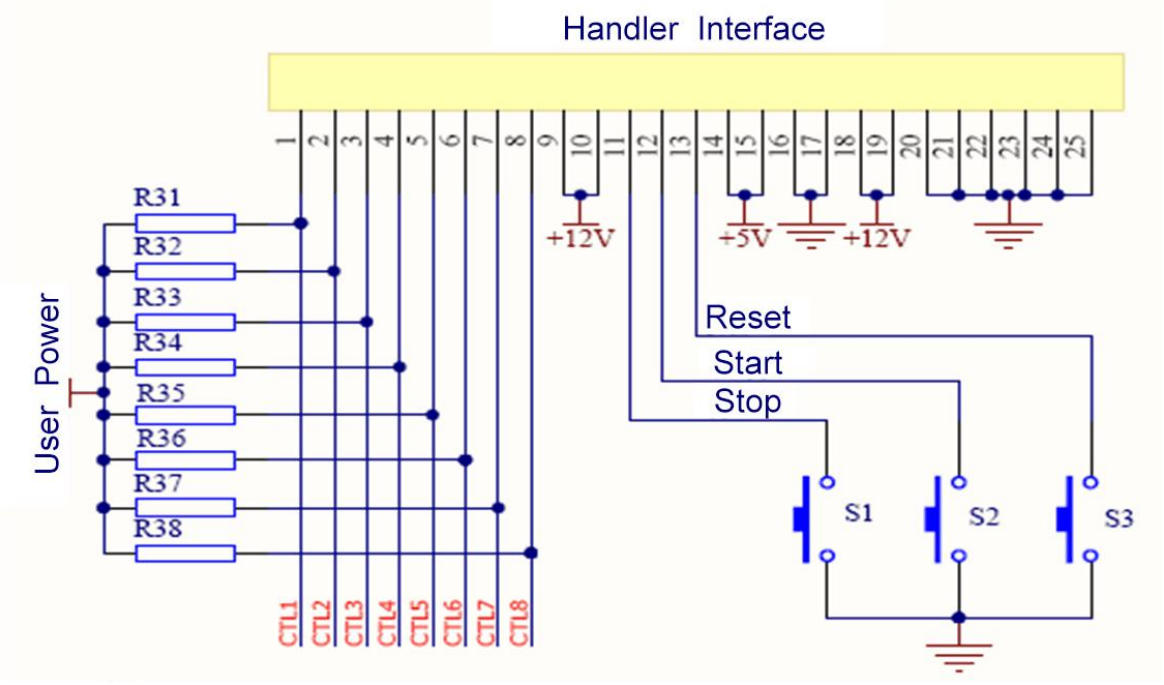
And for small resistors less than 1k, please use conductivity for testing.

Moving the cursor, you can set parameters such as test level, test frequency, test pin, test range and so on.

Chapter 10 Communication Interface

10.1 HANDLER Interface

10.1.1 Handler Interface Circuit Diagram



10.1.2 Interface Description:

1. Output pin

CTL1~ CTL8 corresponds to pins 1~8 of the TH610 Handler interface, which are output signal pins. The user can choose external power supply or use the 5V (pins 14, 15) and 12V (pins 9, 10, 18, 19) supplied with the TH610 Handler interface. When using an external power supply, the ground of the external power supply should be common ground with the case of the unit, or the ground of the external power supply can be shorted to pin 20~25 of the interface. In order to ensure the stability of the output signal, users need to add pull resistors (such as R31~R38 in the above figure), it is recommended to use 10k resistors.

2. Input pin

Pins 11~13 are the input signal pins of TH610 Handler interface, which correspond to stop, start and reset functions respectively. When external switching control, users can connect S1~S3 as shown in the above figure. It can also be triggered by external low level.

3. To ensure the reliability of the TH610 Handler interface control and output signals, the user's external loop must be common ground with the TH610 Handler interface ground pins (pins 16, 17, 20~25).

10.2 RS232C Interface

10.2.1 RS232 Standard

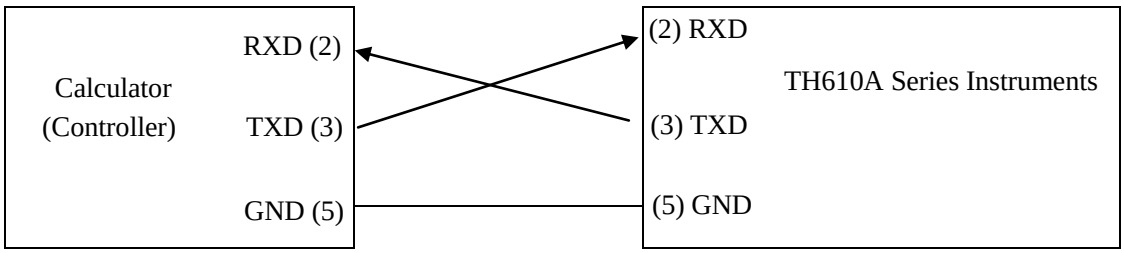
Currently, the TH610 uses the simple RS-232 standard as shown in the following table:

Code	Abridge	Connector pin number
Transit data	TXD	3
Receive data	RXD	2
Ground	GND	5

Three-wire operation is much cheaper than five- or six-wire operation, which is the biggest advantage of using serial port communication.

10.2.2 RS232 Connection

The instrument is connected to the computer as shown in the figure:



As you can see from the picture above, the serial port cable used needs to have 2 and 3 pins crossed, so please pay attention to this when purchasing. Alternatively, you can use the serial cable supplied with your TH610 series instrument.

Chapter 11 SCPI Command Reference

All of the following commands are sent and received as string types. Each command must be followed by a terminator character, otherwise the instrument will remain in a wait state and not process the command. This terminating character is the line feed character, or LF, which has an ASC code of 10 in decimal or 0 in hexadecimal A. When there is a data return from the instrument, the end of the data returned each time will end with LF as the terminating character.

11.1 Setting Command Set

11.1.1 Mode Setting Command

11.1.1.1 :SETUP:MODE:TYPE

-Function: Setting the wire type

-Format:

-Setting format: :SETUP:MODE:TYPE <data>

-Query format: :SETUP:MODE:TYPE?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - General

1 - One-sided

2 - Point measurement

-Setting example:

If you want to set the wire type to: Single-sided

Then enter the command: :SETUP:MODE:TYPE 1

-Query example:

If you enter the command: :SETUP:MODE:TYPE?

Then the return is: 1, indicating that the wire type is One-sided

11.1.1.2 :SETUP:MODE:PBEG

-Function: Setting the starting point of the pin position

-Format:

-Setting format: :SETUP:MODE:ABEG <data>

-Query format: :SETUP:MODE:ABEG?

--data<data>

Data type: Integer, 2 bytes

Data range: 0~Maximum test point

0 - off, 1~max test point

Data accuracy: 1

-Setting example:

If you want to set the starting point of the pin position as follows: 1

Then enter the command: :SETUP:MODE:PBEG 1

-Query example:

If you enter the command: :SETUP:MODE:PBEG?

Then the return is: 1, indicating that the starting point of the pin position is 1

11.1.1.3 :SETUP:MODE:PEND

-Function: Setting the pin endpoint

-Format:

-Setting format: :SETUP:MODE:PEND <data>

-Query format: :SETUP:MODE:PEND?

--data<data>

Data type: Integer, 2 bytes

Data range: 0~Maximum test point

0 - off, 1~max test point

Data accuracy: 1

-Setting example:

If you want to set the pin endpoint to: 32

Then enter the command: :SETUP:MODE:PEND 32

-Query example:

If the input command is: :SETUP:MODE:PEND?

Then the return is: 32, indicating that the end of the pin is 32

11.1.1.4 :SETUP:MODE:TRIGM

-Function: Setting the trigger mode

-Format:

-Setting format: :SETUP:MODE:TRIGM <data>

-Query format: :SETUP:MODE:TRIGM?

--data<data>

Data type: enumerated, 1 byte

Data range: 0~3

0 - Manual

1 - External

2 - Bus

3 - Auto

Data accuracy: 1

-Setting example:

If you want to set the trigger method to

Then enter the command: :SETUP:MODE:TRIGM 1

-Query example:

If you enter the command: :SETUP:MODE:TRIGM?

Then the return is: 1, indicating that the trigger mode is external trigger mode

11.1.1.5 :SETUP:MODE:DELAY

-Function: Setting the trigger delay

-Format:

-Setting format: :SETUP:MODE:DELAY <data>

-Query format: :SETUP:MODE: DELAY?

--data<data>

Data type: floating point number

Data range: 0~999.9

Data accuracy: 0.1

-Setting example:

If you want to set the trigger delay to: 2s

Then enter the command: :SETUP:MODE: DELAY 2

-Query example:

If you enter the command: :SETUP:MODE: DELAY?

Then the return is: 2, indicating a trigger delay of 2.0s

11.1.1.6 :SETUP:MODE:DISPM

-Function: Setting the display mode

-Format:

-Setting format: :SETUP:MODE:DISPM <data>

-Query format: :SETUP:MODE:DISPM?

--data<data>

Data type: enumerated, 1 byte

Data range: 0~1

0 - Show all

1 – Display bad

Data accuracy: 1

-Setting example:

If you want to set the display mode to: Display bad

Then enter the command: :SETUP:MODE:DISPM 1

-Query example:

If the input command is: :SETUP:MODE:DISPM?

Then the return is: 1, indicating that the display mode is display bad

11.1.1.7 :SETUP:MODE:AFAIL

-Function: After the setting failure

-Format:

-Setting format: :SETUP:MODE:AFAIL<data>

-Query format: :SETUP:MODE:AFAIL?

--data<data>

Data type: enumerated, 1 byte

Data range: 0~3

0 - All measurements completed

1 - Stop the test

2 - No high voltage

Data accuracy: 1

-Setting example:

If you want to set After Failure to: stop test

Then enter the command: :SETUP:MODE:AFAIL 1

-Query example:

If the input command is: :SETUP:MODE:AFAIL?

Then the return is: 1, indicating that after the failure for the stop test

11.1.1.8 :SETUP:MODE:CK

-Function: Setting the contact check

-Format:

-Setting format: :SETUP:MODE:CK <data>

-Query format: :SETUP:MODE:CK?

--data<data>

Data type: enumerated, 1 byte

Data range: 0~1

0 - OFF

1 - ON

Data accuracy: 1

-Setting example:

To set the contact check to: on

Then enter the command: :SETUP:MODE:CK 1

-Query example:

If the input command is: :SETUP:MODE:CK?

Then the return is: 1, indicating that the contact check is on

11.1.1.9 :SETUP:MODE:ALL

-Function: Screen setting of MODE parameters, i.e., setting the 8 parameters in MODE at one time.

-Format:

-Setting format: :SETUP:MODE:ALL Wire Type, Leg Start, Leg End, Trigger Mode, Trigger Delay, Display Mode, After Failure, Touch Check

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the MODE screen as follows:

Wire Type: Plain ----------0

Starting point of pin position: 1----------1

Pin endpoint: 32 ----------32

Trigger: Manual ----------0

Trigger delay: 0s ----------0

Display mode: show all ----------0

After the failure: stop the test ----------1

Contact check: ON ----------1

Then enter the command:

:SETUP:MODE:ALL 0,1,32,0,0,0,0,1,1

If the setting is successful, return: OK

11.1.2 Short Break Setting Command

11.1.2.1 :SETUP:OS:RSTD

-Function: Setting the short break standard

-Format:

-Setting format: :SETUP:OS:RSTD <data>

-Query format: :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 to: 10kΩ

Then enter the command: :SETUP:OS:RSTD 10000

-Query example:

If you enter the command: :SETUP:OS:RSTD?

Then the return is: 10000.000000, indicating that the on-off standard is set to 10kΩ

11.1.2.2 :SETUP:OS:CSTD

-Function: Setting the one-sided sensitivity standard

-Format:

-Setting format: :SETUP:OS:CSTD <data>

-Query format: :SETUP:OS:CSTD?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~9.999nF

Data unit: pF

-Setting example:

If you want to set the one-sided sensitivity standard to: 100pF

Then enter the command: :SETUP:OS:CSTD 100

-Query example:

If you enter the command: :SETUP:OS:CSTD?

Then the return is: 100.000001, indicating that the One-sided sensitivity standard is set to 100pF

11.1.2.3 :SETUP:OS:SIDE

-Function: Setting the end edge judgment

-Format:

-Setting format: :SETUP:OS:SIDE <data>

-Query format: :SETUP:OS:SIDE?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on, 2 - split edge, 3 - %

-Setting example:

If you want to set the end-edge judgment to: on

Then enter the command: :SETUP:OS:SIDE 1

-Query example:

If you enter the command: :SETUP:OS:SIDE?

Then the return is: 1, indicating that the end-edge judgment is on

11.1.2.4 :SETUP:OS:SPEED

-Function: Setting the speed of One-sided testing

-Format:

-Setting format: :SETUP:OS:SPEED <data>

-Query format: :SETUP:OS:SPEED?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - slow, 1 - medium, 2 - fast

-Setting example:

If you want to set the test speed to: Fast

Then enter the command: :SETUP:OS:SPEED 2

-Query example:

If you enter the command: :SETUP:OS:SPEED?

Then the return is: 2, indicating that the test speed is fast

11.1.2.5 :SETUP:OS:OSTM

-Function: Setting the momentary on-off time

-Format:

-Setting format: :SETUP:OS:OSTM <data>

-Query format: :SETUP:OS:OSTM?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~999.9

Data accuracy: 0.1

Data unit: seconds

-Setting example:

If you want to set the instantaneous on-off time to: 5 seconds

Then enter the command: :SETUP:OS:OSTM 50

-Query example:

If you enter the command: :SETUP:OS:OSTM?

Then the return is: 50, indicating that the instantaneous on-off time is set to 5 seconds

11.1.2.6 :SETUP:OS:OPTM

-Function: Setting the instantaneous disconnection time

-Format:

-Setting format: :SETUP:OS:OPTM <data>

-Query format: :SETUP:OS:OPTM?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~999.9

Data accuracy: 0.1

Data unit: seconds

-Setting example:

If you want to set the instantaneous disconnection time to: 5 seconds

Then enter the command: :SETUP:OS:OPTM 50

-Query example:

If you enter the command: :SETUP:OS:OPTM?

Then the return is: 50, indicating that the instantaneous disconnection time is set to 5 seconds

11.1.2.7 :SETUP:OS:DELAY

-Function: Setting the short break delay time

-Format:

-Setting format: :SETUP:OS:DELAY <data>

-Query format: :SETUP:OS:DELAY?

--data<data> : short break delay

Data type: integer, 1 byte

Data range:

1 us -- 60.00 ms

-Setting example:

If you want to set the short break delay to: 1us

Then enter the command: :SETUP:OS:DELAY 1

-Query example:

If you enter the command: :SETUP:OS:DELAY?

Then the return is: 1, indicating that the short break delay is 1us

11.1.2.8 :SETUP:OS:METH

-Function: Setting the scanning method

-Format:

-Setting format: :SETUP:OS:METH <data>

-Query format: :SETUP:OS:METH?

--data<data> : Scanning Methods

Data type: enumerated, 1 byte

Data range:

0 - two-point test

1 - Pair of other

-Setting example:

If you want to set the scanning method to dichotomous testing

Then enter the command: :SETUP:OS:METH 0

-Query example:

If you enter the command: :SETUP:OS:DELAY?

Then the return is: 0, indicating that the scanning method is set to bisection test

11.1.2.9 :SETUP:OS:AFAIL

-Function: After a bad setup

-Format:

-Setting format: :SETUP:OS:AFAIL <data>

-Query format: :SETUP:OS:AFAIL?

--data<data> :

Data type: enumerated, 1 byte

Data range:

0 - Null point stop

1 - Short circuit stop

2 - Open circuit stop

3 - Repeat stop

-Setting example:

If you want to set the stopping point after a defect to: Empty Point Stop

Then enter the command: :SETUP:OS:AFAIL 0

-Query example:

If you enter the command: :SETUP:OS:AFAIL?

Then the return is: 0, indicating that after the bad set to the null point to stop

11.1.2.10:SETUP:OS:FAILT

-Function: Setting the number of failure

-Format:

-Setting format: :SETUP:OS:FAILT <data>

-Query format: :SETUP:OS:FAILT?

--data<data> :

Data type: integer, 1 byte

Data range: 1~100

Data accuracy: 1

-Setting example:

If you want to set the number of bad times to 5

Then enter the command: :SETUP:OS:FAILT 5

-Query example:

If you enter the command: :SETUP:OS:FAILT?

Then the return is: 5, indicating that the number of bad times is set to 5 times

11.1.2.11:SETUP:OS:ALL

-Function: Screen setting of OS parameters, i.e., setting the 14 parameters in the OS at one time

-Format:

-Setting format: :SETUP:OS:ALL Short Break Criteria, Single Side Sensitivity, End Side Judgment, Single Side Speed, Instant OS Time, Instant Break Time, Short Break Delay, Scanning Method, After Defect, Number of Defects

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the OS screen as follows:

Short break standard: 10k ----------10000

One-sided sensitivity: 50pF ----------50

End-edge judgment: on ----------1

One-sided speed: fast ----------2

Instantaneous OS time: 0s----------0

Instantaneous break time: 0s----------0

Short break delay: 0----------0

Scanning method: Dichotomy ----------0

After the Bad: Null point stop ----------0

Number of bad times: 7 ----------7

Then enter the command:

:SETUP:OS:ALL 10000,50,1,2,0,0,0,0,0,0,7

If the setting is successful, return: OK

11.1.3 Conductivity Setting Command

11.1.3.1 :SETUP:COND:UPPER

-Function: Setting the upper limit value of conduction

-Format:

-Setting format: :SETUP:COND:UPPER <data>

-Query format: :SETUP:COND:UPPER?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~950

Data unit: Ω

-Setting example:

If you want to set the conductivity upper limit value to: 1Ω

Then enter the command: :SETUP:COND:UPPER 1

-Query example:

If the input command is: :SETUP:COND:UPPER?

Then the return is: 1, indicating that the conductivity upper limit value is set to 1Ω

11.1.3.2 :SETUP:COND:LOWER

-Function: Setting the lower limit value of conduction

-Format:

-Setting format: :SETUP:COND:LOWER <data>

-Query format: :SETUP:COND:LOWER?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~950

Data unit: Ω

-Setting example:

If you want to set the lower conductivity limit value to: 0.1Ω

Then enter the command: :SETUP:COND:LOWER 0.1

-Query example:

If the input command is: :SETUP:COND:LOWER?

Then the return is: 0.1, indicating that the lower conductivity limit value is set to 0.1Ω.

11.1.3.3 :SETUP:COND:SPEC

-Function: Setting the upper limit of instantaneous conductivity value

-Format:

-Setting format: :SETUP:COND:SPEC <data>

-Query format: :SETUP:COND:SPEC?

--data<data>

Data type: floating point, 4 bytes

Data range: 0.001-950

Data unit: Ω

-Setting example:

If you want to set the upper limit value of instantaneous conduction to: 2Ω

Then enter the command: :SETUP:COND:SPEC 2

-Query example:

If the input command is: :SETUP:COND:SPEC?

Then the return is: 2, indicating that the upper limit of instantaneous conduction is set to 2Ω

11.1.3.4 :SETUP:COND:TIME

-Function: Setting the instantaneous on-time test time

-Format:

-Setting format: :SETUP:COND:TIME <data>

-Query format: :SETUP:COND:TIME?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~999.9

Data accuracy: 0.1

Data unit: seconds

-Setting example:

If you want to set the instantaneous on test time to: 5 seconds

Then enter the command: :SETUP:COND:TIME 50

-Query example:

If the input command is: :SETUP:COND:TIME?

Then the return is: 50, indicating that the instantaneous on test time is set to 5 seconds

11.1.3.5 :SETUP:COND:SPEED

-Function: Setting the conductivity test speed

-Format:

-Setting format: :SETUP:COND:SPEED <data>

-Query format: :SETUP:COND:SPEED?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - slow, 1 - medium, 2 - fast

-Setting example:

If you want to set the conductivity test speed to: Fast

Then enter the command: :SETUP:COND:SPEED 2

-Query example:

If the input command is: :SETUP:COND:SPEED?

Then the return is: 2, indicating that the conductivity test speed is fast

11.1.3.6 :SETUP:COND:IFAIL

-Function: Setting the instantaneous bad measurement

-Format:

-Setting format: :SETUP:COND:IFAIL <data>

-Query format: :SETUP:COND:IFAIL?

Data type: enumerated, 1 byte

Data range:

0 - stop the test, 1 – all tests completed

-Setting example:

If you want to set the instantaneous test bad to: stop test

Then enter the command: :SETUP:COND:IFAIL 0

-Query example:

If the input command is: :SETUP:COND:IFAIL?

Then the return is: 0, indicating that the setting of the instantaneous bad test is to stop the test

11.1.3.7 :SETUP:COND:OFFS

-Function: Setting the conductivity base

-Format:

-Setting format: :SETUP:COND:OFFS <data>

-Query format: :SETUP:COND: OFFS?

Data type: floating point, 4 bytes

Data range:

0~ 10Ω

Data accuracy: 0.1mΩ

Data unit: Ω

-Setting example:

If you want to set the conductivity base to: 100mΩ

Then enter the command: :SETUP:COND: OFFS 0.1

-Query example:

If the input command is: :SETUP:COND: OFFS?

Then the return is: 0.1, indicating that the conductivity base is 100mΩ

11.1.3.8 :SETUP:COND:CURR

-Function: Setting the test current

-Format:

-Setting format: :SETUP:COND:CURR <data>

-Query format: :SETUP:COND:CURR?

Data type: integer, 1 byte

Data range:

0~ 20

Data accuracy: 1

Data unit: mA

-Setting example:

If the conductivity test current is to be set to: 10mA

Then enter the command: :SETUP:COND:CURR 10

-Query example:

If the input command is: :SETUP:COND:CURR?

Then the return is: 10, indicating that the test current is 10mA

11.1.3.9 :SETUP:COND:BAL

-Function: Setting the conductivity balance

-Format:

-Setting format: :SETUP:COND:BAL <data>

-Query format: :SETUP:COND:BAL?

Data type: floating point, 4 bytes

Data range:

0~9.999Ω

-Setting example:

If the conductivity balance is to be set to: 0.1Ω

Then enter the command: :SETUP:COND:BAL 0.1

-Query example:

If the input command is: :SETUP:COND:BAL?

Then the return is: 0.1, indicating that the conductivity balance is 0.1Ω

11.1.3.10 :SETUP:COND:UBUF

-Function: Setting the upper conductivity limit list

-Format:

-Setting format: :SETUP:COND:UBUF <data1,data2....datan>

Data type: floating point array

Data range: 0~ 950Ω

Data accuracy: 1mΩ

-Setting example:

If you want to set the conductivity limit list to:

1	1.0Ω
2	1.1Ω
3	1.2Ω
4	1.3Ω
5	1.4Ω

Then enter the command: :SETUP:COND: UBUF 1.0,1.1,1.2,1.3,1.4

If the setting is successful, return: OK

11.1.3.11 :SETUP:COND:LBUF

-Function: Setting the lower limit list of conductivity

-Format:

-Setting format: :SETUP:COND:LBUF <data1,data2....datan>

Data type: floating point array

Data range: 0~ 950Ω

Data accuracy: 1mΩ

-Setting example:

If you want to set the conductivity lower limit list to:

1	1.0Ω
2	1.1Ω
3	1.2Ω
4	1.3Ω
5	1.4Ω

Then enter the command: :SETUP:COND: LBUF 1.0,1.1,1.2,1.3,1.4

If the setting is successful, return: OK

11.1.3.12 :SETUP:COND:ALL

-Function: Screen setting of COND parameters, i.e., setting the parameters in COND at one time

-Format:

-Setting format: :SETUP:COND:ALL Upper Conductance Limit, Lower Conductance Limit, Instantaneous Specification, Instantaneous Time, Test Speed, Instantaneous Measurement Error, Error Cycle

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the COND screen as follows:

Conductivity upper limit: 1.000Ω----------1

Conductivity lower limit: 0Ω ----------0

Instantaneous specification: 1.000Ω----------1

Instantaneous time: 0s----------0

Test speed: fast ----------2

Bad transient test: stop the test ----------0

Conductivity base: 0.0mΩ ----------0

Test current: 10Ma ----------10

Conductivity balance: off ----------0

Then enter the command:

:SETUP:COND:ALL 1,0,1,0,0,2,0,0,10,0

If the setting is successful, return: OK

11.1.4 Component Setting Command

11.1.4.1 :SETUP:LCR:TYPE

-Function: Setting the component type

-Format:

-Setting format: :SETUP:LCR:TYPE:<sn>:<data>

-Query format: :SETUP:LCR:TYPE:<sn>?

--data<sn> (component number)

Data type: integer, 1 byte

Data range: 0~63

--data<data> (component type)

Data type: enumerated, 1 byte

Data range:

0 - none

1--- Inductance, 2 -- Capacitance, 3 -- Resistance.

4 - Diode, 5 - Capacitance polarity, 6 - Voltage drop

7- Diode reverse leakage current 8- Resistance sum 9- Resistance Difference 10-Welding resistance

11-Temperature (PT100/500) 12-NTC resistance 13-NTC temperature 14 Temperature difference

-Setting example:

If you want to set the type of the 1st component to: capacitor

Then enter the command: :SETUP:LCR:TYPE:0:2

-Query example:

If the input command is: :SETUP:LCR:TYPE:0?

Then the return is: 2, indicating that the type of the 1st element is set to capacitor

11.1.4.2 :SETUP:LCR:PIN1

-Function: Setting the component pin position +

-Format:

-Setting format: :SETUP:LCR:PIN1:<sn>:<data>

-Query format: :SETUP:LCR:PIN1:<sn>?

--data<sn> (component number)

Data type: Integer, 1 byte

Data range: 0~128

--data<data>

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 1st component pin position + to: A01

Then enter the command: :SETUP:LCR:PIN1:0:1

-Query example:

If the input command is: :SETUP:LCR:PIN1:0?

Then the return is: 1, indicating that the pin + of the 1st element is set to A01

11.1.4.3 :SETUP:LCR:PIN2

-Function: Setting the component pin position.

-Format:

-Setting format: :SETUP:LCR:PIN2:<sn>:<data>

-Query format: :SETUP:LCR:PIN2:<sn>?

--data<sn> (component number)

Data type: integer, 1 byte

Data range: 0~128

--data<data>

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 1st component pin position - to: B01

Then enter the command: :SETUP:LCR:PIN2:0:33

-Query example:

If the input command is: :SETUP:LCR:PIN2:0?

Then the return is: 33, indicating that the pin position of the 1st element - set to B01

11.1.4.4 :SETUP:LCR:SPEC

-Function: Setting component specifications

-Format:

-Setting format: :SETUP:LCR:SPEC:<sn>:<data>

-Query format: :SETUP:LCR:SPEC:<sn>:?

--data<sn> (component number)

Data type: integer, 1 byte

Data range: 0~200

--data<data>

Data type: floating point, 4 bytes

Data unit: H/F/Ω/V

-Setting example:

If you want to set the specification for setting the first element to: 100

Then enter the command: :SETUP:LCR:SPEC:0:100

-Query example:

If the input command is: :SETUP:LCR:SPEC:0?

Then the return is: 1.000e+02, indicating that the specification of the 1st component is set to 100

11.1.4.5 :SETUP:LCR:OFFS

-Function: Setting the tolerance of a component

-Format:

-Setting format: :SETUP:LCR:OFFS:<sn>:<data>

-Query format: :SETUP:LCR:OFFS:<sn>?

--data<sn> (component number)

Data type: integer, 1 byte

Data range: 0~63

--data<data>

Data type: floating point, 4 bytes

Data range: 0 to 0.99.

100 ------ is less than or equal to the standard value

110 ------- is greater than or equal to the standard value

-Setting example:

If you want to set the deviation for setting the 1st element to: ±10%

Then enter the command: :SETUP:LCR:OFFS:0:0.1

-Query example:

If the input command is: :SETUP:LCR:OFFS:0?

Then the return is: 0.1, indicating that the deviation of the 1st element is set to ±10%.

11.1.4.6 :SETUP:LCR:ADDI

-Function: Setting additional parameter items for components, only valid for diode, capacitor polarity, voltage drop

-Format:

-Setting format: :SETUP:LCR:ADDI:<sn>:<data>

-Query format: :SETUP:LCR:ADDI:<sn>?

--data<sn> (component number)

Data type: integer, 1 byte

Data range: 0~63

--data<data>:

Data type: floating point, 4 bytes

-Setting example:

If you want to set the test time for the diode of the 1st component: 2s

Then enter the command: :SETUP:LCR:ADDI:0:2

-Query example:

If the input command is: :SETUP:LCR:ADDI:0?

Then the return is: 2.000, indicating that the diode test time of the 1st element is 2s

11.1.4.7 :SETUP:LCR:ALL:<sn>

-Function: Screen setting of LCR parameters, i.e., setting 6 parameters of a component at one time

-Format:

-Setting format: :SETUP:LCR:ALL:<sn> Type, Pin+, Pin-, Specification, Tolerance, Additional

The above parameters are separated by a comma (,)

-Setting example:

To add a component parameter to the LCR screen, set it as follows:

Serial number: 01----------0

Type: Capacitance ----------2

Pin+: A1----------1

Pin-: A2----------2

Specification: 100nF --------0.0000001

Tolerance: 10% ----------0.1

Additional: none ----------0

Then enter the command:

:SETUP:LCR:ALL:0,2,1,2,0.0000001,0.1,0

If the setting is successful, return: OK

11.1.5 High Voltage Setting Command

11.1.5.1 :SETUP:HV:VOLT

-Function: Setting the test voltage for high voltage

-Format:

-Setting format: :SETUP:HV:VOLT:<type>:<data>

-Query format: :SETUP:HV:VOLT:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, 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 the test voltage for setting the AC withstand voltage to: 100V

Then enter the command: :SETUP:HV:VOLT:ACW:100

-Query example:

If the input command is: :SETUP:HV:VOLT:ACW?

Then the return is: 100, indicating that the test voltage of AC withstand voltage is set to 100V.

11.1.5.2 :SETUP:HV:SPEC

-Function: Setting test specifications for high voltage

-Format:

-Setting format: :SETUP:HV:SPEC:<type>:<data>

-Query format: :SETUP:HV:SPEC:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, 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 the test specification for setting the AC withstand voltage to: 1mA

Then enter the command: :SETUP:HV:SPEC:ACW:0.001

-Query example:

If the input command is: :SETUP:HV:SPEC:ACW?

Then the return is: 1.000e-03, indicating that the test specification for AC withstand voltage is set to 1mA.

11.1.5.3 :SETUP:HV:TIME

-Function: Setting the test time for high voltage

-Format:

-Setting format: :SETUP:HV:TIME:<type>:<data>

-Query format: :SETUP:HV:TIME:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: floating point, 4 bytes

Data range: 1~50000

Data unit: 0.01 seconds

-Setting example:

If you want to set the test time for setting the AC withstand voltage to: 1 second

Then enter the command: :SETUP:HV:TIME:ACW:100

-Query example:

If the input command is: :SETUP:HV:TIME:ACW?

Then the return is: 100, which means that the test time of AC withstand voltage is set to 1 second.

11.1.5.4 :SETUP:HV:RISE

-Function: Setting the rise time of high voltage

-Format:

-Setting format: :SETUP:HV:RISE:<type>:<data>

-Query format: :SETUP:HV:RISE:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: floating point, 4 bytes

Data range: 0~999.9

Data unit: 0.1 second

-Setting example:

If you want to set the rise time for setting the AC withstand voltage to: 1 second

Then enter the command: :SETUP:HV:RISE:ACW:10

-Query example:

If the input command is: :SETUP:HV:RISE:ACW?

Then the return is: 10, indicating that the rise time of the AC withstand voltage is set to 1 sec.

11.1.5.5 :SETUP:HV:ARC

-Function: Arc test for setting high voltage

-Format:

-Setting format: :SETUP:HV:ARC:<type>:<data>

-Query format: :SETUP:HV:ARC:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: integer, 1 byte

Data range: 0 to 7 0 - off

-Setting example:

To set the arc test for setting the AC withstand voltage to: 5

Then enter the command: :SETUP:HV:ARC:ACW:5

-Query example:

If the input command is: :SETUP:HV:ARC:ACW?

Then the return is: 5, indicating that the arc test setting for AC withstand voltage is 5

11.1.5.6 :SETUP:HV:METH

-Function: Setting the test method for high voltage

-Format:

Set format: :SETUP:HV:METH:<type>:<data>

-Query format: :SETUP:HV:METH:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: enumerated, 1 byte

Data range:

0-Dichotomous test, 1-pair other, 2-automatic test, 3-all-to-ground, 4-product grouping, 5-odd-to-even, 6-odd-up-down

-Setting example:

If you want to set the test method for setting the AC withstand voltage to: pair other

Then enter the command: :SETUP:HV:METH:ACW:1

-Query example:

If the input command is: :SETUP:HV:METH:ACW:?

Then the return is: 1, indicating that the test method for AC withstand voltage is set to a pair of other.

11.1.5.7 :SETUP:HV:EMPT

-Function: Setting the null point test for high voltage

-Format:

-Setting format: :SETUP:HV:EMPT:<type>:<data>

-Query format: :SETUP:HV:EMPT:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the null point test for setting the AC withstand voltage to: On

Then enter the command: :SETUP:HV:EMPT:ACW:1

-Query example:

If the input command is: :SETUP:HV:EMPT:ACW?

Then the return is: 1, indicating that the null point test setting for AC withstand voltage is on.

11.1.5.8 :SETUP:HV:GND

-Function: Sets the ground pin position of the high voltage

-Format:

-Setting format: :SETUP:HV:GND:< type >:<data>

-Query format: :SETUP:HV:GND:< type >?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

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 AC withstand voltage ground pin position to: A01

Then enter the command: :SETUP:HV:GND:ACW:1

-Query example:

If the input command is: :SETUP:HV:GND:ACW?

Then the return is: 1, indicating that the AC withstand voltage ground pin position is set to A01

11.1.5.9 :SETUP:HV:GVOLT

-Function: Setting the grounding voltage for high voltage

-Format:

Set format: :SETUP:HV:GVOLT:< type> :<data>

-Query format: :SETUP:HV:GVOLT:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: floating point, 4 bytes

Data range: 5~1000V AC/ 5~1500V DC

Data accuracy: 1

Data unit: V

-Setting example:

If you want to set the ground voltage for AC withstand voltage to: 100V

Then enter the command: :SETUP:HV:GVOLT:ACW:100

-Query example:

If the input command is: :SETUP:HV:GVOLT:ACW?

Then the return is: 100, indicating that the ground voltage of AC withstand voltage is 100V

11.1.5.10 :SETUP:HV:GSPEC

-Function: Setting the grounding specification for high voltage

-Format:

Set format: :SETUP:HV:GSPEC:< type> :<data>

-Query format: :SETUP:HV:GSPEC:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: floating point, 4 bytes

Data range: 1.0 uA~ 10.00 Ma / 0.100MΩ~10.00GΩ

-Setting example:

If you want to set the grounding specification for AC withstand voltage to: 1mA

Then enter the command: :SETUP:HV:GSPEC:ACW:0.001

-Query example:

If the input command is: :SETUP:HV:GSPEC:ACW?

Then the return is: 0.001, indicating that the grounding specification of AC withstand voltage is set to 1Ma.

11.1.5.11 :SETUP:HV:GTIME

-Function: Setting the grounding time for high voltage

-Format:

Set format: :SETUP:HV:GTIME:< type> :<data>

-Query format: :SETUP:HV:GTIME:<type>?

--data<type> (Functional type of high pressure)

Data type: enumerated, 1 byte

Data range: ACW - alternating current withstand voltage, DCW - direct current withstand voltage, IR - insulation resistance

--data<data>

Data type: floating point, 4 bytes

Data range:

-Setting example:

If you want to set the grounding time for AC withstand voltage to: 1s

Then enter the command: :SETUP:HV:GTIME:ACW:100

-Query example:

If the input command is: :SETUP:HV:GTIME:ACW?

Then the return is: 100, indicating that the grounding time of AC withstand voltage is set to 1s

11.1.5.12 :SETUP:HV:ACW

-Function: Screen setting of ACW parameters, i.e., setting 11 parameters in ACW at one time.

-Format:

-Setting format: :SETUP: HV:ACW Test Voltage, Test Time, Test Specification, Test Method, Arc Detection, Rise Time, Null Point Test, Ground Pin, Ground Voltage, Ground Time, Ground Specification

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the ACW screen as follows:

Test voltage: 500V ----------500

Test time: 0.01s----------1

Test specification: 1mA ----------0.001

Test method: pair other ------1

Arc detection: off ----------0

Rise time: 0s----------0

Null point test: close ----------0

Grounding pin: none ----------0

Ground voltage: 50V ----------50

Grounding time: 0.01s---------1

Grounding specifications: 0----------0

Then enter the command:

:SETUP:HV:ACW 500,1,0.001,1,0,0,0,0,0,50,1,0

If the setting is successful, return: OK

11.1.5.13 :SETUP:HV:DCW

-Function: Screen setting of DCW parameters, i.e., setting all 11 parameters in DCW at once.

-Format:

-Setting format: :SETUP:HV:DCW Test Voltage, Test Time, Test Specification, Test Method, Arc Detection, Rise Time, Null Point Test, Ground Position, Ground Voltage, Ground Time, Ground Specification

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the DCW screen as follows:

Test voltage: 500V ----------500

Test time: 0.01s----------1

Test specification: 1mA ----------0.001

Test method: pair other ------1

Arc detection: off ----------0

Rise time: 0s----------0

Null point test: close ----------0

Ground pin: none ----------0

Ground voltage: 50V ----------50

Grounding time: 0.01s---------1

Grounding specifications: 0----------0

Then enter the command:

:SETUP:HV:DCW 500,1,0.001,1,0,0,0,0,0,50,1,0

If the setting is successful, return: OK

11.1.5.14 :SETUP:HV:IR

-Function: Screen setting of IR parameters, i.e., setting all 11 parameters in IR at once.

Format:

-Setting format: :SETUP:HV:IR Test Voltage, Test Time, Test Specification, Test Method, Arc Detection, Rise Time, Null Point Test, Ground Pin Position, Ground Voltage, Ground Time, Ground Specification

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the IR screen as follows:

Test voltage: 500V ----------500

Test time: 0.01s----------1

Test specification: 1MΩ ----------1.00E 6+

Test method: pair other ------1

Arc detection: off ----------0

Rise time: 0s----------0

Null point test: close ----------0

Grounding pin: none ----------0

Ground voltage: 50V ----------50

Grounding time: 0.01s---------1

Grounding specifications: 0----------0

Then enter the command:

:SETUP:HV:IR 500,1,1.00E+ 6,1,0,0,0,0,0,50,1,0

If the setting is successful, return: OK

11.1.6 Project Setting Command

11.1.6.1 :SETUP:ITEM:OS

-Function: Setting test OS items

-Format:

-Setting format: :SETUP:ITEM:OS <data>

-Query format: :SETUP:ITEM:OS?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the Setup Test OS item to: on

Then enter the command: :SETUP:ITEM:OS 1

-Query example:

If the input command is: :SETUP:ITEM:OS?

Then the return is: 1, indicating that the test OS item is set to on

11.1.6.2 :SETUP:ITEM:COND

-Function: Setting test conductivity items

-Format:

-Setting format: :SETUP:ITEM:COND <data>

-Query format: :SETUP:ITEM:COND?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - OFF

1 - ON

-Setting example:

If you want to set the Setup Test On item to: On

Then enter the command: :SETUP:ITEM:COND 1

-Query example:

If the input command is: :SETUP:ITEM:COND?

Then the return is: 1, indicating that the test conductivity item is set to on

11.1.6.3 :SETUP:ITEM:LCR

-Function: Setting test passive component items

-Format:

-Setting format: :SETUP:ITEM:LCR <data>

-Query format: :SETUP:ITEM:LCR?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the Setup Test Passive Element item to: On

Then enter the command: :SETUP:ITEM:LCR 1

-Query example:

If the input command is: :SETUP:ITEM:LCR?

Then the return is: 1, indicating that the test passive element item is set to on

11.1.6.4 :SETUP:ITEM:ACW

-Function: Setting test AC withstand voltage item

-Format:

-Setting format: :SETUP:ITEM:ACW <data>

-Query format: :SETUP:ITEM:ACW?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the Setup Test AC Withstand Voltage item to: On

Then enter the command: :SETUP:ITEM:ACW 1

-Query example:

If the input command is: :SETUP:ITEM:ACW?

Then the return is: 1, indicating that the test AC withstand voltage item is set to on

11.1.6.5 :SETUP:ITEM:DCW

-Function: Setting test DC withstand voltage items

-Format:

-Setting format: :SETUP:ITEM:DCW <data>

-Query format: :SETUP:ITEM:DCW?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the Setup Test DC Withstand Voltage item to: On

Then enter the command: :SETUP:ITEM:DCW 1

-Query example:

If the input command is: :SETUP:ITEM:DCW?

Then the return is: 1, indicating that the Test DC Withstand Voltage item is set to ON.

11.1.6.6 :SETUP:ITEM:IR

-Function: Setting test insulation resistance items

-Format:

-Setting format: :SETUP:ITEM:IR <data>

-Query format: :SETUP:ITEM:IR?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the Setup Test Insulation Resistance item to: On

Then enter the command: :SETUP:ITEM:IR 1

-Query example:

If the input command is: :SETUP:ITEM:IR?

The return content will be: 1, indicating that the Test Insulation Resistance item is set to ON.

11.1.6.7 :SETUP:ITEM:ALL

-Function: Screen setting of ITEM parameters, i.e., setting all 9 ITEM parameters at once.

-Format:

-Setting format: :SETUP:ITEM:ALL Short Breaking, Conductivity, Passive Component, AC Withstanding Voltage, DC Withstanding Voltage, Insulation Resistance, Instantaneous Short Breaking, Instantaneous Breaking, Instantaneous Conductivity

The above parameters are separated by a comma (,)

-Setting example:

If you want to set the parameters in the ITEM screen as follows:

Short breaks: on ----------1

Conductivity: on ----------1

Passive component: off ----------0

AC withstand voltage: off ----------0

DC withstand voltage: off ----------0

Insulation resistance: on ----------1

Then enter the command:

:SETUP:ITEM:ALL 1,1,0,0,0,1

If the setting is successful, return: OK

11.2 Test Command Set

11.2.1 :TRIG or :START

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

-Command format: :TRIG /:START

-Command example:

If the input command is: :TRIG

If the trigger mode of the instrument is bus-triggered, the instrument starts the test

If the input command is: :START

If the instrument's trigger mode is bus-triggered, the instrument starts the test

11.2.2 :STOP

-Function: Stop test

-Command format: :STOP

-Command example:

If the input command is: :STOP

If the instrument is under test, the instrument stops testing; if the instrument is not under test, it returns to the main screen.

11.2.3 :LEARN

-Function: Learning, provided that the trigger method is bus-triggered. When learning is complete, the learning result is returned.

-Command format: :LEARN

-Command example:

If the input command is: :LEARN

Instruments are studied immediately.

Upon completion, the return content is:

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 ,255,29,30,255,31,32,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0 ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0

Please follow the steps below on how to parse the returned content:

1. Where 0 is null and has no pin position, let's eliminate that and look at it again:

   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. Where 255 is the net separator, then we can continue to organize as:

   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. The value between 255 is the value of the pin position.

   Values from 1 to 32 correspond to pins: A1 to A32.

   Values from 33 to 64 correspond to pins: B1 to B32.

   Values from 65 to 96 correspond to pins: C1 to C32.

   Values from 97 to 128 correspond to pins: D1 to D32.

   Then it can be written like this:

   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. So, the final result of the returned list of learning networks is:

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.

11.3 :FETCH Command Set

11.3.1 :FETCH:COND?

-Function: Query the conductivity test result.

-Format:

-Query format: :FETCH:COND?

-Return data:

Judge1,data1; Judge1,data1;.....Judgen,datan.

judge: indicates the sorting result.

1 - pass, 2 - fail

data: test data, format for scientific notation, 2 decimal places, that is, %.2e

Unit: Ω

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:COND?

Then the return is: 1,1.01E+01;1,1.00E+01;9.99E+00.

Indicates that 3 sets of data were returned, respectively:

Group 1: 10.1Ω Qualified

Group 2: 10.0Ω Qualified

Group 3: 9.99Ω Qualified

11.3.2 :FETCH:ICOND?

-Function: Query the test result of instantaneous conductivity

-Format:

-Query format: :FETCH:ICOND?

-Return data:

Judge1,data1; Judge1,data1;.....Judgen,datan.

judge: indicates the sorting result.

1 - pass, 2 - fail

data: test data, format for scientific notation, 2 decimal places, that is, %.2e

Unit: Ω

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:ICOND?

Then the return is: 1,1.01E+01;1,1.00E+01;9.99E+00.

Indicates that 3 sets of data were returned, respectively:

Group 1: 10.1Ω Qualified

Group 2: 10.0Ω Qualified

Group 3: 9.99Ω Qualified

11.3.3 :FETCH:ICMAX?

-Function: Query the maximum conductivity value of each group of net during instantaneous conductivity test

-Format:

-Query format: :FETCH:ICMAX?

-Return data:

data1; data2; .....datan.

data: test data, format for scientific notation, 4 decimal places, that is, %.4e

Unit: Ω

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:ICMAX?

Then the return is: 1.01E+01;1.00E+01;9.99E+00.

Indicates that the maximum value of each of the 3 NETs:

Group 1: 10.1Ω

Group 2: 10.0Ω

Group 3: 9.99Ω

11.3.4 :FETCH:ICMIN?

-Function: Query the minimum conductivity value of each group of nets during instantaneous conductivity test

-Format:

-Query format: :FETCH:ICMIN?

-Return data:

data1; data2; .....datan.

data: test data, format for scientific notation, 4 decimal places, that is, %.4e

Unit: Ω

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:ICMIN?

Then the return is: 1.00E+01;9.90E+00;9.95E+00.

Indicates that the maximum value of each of the 3 NETs:

Group 1: 10.0Ω

Group 2: 9.90Ω

Group 3: 9.95Ω

11.3.5 :FETCH:ACW?

-Function: Query the test result of AC withstand voltage

-Format:

-Query format: :FETCH:ACW?

-Return data:

Judge1,data1; Judge1,data1;.....Judgen,datan.

judge: indicates the sorting result.

1 - pass, 2 - fail

data: test data, format for scientific notation, 2 decimal places, that is, %.2e

Unit: A

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:ACW?

Then the return is: 1,1.01E-3;1,1.00E-3;1.02E-3.

Indicates that 3 sets of data were returned, respectively:

Group 1: 1.01mA Qualified

Group 2: 1.00mA Qualified

Group 3: 1.02mA Qualified

11.3.6 :FETCH:DCW?

-Function: Query the test result of DC withstand voltage

-Format:

-Query format: :FETCH:DCW?

-Return data:

Judge1,data1; Judge1,data1;.....Judgen,datan.

judge: indicates the sorting result.

1 - pass, 2 - fail

data: test data, format for scientific notation, 2 decimal places, that is, %.2e

Unit: A

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:DCW?

Then the return is: 1,1.01E-3;1,1.00E-3;1.02E-3.

Indicates that 3 sets of data were returned, respectively:

Group 1: 1.01mA Qualified

Group 2: 1.00mA Qualified

Group 3: 1.02mA Qualified

11.3.7 :FETCH:IR?

-Function: Query insulation resistance test results

-Format:

-Query format: :FETCH:IR?

-Return data:

Judge1,data1; Judge1,data1;.....Judgen,datan.

judge: indicates the sorting result.

1 - pass, 2 - fail

data: test data, format for scientific notation, 2 decimal places, that is, %.2e

Unit: Ω

1~n: subscripts 1~n, indicating the first group of test results

-Query example:

If the input command is: :FETCH:IR?

Then the return is: 1,1.01E+09;1,1.00E+09;1.02E+09.

Indicates that 3 sets of data were returned, respectively:

Group 1: 1.01GΩ Qualified

Group 2: 1.00GΩ Qualified

Group 3: 1.02GΩ Qualified

11.3.8 :FETCH:AUTO

-Function: Set whether to return the end-of-test signal automatically: EOM

When this function is ON, the instrument automatically sends a string message to the RS232 communication port after each test: EOM

It indicates that the current test has ended, and the test data can be queried.

-Format:

-Setting format: :FETCH:AUTO <data>

-Query format: :FETCH:AUTO?

--data<data>

Data type: enumerated, 1 byte

Data range: 0~3

0---Automatic return function OFF

1 - At the end of the test, the message is returned: "EOM"

2 - Return all test data at the end of the test

2-Instantaneous conductivity test process, return all conductivity test data

Data accuracy:

Data unit:

-Setting example:

If you want to set whether or not to automatically return to the end-of-test signal to: return

Then enter the command: :FETCH:AUTO 1

Then at the end of the test, the instrument automatically returns the end-of-test message: EOM

-Query example:

If the input command is: :FETCH:AUTO?

Then the return is: 1, indicating whether the automatic return test end signal is set to return

11.3.9 :FETCH:ALL <step>?

-Function: Query test data and results of all test items

--data<step>:

step means the test step, if the current file is an ordinary single test file, then step is 0.

If the current file is a step-by-step file, then the first step of the query is 0; the second step is 1.

And so on.

-Format:

-Query format: :FETCH:ALL 0?

-Return data: the format is as follows, each line of data within the parameters separated by a comma (,), each line of data separated by a semicolon (;)

item1,pin11,pin12,data1,judge1.

item2,pin21,pin22,data2,judge2.

....

Itemn,pinn1,pinn2,datan,judgen.

1. Item: Indicates the name of the test item, as detailed in the following table:

0	Empty
1	Normal short circuit
2	Instantaneous short circuit
3	Instantaneous circuit break
4	Normal conductivity resistance
5	Instantaneous conductivity resistance
6	Passive components: inductive components
7	Passive components: capacitive components
8	Passive components: resistive components
9	Passive components: diodes
10	Passive components: capacitive polarity
11	Passive components: voltage drop
12	AC withstand voltage - dichotomy
13	AC withstand voltage - pair other
14	Dc withstand voltage - dichotomy
15	DC withstand voltage - pair other
16	Insulation resistance - dichotomy
17	Insulation resistance - pair other
18	Short circuit
19	Open circuit
20	Spot test short circuit
21	Mismatch/misalignment
22	Instantaneous conduction failure
23	Instantaneous short circuit

24	Instantaneous open circuit
25	Instantaneous mismatch
26	AC withstand voltage - all to ground
27	DC withstand voltage - all to ground
28	Insulation resistance - all to ground
29	Dynamic resistance
30	Passive components: diode leakage current

2. pin1/pin2: test pin

   1~32 corresponds to A1~A32

   33~64 corresponds to B1~B32

   65~96 corresponds to C1~C32

   97~128 corresponds to D1~D32

3. data: test data

   Formatted in scientific notation with 3 decimal places, i.e. %.3e

   Some test program data is meaningless, such as short circuit breaks, just ignore it

   For other items such as conductivity and insulation resistance, the data are the corresponding conductivity and insulation resistance values.

4. judge: indicates the sorting result.

   1 - pass, 2 - fail

   -Query example:

   Query the data and results of the current test

   Then enter the command: :FETCH:ALL 0?

   then the return is:

   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.

Then it means that the current test data and results are:

Open circuit	A31	A32	0	FAIL
Conductivity resistance	A1	A2	9.997e+01	PASS
Conductivity resistance	A3	A4	9.998e+01	PASS
.....	.....	.....	.....	.....
Conductivity resistance	A29	A30	1.001e+02	PASS
Conductivity resistance	A31	A32	3.002e+03	FAIL

11.3.10 :FETCH:NCOND?

-Function: Query conductivity test data and results

-Format:

-Query format: :FETCH:NCOND?

-Return data: the format is as follows, each line of data within the parameters separated by a comma (,), each line of data separated by a semicolon (;)

4,pin11,pin12,data1,judge1.

4,pin21,pin22,data2,judge2.

....

4, pinn1, pinn2, datan, judgen.

1. pin1/pin2: test pin

   1~32 corresponds to A1~A32

   33~64 corresponds to B1~B32

   65~96 corresponds to C1~C32

   97~128 corresponds to D1~D32

2. data: test data

   Formatted in scientific notation with 3 decimal places, i.e. %.3e

3. judge: indicates the sorting result.

   1 - pass, 2 - fail

-Query example:

Queries the data and results of the conductivity of the current test.

The input command is: :FETCH:NCOND?

then the return is:

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.

Then it means that the current test data and result of conductivity is:

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

11.3.11 :FETCH:OS?

-Function: Query the test data and results of short breaks

-Format:

-Query format: :FETCH:OS?

-Return data: the format is as follows, each line of data within the parameters separated by a comma (,), each line of data separated by a semicolon (;)

item1,pin11,pin12,data1,judge1.

item2,pin21,pin22,data2,judge2.

....

Itemn,pinn1,pinn2,datan,judgen.

1. Item: Indicates the name of the test item, as detailed in the following table:

0	Empty
1	Normal short circuit
18	Short circuit
19	Open circuit
21	Mismatches

2. pin1/pin2: test pin position

   1~32 corresponds to A1~A32

   33~64 corresponds to B1~B32

   65~96 corresponds to C1~C32

   97~128 corresponds to D1~D32

3. data: test data

   There is no test data for short breaks, so they are all 0

4. judge: indicates the sorting result.

   1 - pass, 2 - fail

   -Query example:

   Query the test data and results of the current OS

   Enter the command as: :FETCH:OS?

   then the return is

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

   Then it means that the current test data and results are:

Open circuit	A31	A32		FAIL

11.3.12 :FETCH:CROSS?

-Function: for querying mismatch pin position

When the test is finished, this command is sent to query the test data for mismatched pins and return 0 if there are none.

-Format:

--Query format: :FETCH:CROSS?

-Query example:

If query the mismatched pin, send the command: :FETCH:CROSS?

If return: 0 means, there is no mismatch in the current test result.

If return: A01,B02;A02,B01

Indicates that the mismatched pins are: A01 X B02 and A02 X B01

11.3.13 :FETCH:STAT?

-Function: For querying statistical data

Send this command to query the statistics.

-Format:

--Query format: :FETCH:STAT?

-Return data:

-Data format: total number of tests, number of passes, number of failures

-Query example:

To count the query statistics, send the command: :FETCH:STAT?

If return: 64,58,6

This indicates a total of 64; pass: 58; fail: 6.

11.3.14 :FETCH:FILE?

-Function: Used to query the list of files in the instrument

Send this command to query the list of files in the current instrument.

-Format:

-Query format: :FETCH:FILE?

-Return data:

-Data format: file name 1, file name 2 .... File name n

-Query example:

To list the query files, send the command: :FETCH:FILE?

If return: 1.wire,2.wire ,,

Then it means that there are 2 files in the current instrument, namely: 1.wire, 2.wire

11.3.15 :FETCH:USB?

-Function: Used to query the list of files in the USB flash drive

Send this command to query the list of files on the USB flash drive.

-Format:

-Query format: :FETCH:USB?

-Return data:

-Data format: file name 1, file name 2 .... File name n

-Query example:

If you want to query the list of files in the USB flash drive, send the command: :FETCH:USB?

If return: 1.wire,2.wire ,,,

Then it means that there are 2 files in the USB flash drive, namely: 1.wire, 2.wire

11.3.16 :FETCH:ITEM?

-Function: Used to query the current test items

Send this command to query the test items in the current instrument.

-Format:

-Query format: :FETCH:ITEM?

-Return data:

-Data format: short break, conductivity, passive element, AC withstand voltage, DC withstand voltage, insulation resistance, instantaneous short break, instantaneous break, instantaneous on

-Query example:

To place a query on the test item, send the command: :FETCH:ITEM?

If return: 1,1,0,0,0,0,0,0,0,0,0

Then it means that there are 2 test items in the current instrument, namely: short circuit break, conductivity

11.3.17 :FETCH:NET:COND?

-Function: For querying the test network of the conductivity resistance

Send this command to query the current test network of conductivity resistance in the instrument.

-Format:

-Query format: :FETCH:NET:COND?

-Return data:

-Data format: pin11,pin12;pin21,pin22;......pinn1,pinn2;

-Query example:

To query the test network for conductivity, send the command: :FETCH:NET:COND?

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

Then the test network for current conductivity is: A01-B01, A02-B02, A03-B03

11.3.18 :FETCH:NET:HV?

-Function: for querying the high voltage test network

Send this command to query the current high voltage test network in the instrument.

-Format:

-Query format: :FETCH:NET:HV?

-Return data:

-Data format: pin11,pin12....pin1m;

pin21,pin22....pin2m.

....

pinn1,pinn2....pinnm.

-Query example:

To query the high voltage test network, send the command: :FETCH:NET:HV?

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

Then the current high voltage test network is: A01-B01, A02-B02, A03-B03

11.3.19 :FETCH:NET:LCR?

-Function: for querying the test network of passive components

Send this command to query the current test network of passive components in the instrument.

-Format:

-Query format: :FETCH:NET:LCR?

-Return data:

-Data format:

type1,pin11,pin12;type2,pin21,pin22;.....typen,pinn1,pinn2.

-Query example:

To query the test network of a passive component, send the command: :FETCH:NET:LCR?

If return: 2,1,33; 3,2,34.

Then the current test network of passive components is: capacitance: A01-B01, resistance: A02-B02

11.4 System Command Set

11.4.1 Test System Command

11.4.1.1 :SYS:MEAS:MEASM

-Function: Setting the test mode

-Format:

-Setting format: :SYS:MEAS:MEASM <data>

-Query format: :SYS:MEAS:MEASM?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - normal test, 1 - repeated test, 2 - cyclic test

-Setting example:

If you want to set the test mode to: Normal test

Then enter the command: :SYS:MEAS:MEASM 0

-Query example:

If the input command is: :SYS:MEAS:MEASM?

Then the return is: 0, indicating that the test mode is set to normal test

11.4.1.2 :SYS:MEAS:RPT

-Function: Setting the number of retests

-Format:

-Setting format: :SYS:MEAS:RPT <data>

-Query format: :SYS:MEAS:RPT?

--data<data>

Data type: integer, 1 byte

Data range: 0~999

Data accuracy: 1

-Setting example:

If you want to set the number of retests to: 5

Then enter the command: :SYS:MEAS:RPT 5

-Query example:

If the input command is: :SYS:MEAS:RPT?

Then the return is: 5, indicating that the number of retests is set to 5

11.4.1.3 :SYS:MEAS:INTV

-Function: Setting the retest interval

-Format:

-Setting format: :SYS:MEAS:INTV <data>

-Query format: :SYS:MEAS:INTV?

--data<data>

Data type: floating point, 4 bytes

Data range: 0~999.9

Data accuracy: 0.1

Data unit: seconds

-Setting example:

If you want to set the retest interval to: 1 second

Then enter the command: :SYS:MEAS:INTV 10

-Query example:

If the input command is: :SYS:MEAS:INTV?

Then the return is: 1, indicating that the retest interval is set to 1 second

11.4.1.4 :SYS:MEAS:PROGM

-Function: Setting the cycle measurement method

-Format:

-Setting format: :SYS:MEAS:PROGM <data>

-Query format: :SYS:MEAS:PROGM?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 --- key trigger, 1 --- continuous trigger, 2 --- automatic trigger

-Setting example:

If you want to set the cycle mode to: key trigger

Then enter the command: :SYS:MEAS:PROGM 0

-Query example:

If the input command is: :SYS:MEAS:PROGM?

Then the return is: 0, which means that the test mode is set to key trigger.

11.4.1.5 :SYS:MEAS:PIN

-Function: Setting after the failure of the point measurement

-Format:

-Setting format: :SYS:MEAS:PIN <data>

-Query format: :SYS:MEAS:PIN?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - repeat test, 1 - next test

-Setting example:

If you want to set the spot test to be repeated after a failure of the test

Then enter the command: :SYS:MEAS:PIN 0

-Query example:

If the input command is: :SYS:MEAS:PIN?

Then the return is: 0, indicating that the test is set to be repeated after the failure of the spot test

11.4.1.6 :SYS:MEAS:EARLY

-Function: Setting premature unplugging

-Format:

-Setting format: :SYS:MEAS:EARLY <data>

-Query format: :SYS:MEAS:EARLY?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If premature unplugging is to be set to: off

Then enter the command: :SYS:MEAS:EARLY 0

-Query example:

If the input command is: :SYS:MEAS:EARLY?

Then the return is: 0, indicating that the premature unplugging setting is off

11.4.1.7 :SYS:MEAS:PULL

-Function: Setting unplugging check

-Format:

-Setting format: :SYS:MEAS:PULL <data>

-Query format: :SYS:MEAS:PULL?

--data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

To set the unplugging check to: off

Then enter the command: :SYS:MEAS:PULL 0

-Query example:

If the input command is: :SYS:MEAS:PULL?

Then the return is: 0, indicating that the unplugging check is set to off.

11.4.1.8 :SYS:MEAS:PINS

-Function: Set the number of start points (when how many feet are detected, the test starts)

-Format:

-Setting format: :SYS:MEAS:PINS <data>

-Query format: :SYS:MEAS:PINS?

--data<data>

Data type: enumerated, 1 byte

Data range:

Null point test - 0

Slot A start-up-1

Slot B start-up-2

Slot C start-up-3

Slot D start-up - 4

10% start-up -5

.....

100% start-up-14

-Setting example:

If you want to set the number of startup points to start the test when the number of legs > 50

Then enter the command: :SYS:MEAS:PINS

-Query example:

If the input command is: :SYS:MEAS:PINS?

Then the return is: 50, indicating that the test is initiated when 50% of the pin is detected

11.4.2 Environmental System Command

11.4.2.1 :SYS:ENVI:KEYV

-Function: Setting the key sound

-Format:

-Setting format: :SYS:ENVI:KEYV <data>

-Query format: :SYS:ENVI:KEYV?

---data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

If you want to set the key sound to: off

Then enter the command: :SYS:ENVI:KEYV 0

-Query example:

If the input command is: :SYS:ENVI:KEYV?

Then the return is: 0, indicating that the key sound is set to off

11.4.2.2 :SYS:ENVI:VOLM

-Function: Setting the buzzer volume

-Format:

-Setting format: :SYS:ENVI:VOLM <data>

-Query format: :SYS:ENVI:VOLM?

---data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - low, 2 - medium, 3 - high

-Setting example:

To set the buzzer volume to: off

Then enter the command: :SYS:ENVI:VOLM 0

-Query example:

If the input command is: :SYS:ENVI:VOLM?

Then the return is: 0, indicating that the buzzer volume is set to off

11.4.2.3 :SYS:ENVI:KLOCK

-Function: Setting key lock

-Format:

-Setting format: :SYS:ENVI:KLOCK <data>

-Query format: :SYS:ENVI:KLOCK?

---data<data>

Data type: enumerated, 1 byte

Data range:

0 - Manual, 1 - Bus

-Setting example:

If you want to set the key lock to: Manual

Then enter the command: :SYS:ENVI:KLOCK 0

-Query example:

If the input command is: :SYS:ENVI:KLOCK?

Then the return is: 0, indicating that the key lock is set to manual

11.4.2.4 :SYS:ENVI:PASSV

-Function: Setting the qualified sound

-Format:

-Setting format: :SYS:ENVI:PASSV <data>

-Query format: :SYS:ENVI:PASSV?

---data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

To set the qualifying sound to: off

Then enter the command: :SYS:ENVI:PASSV 0

-Query example:

If the input command is: :SYS:ENVI:PASSV?

Then the return is: 0, indicating that the qualifying sound is set to off

11.4.2.5 :SYS:ENVI:FAILV

-Function: Setting up bad sound

-Format:

-Setting format: :SYS:ENVI:FAILV <data>

-Query format: :SYS:ENVI:FAILV?

---data<data>

Data type: enumerated, 1 byte

Data range:

0 - off, 1 - on

-Setting example:

To set bad sound to: off

Then enter the command: :SYS:ENVI:FAILV 0

-Query example:

If the input command is: :SYS:ENVI:FAILV?

Then the return is: 0, indicating that the bad sound setting is off

11.4.2.6 :SYS:ENVI:BRI

-Function: Setting the screen brightness

-Format:

-Setting format: :SYS:ENVI:BRI <data>

-Query format: :SYS:ENVI:BRI?

--data<data>

Data type: integer, 1 byte

Data range: 1~10

Data accuracy: 1

-Setting example:

To set the screen brightness to: 5

Then enter the command: :SYS:ENVI:BRI 5

-Query example:

If the input command is: :SYS:ENVI:BRI ?

Then the return is: 5, indicating that the screen brightness is set to 5

11.4.2.7 :SYS:ENVI:DATE

-Function: Setting the system date

-Format:

Format: :SYS:ENVI:DATE <year>,<month>,<day>

-Query format: :SYS:ENVI:DATE?

--data<year>

Data type: Integer, 2 bytes

Data range: 1000~9999

--data < month >

Data type: integer, 1 byte

Data range: 1~12

--Data < day >

Data type: integer, 1 byte

Data range: 1~31

-Setting example:

To set the system date to: 2014-10-30

Then enter the command: :SYS:ENVI:DATE 2014,10,30

-Query example:

If the input command is: :SYS:ENVI:DATE ?

Then the return is: 2014,10,30, indicating that the system date is set to 2014-10-30

11.4.2.8 :SYS:ENVI:TIME

-Function: Setting the system time

-Format:

-Setting format: :SYS:ENVI:TIME <hour>,<min>,<sec>

-Query format: :SYS:ENVI:TIME?

--data < hour >

Data type: integer, 1 byte

Data range: 0~23

--Data < min >

Data type: integer, 1 byte

Data range: 0~59

--Data < sec >

Data type: integer, 1 byte

Data range: 0~59

-Setting example:

To set the system's time to: 17:00:00

Then enter the command: :SYS:ENVI:TIME 17,0,0

-Query example:

If the input command is: :SYS:ENVI:TIME?

Then the return is: 17,0,0, indicating that the system time is set to 17:00:00

11.5 File Command Set

11.5.1 :FILE:SAVE

-Function: Save file

-Format:

-Setting format: :FILE:SAVE <name>

--data<name>

Data type: string, 10 bytes

-Setting example:

To save the current settings as: AMO

Then enter the command: :FILE:SAVE AMO

If the saving is successful, return: OK

11.5.2 :FILE:LOAD

-Function: Read file

-Format:

-Setting format: :FILE:LOAD <name>

--data<name>

Data type: string, 10 bytes

-Setting example:

If you want to read a file with the name AMO

Then enter the command: :FILE:LOAD AMO

If the reading is successful, return: OK

11.5.3 :FILE:DEL

-Function: Delete files

-Format:

-Setting format: :FILE:DEL <name>

--data<name>

Data type: string, 10 bytes

-Setting example:

If you want to delete a file with the name AMO

Then enter the command: :FILE:DEL AMO

If the deletion is successful, return: OK

11.5.4 :FILE:SEND

-Function: Send setup file, sends a 6k size setup file from the computer to the instrument.

-Format:

Command format: :FILE:SEND

Write to setup file

--Example:

If you want to send the setup file: sample.wir to the instrument.

Then enter the command: :FILE:SEND

Then send a binary settings file with a size of 6000

If the sending is successful, return: OK, otherwise return: Error

11.5.5 :FILE:RECE

-Function: To get the setup file from the instrument, i.e. to send the setup file from the instrument to the computer.

-Format:

Command format: :FILE:RECE <sn>?

--Data <sn>

Data type: integer, 1 byte

Data range: 0~100

0 indicates the current file

1~100 indicates the document archive number

Data accuracy: 1

Example:

If the 3rd file in the instrument is to be read

Then enter the command: :FILE:RECE 3?

6000 bytes of binary content if the read is successful.

11.5.6 :FILE:NAME

-Function: Read current file name

-Format:

Read format: :FILE:NAME?

Data type: string.

-Setting example:

If the current file name is read

Then enter the command: :FILE:NAME?

If deletion is successful, return: AMO

11.6 DISP Command Set

11.6.1 :DISP Display Interface Command

-Function: Display the interface of each module

-Format:

-Setting format: :DISP <data>

--data<data>

Data type: enumerated, 1 byte

Data range:

OFF --- Turn off the display

ON---Turn on the display

MAIN---Display the main interface

MEAS - Display the test interface

SETUP---Displays the setup interface

LEARN - Display the learning interface

STAT - Display the statistics interface

FILE---Display the file interface

SYS - Display the system interface

UTIL – Display the auxiliary interface

-Setting example:

If you want to display the test interface

Then enter the command: :DISP MEAS

11.7 Other Command Set

11.7.1 :STAT:CLEAR

-Function: Zeroing the statistical data

-Command format: :STAT:CLEAR

--Example:

If the input command is: :STAT:CLEAR

Then the total number, the number of passes, the number of defects, the pass rate, etc. are all set to zero.

11.8 Public Command Set

11.8.1 *IDN

-Function: Query instrument model, version information

-Query format: *IDN?

-Query example:

If the input command is: *IDN?

Then return: TH610 Ver 1.00"

11.8.2 *TRG

-Function: Starts the test and returns the test data.

-Query format: *TRG

-Query example:

If the input command: *TRG

The instrument then starts the test, and when the test is finished, it automatically returns the data.

Chapter 12 Appendice

12.1 Warranty

Warranty period: The warranty period of one year shall be calculated from the date of shipment of the instrument purchased from the Company by the user unit, and from the date of shipment of the instrument purchased from the operating department. Warranty should be issued with the instrument warranty card. 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 maintenance of this instrument requires professional and technical personnel to carry out maintenance; maintenance, please do not replace the internal components of the instrument without authorization; maintenance of the instrument, the need to re-measure the calibration, so as not to affect the accuracy of the test. Due to the user blind maintenance, replacement of instrument components caused by damage to the instrument is not covered by the warranty, the user should bear the maintenance costs.

Instruments should be protected from sunlight and humidity and should be used properly in the environment described in 1.4.

When the instrument is not used for a long period of time, it should be sealed in the factory box.

DISCLAIMER: The Company may make improvements and enhancements to the performance, functions, software, structure, appearance, accessories, packaging, and manuals of this product without notice! If this causes doubt, please contact our company.