User Manual

4-Wire Universal Cable Harness

8761		
S/W Ver	**Firmware Ver**	**Date**
1.13		**Oct-2021**

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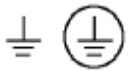
Chapter 1 Precautions

This instrument is not suitable for outdoor use, especially in humid or highly dusty locations. Improper use of this instrument may result in electric shocks. Please read the safety descriptions carefully before using this tester in order to avoid improper or wrong use causing accidents.

1.1 Safety Signs

The following safety signs may appear in this manual and on this instrument.

: Note, please read this manual carefully for these contents.

 : Protective ground terminal: Please ground this terminal properly before using this tester in order to avoid electrical shock accidents from coming in contact with the case with power leakages.

CAUTION: Warning Sign: When the product is used improperly, it may cause improper results to this instrument or other DUT.

WARNING: Warning Sign: When the product is used improperly, it may cause injuries or even death.

1.2 Do not modify or make internal adjustments to this machine

Without authorization from our company, do not install replacement components or perform any modifications or adjustments to this machine on your own in order to avoid increasing the danger of the machine or causing damages to the machine.

1.3 Static Electricity

Do not allow objects with static electricity come in contact with this machine in order to prevent damages to the machine.

1.4 Ground

There is a ground terminal inside the power socket of this tester. Please ground this terminal properly in order to prevent electrical shock accidents from occurring when touching the case.

1.5 Power

Power cables that comply with the local country specifications must be used, and connectors applicable to IEC320 connectors must be used for the connection of this instrument. Users must ensure that the ground cable is properly grounded. If a fuse is included in the power plug, use fuses that comply with T(Time-lag)1.25 ampere safety regulations, and ensure that it is AC power supply with a voltage between 98V-132V/195V-264V @50/60Hz.

1.6 Warm Up

The tester can operate normally once the power is turned on; however, in order to achieve the accuracy within specification, please turn on the machine in advance and let it warm up for 30 minutes before use.

1.7 Machine Malfunction

When the instrument malfunctions, please send the machine back to the original manufacturer to have professionals repair it for you in order to ensure the accuracy and operation safety of the meter.

1.8 Test End

Please switch the machine power off when the machine is not used for an extended amount of time.

1.9 Placement and Storage

The operating temperature and humidity range of this machine is 18 ºC - 28 ºC, 80% RH; the error in measurement data will be greater if this range is exceeded. The storage temperature and humidity range of this machine is -20 ºC - 70 ºC, 80% RH. In order to achieve accurate testing and for safety considerations, do not place this machine in environments with direct sunlight exposure, high temperature, high humidity, frequent vibrations, excessive dust, or unable power grid.

1.10 Emergency Handling

When there is an electric shock or if the DUT or machine catches on fire, please switch off the power and unplug the power cable.

Chapter 2 General description

2.1 Package and Accessories

Standard accessories included in the 8740 series cable tester package should include the following items:

- 1 x 8740 cable tester
- 2 x 2 wire 64 pins to 2 wire 64 pins converter
- 1 x Automatic pin search probe
- 1 x Power cable
- 1 x User manual (CD)
- 1 x Test report

2.2 Description of Nouns and Symbols Used in This Manual

- [xxxx] represents the name of buttons on the tester; for example, [TEST].
- [Sy[xxxx] This represents the buttons displayed on the LCD; y is the Soft Key number (1-6) and xxxx is the button name, for example: S1[PROG].
- {xxxxxxxx} represents the text message displayed on the LCD.
- |xxxx| This represents the switching option name on the LCD; for example |ON|
- <Pxx> This represents related reference page; for example <P21>
- (xxxx) English Description

2.3 Basic Operations of the Tester

- Alphanumeric input — Alphanumeric characters need to be inputted when saving files; the design used for this system is Edit Key. The first time it is pressed it will be the number; the 2nd-4th time will be the capital English letter from the left to the right on top of the number buttons respectively; examples are as follows:

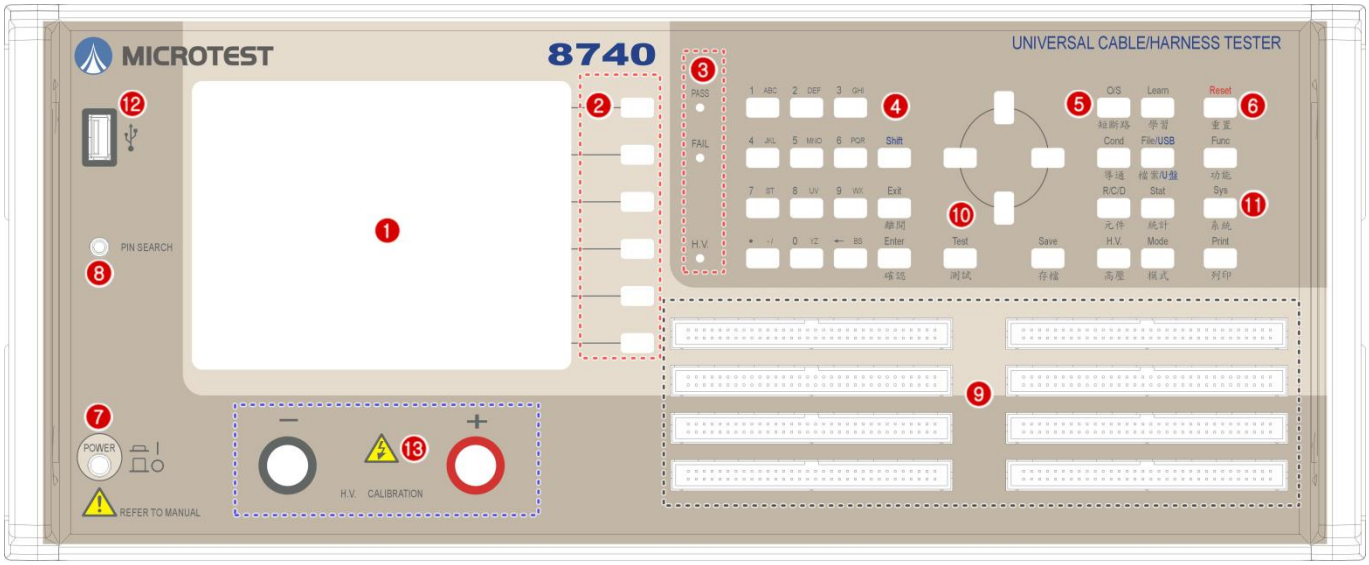
Button name	Number of times pressed	LCD display
1	1	1
→	1	1
1	2	1A
→	1	1A
1	3	1AB

- Moving — You can use [←][↑][→][↓] to move the cursor.
- Confirm — [Enter] is the general confirm button.
- Test/Exit — [TEST] is the start testing button and [Exit] is the exit button.

2.4 Front and Rear Panel Functions

2.4.1 Front Panel

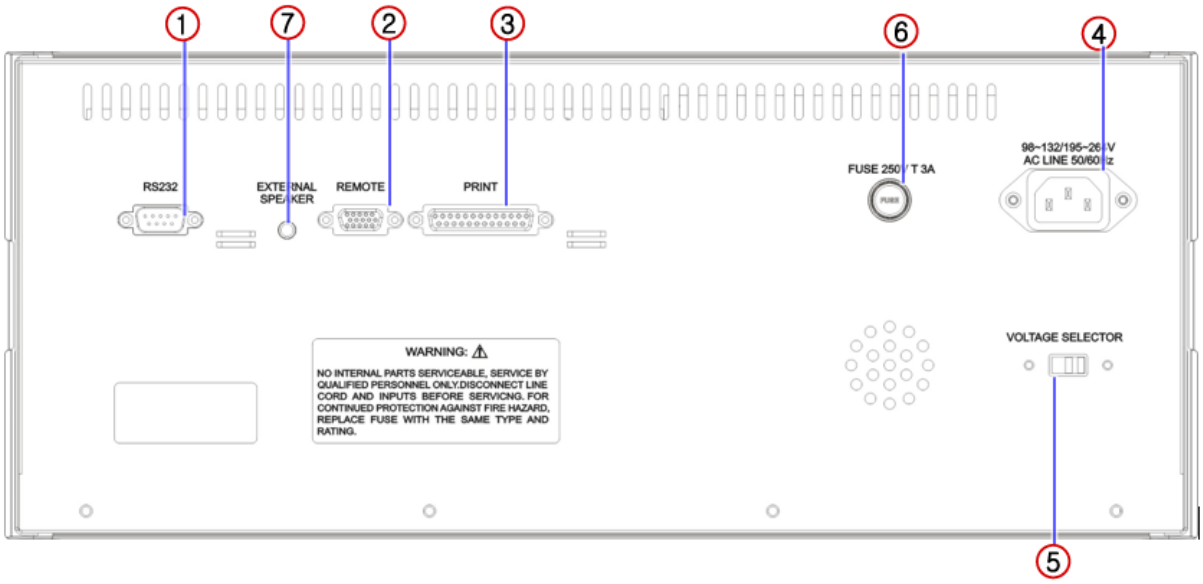
256 model:



(1) LCD display
(2) S1-S6 operation auxiliary buttons (Soft Key)
(3) PASS & FAIL & HIPOT LED
(4) Control button (Edit Key) group
(5) Test shortcut button group
(6) System reset (Reset) button
(7) Power switch
(8) Pin search connector, 512Pin has 8 slots
(9) 512Pin has 8 slots
(10) Test button [TEST]
(11) System button (Sys Key) group
(12) USB flash drive
(13) High voltage correction output connector

2.4.2 Rear panel

256 model:



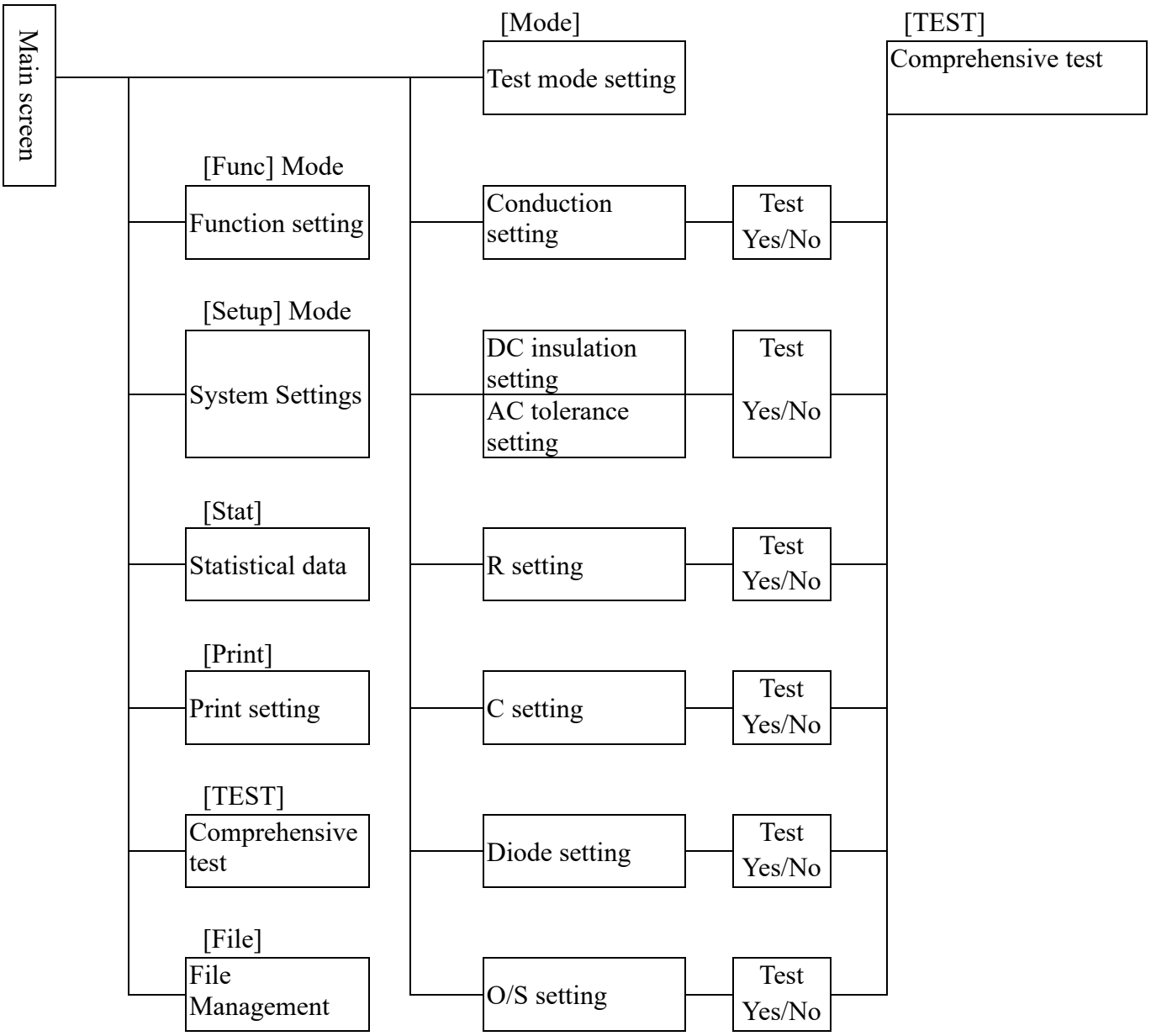
(1) Serial port (RS-232 Port)
(2) Remote control port (Remote Port)
(3) Printer Port
(4) AC power input (230/115 VAC)
(5) 115/230V switch
(6) Fuse holder 250V/T1.25A.
(7) Audio output socket



Note:

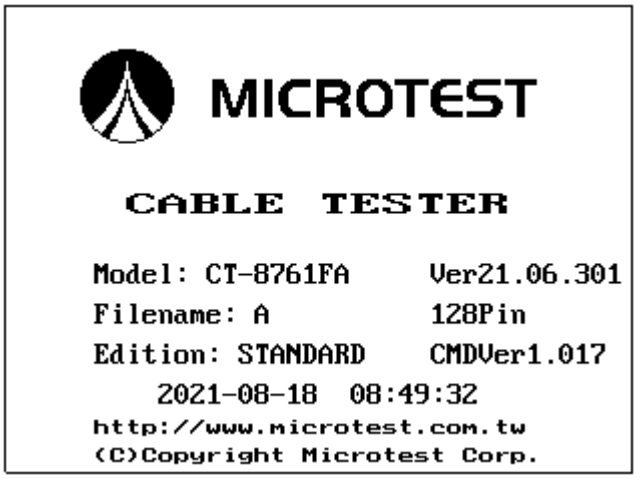
1. **Please confirm whether the AC input voltage setting is the same as the voltage used.**
2. **The input power must be grounded when using the machine.**

2.5 Function Block Diagram



2.6 Installation

(1) Please confirm the power of the power supply and that the power source connected is AC115V or 230V.
(2) Turn on the power; the system will execute the self-test program.
(3) When the execution of the self-test is completed, it will officially enter the 8740 system; the LCD display will be as follows:



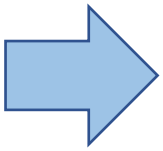
(4) To end the system, please press the [Power switch] to end.

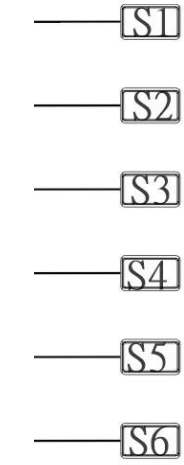


Note:

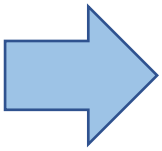
1. **Self-test will be executed after powering on, which will take approximately 60-80 seconds.**
2. **Under the {READY} status, the operation auxiliary buttons S1-S6 will have the following adjustment functions.**

S1	Makes the backlight of the LCD brighter
S2	Makes the backlight of the LCD darker
S3	Increases the volume level
S4	Decreases the volume level
S5	Software version and update date display
S6	Switch between Chinese/English





1	Quickly switches to the short circuit table function (same as [O/S])
2	Quickly switches to the learning function (same as [Learn])
3	Quickly switches to file manager (same as [File])
4	Quickly switches to conductance edit function (same as [Cond])
5	Quickly switches to the component edit function (same as [R/C/D])
6	Quickly Switch to the Statistics Function (Same as [Stat])





2.7 Button Instructions

[1] System (Sys Key) button group

[Func]	System function menu
[Sys]	System setting menu
[Print]	Print function menu

[2] Test shortcut (Fast Key) button group

[File]	File manager setting
[Learn]	Short circuit learning
[Stat]	Display test statistics data
[Mode]	Test mode setting
[O/S]	Short circuit table display
[Cond]	Conductance test edit
[Stat]	Statistics Function
[R]	Resistance setting edit
[C]	Capacitor setting edit
[D]	Diode setting edit
[H.V.]	DC insulation/AC tolerance setting edit

[3] Control button (Edit Key) group

Alphanumeric buttons Used to enter alphanumeric characters, including 0-1, A-Z and · /

[BS] (←) Back space

Direction buttons Used to move the cursor; includes [←] [→] [↑] [↓] [PgUp] [PgDn] makes it easier to edit data.

[Exit] Makes the system exit the current status and return to the previous status.

[4] [Enter]**Confirm button**

[5] [TEST]**Start test button**

[6] Operation Auxiliary Button (Soft Key) Group, S1-S6 are located to the right of the LCD; they are used for auxiliary operations/settings.

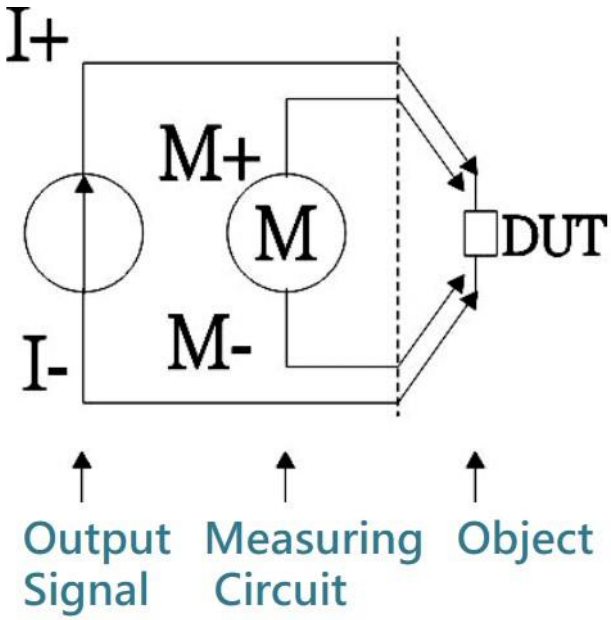
[7] [Reset] **System reset button, which works the same as warm start**

[8] [Save] **Save file button**

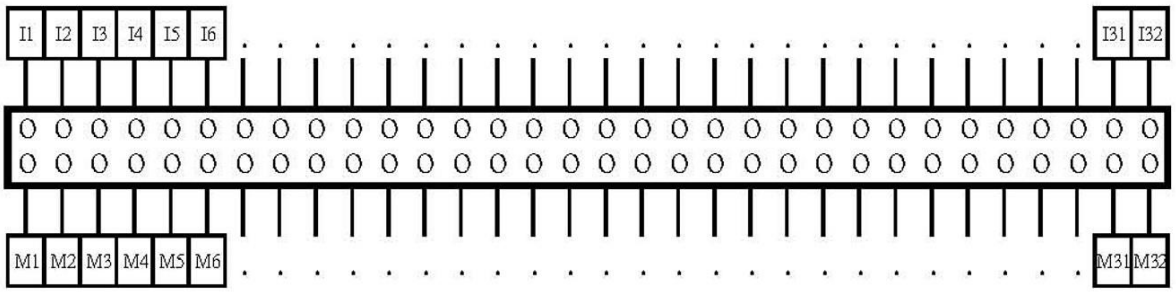
[9] [Shift] **Switch button function button**

2.8 Measurement method

The measurement principle of the four-wire testing machine is as follows:



The definition of the connector is as follows:



Chapter 3 Function setting and System setting

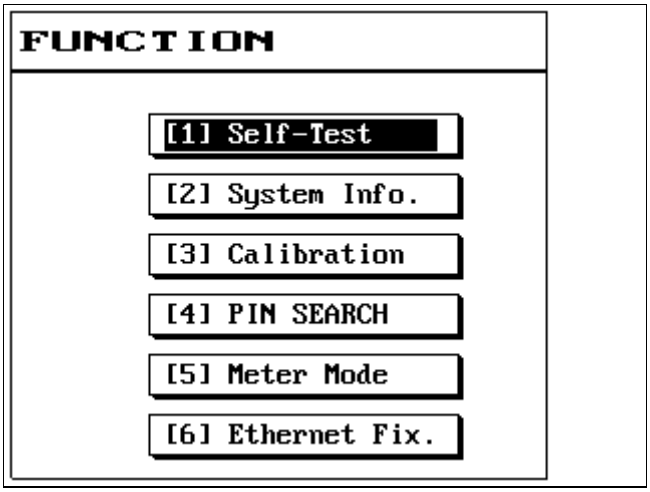
The function settings and analysis modes include main system functions [Func], system settings [Setup] and print function [Print]; descriptions are as follows:

3.1 Function

Provides the main function for the system; its operations and function descriptions are as

follows:

(1) Press [Func].
(2) The LCD screen will display as follows:

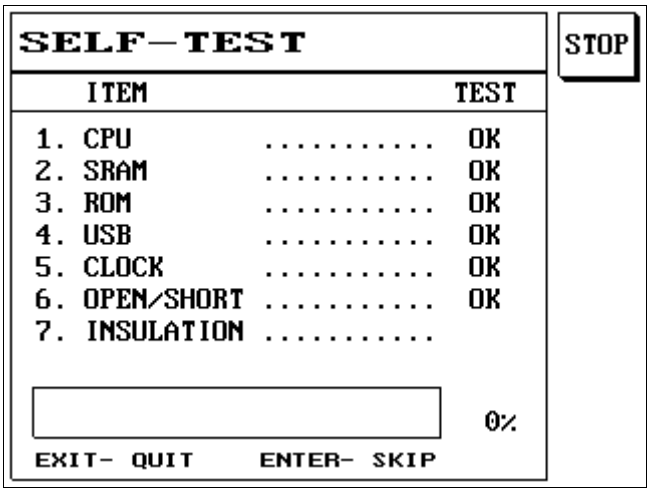


(3) Please use the [↑] or [↓] buttons to select the item needed.
(4) Press [Enter] to enter the selected item function.
(5) Press [Exit] to return to the previous screen.

3.1.1 Self-test

This function allows the setting for whether this machine will execute the self-test function immediately upon powering on.

(1) Press [Func]; please use [↑] or [↓] to select Self-Test and then press [Enter].
(2) The system will now execute the self-test function.
(3) The LCD screen will display as follows:

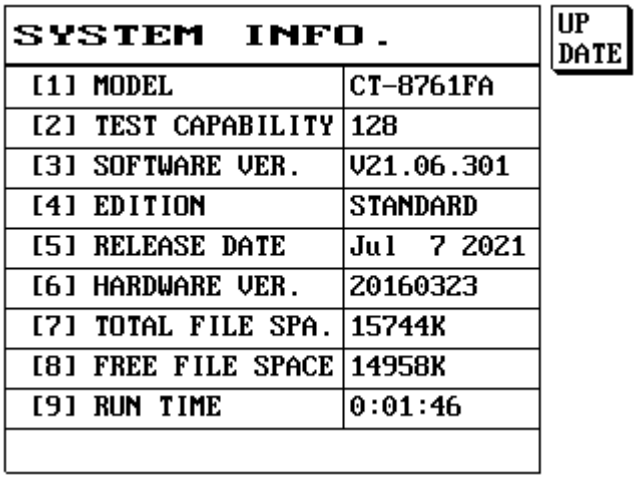


(4) Press [Exit] to exit

3.1.2 System Info.

This item allows for the viewing of the 8740 machine and version information; it lists the machine's model number, test pins, total space used by files, and the total remaining space, etc. And it can perform system update.

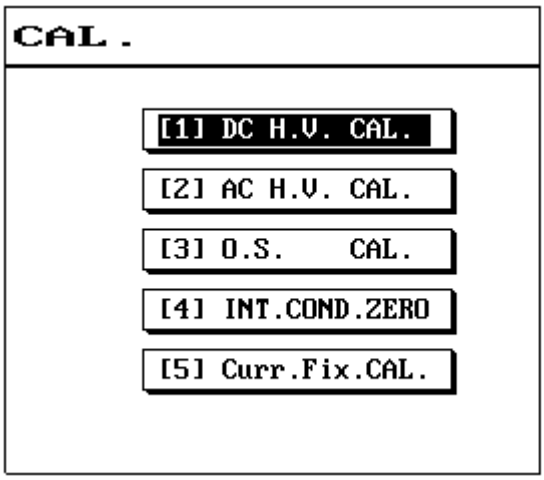
(1) Press [Func]; please use [↑] or [↓] to select System Info and then press [Enter].
(2) The LCD screen will display as follows:



3.1.3 Calibration

This function includes [1] DC H.V.CAL, [2] AC H.V. CAL [3] AC H.V. CAL [4] Curr. Fix. CAL.

(1) Press [Func].
(2) Please use [↑] or [↓] to select Calibration and then press [Enter].
(3) The LCD screen will display as follows:

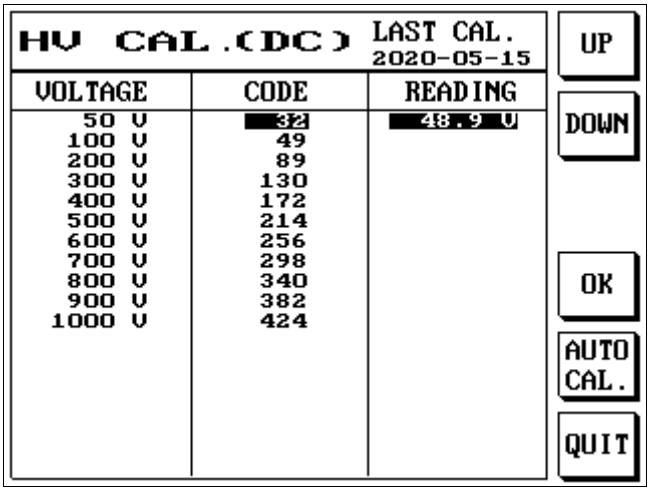


(4) Press [Exit] to exit.

DC H.V.CAL

The DC high voltage correction is used to adjust the READING (test value) closest to the DC setting value.

(1) Press [Func].
(2) Please use [↑] or [↓] to select Calibration and then select DC H.V. CAL. and press [Enter].
(3) The LCD screen will display as follows:

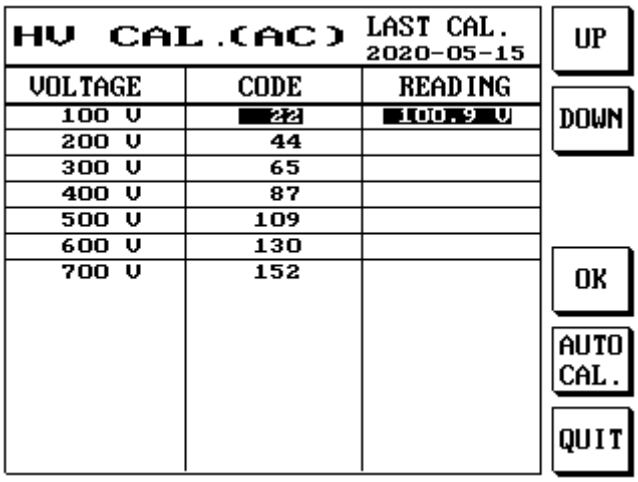


(4) Press S1 [UP] or S2 [DOWN] to adjust the READING (test value) closest to the DC setting value. Or S5 for automatic adjustment.
(5) When setting is complete, please press S4 [OK].
(6) To cancel the set data, simply press S6 [QUIT].

AC H.V. CAL

The AC high voltage correction is used to adjust the READING (test value) closest to the AC setting value.

(1) Press [Func].
(2) Please use [↑] or [↓] to select Calibration and then select AC H.V. CAL. and press [Enter].
(3) The LCD screen will display as follows:

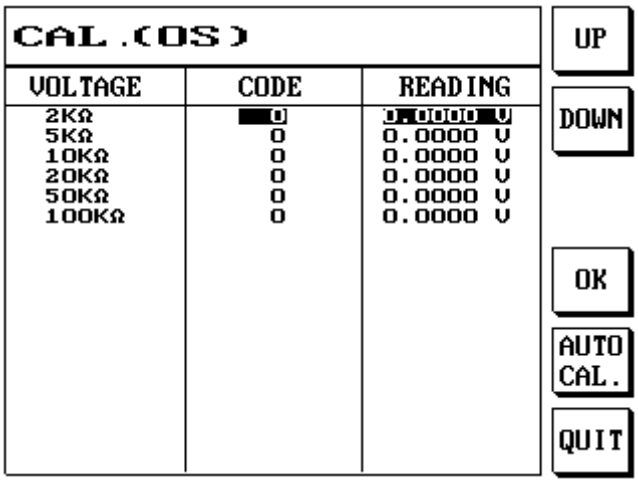


(4) Press S1 [UP] or S2 [DOWN] to adjust the READING (test value) closest to the DC setting value. Or S5 for automatic adjustment.
(5) When setting is complete, please press S4 [OK].
(6) To cancel the set data, simply press S6 [QUIT].

O.S. CAL

The short-circuit correction function is to adjust the setting of Read (measurement value) that is most similar to the short-circuit judgment value.

(1) Press [Func].
(2) Please use [↑] or [↓] to select Calibration and then select AC H.V. CAL. and press [Enter].
(3) The LCD screen will display as follows:

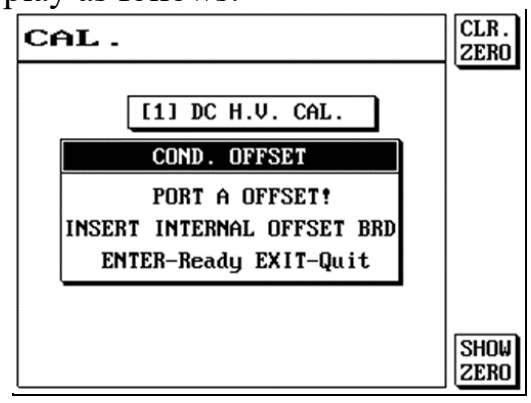


(4) Press S1 [UP] or S2 [DOWN] to adjust the READING (test value) closest to the DC setting value. Or S5 for automatic adjustment.
(5) When setting is complete, please press S4 [OK].
(6) To cancel the set data, simply press S6 [QUIT].

INT. COND. ZERO

This function can execute the internal resistance offset action of the machine.

(1) Press [Func].
(2) Please use [↑] or [↓] to select Calibration and then select INT. COND. ZERO and press [Enter].
(3) The LCD screen will display as follows:

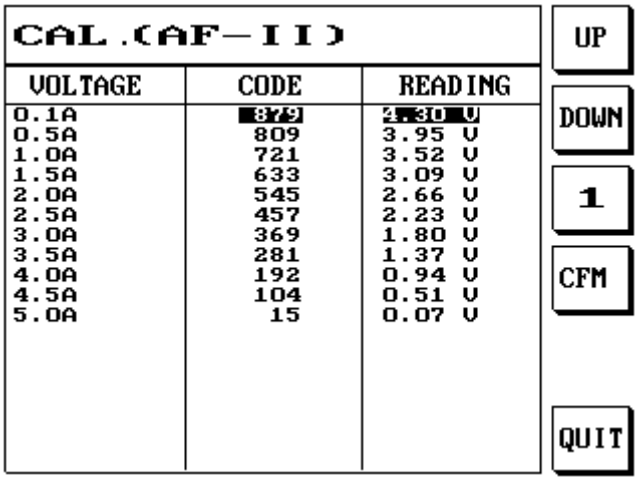


(4) Press [Enter] to execute the internal resistance offset action (when you want to execute internal resistance offset, please first insert the INTERNAL OFFSET board).
(5) If PORT A (slot A) completed internal resistance offset, the LCD will display a message asking whether to continue to offset the internal resistance of PORT B (slot B). If the machine you purchased is 256PIN, it will offset the internal resistance all the way to PORT D in sequence.
(6) Change the offset board to the COND OFFSET board, and repeat steps (4) and (5).
(7) Change the offset board to the 50Ω COND offset board for PORT A (slot A) for execution.

Constant Current Box Calibration:

This function is an optionally purchased fixture calibration option.

(1) Press [Func].
(2) Please use [↑] or [↓] to select measurement parameter calibration, and then select constant current box calibration Curr. Fix. CAL and press [Enter].
(3) The LCD screen will display as follows:



3.1.4 Pin Search

This function can display which is the current output pin.

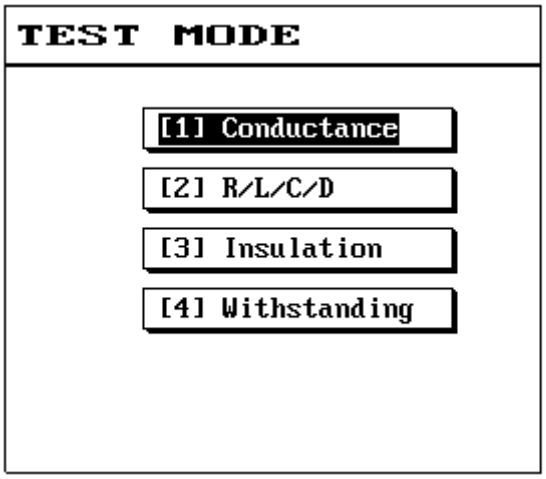
(1) Press [Func].
(2) Please use [↑] or [↓] to select pin search and then press [Enter].
(3) Connect the probe to the pin search connection, and point the probe to the pin you want to find out.
(4) The LCD screen will display as follows:



(5) A36 and B29 in the figure represents the 36th pin of slot A and the 29th pin of slot B respectively.

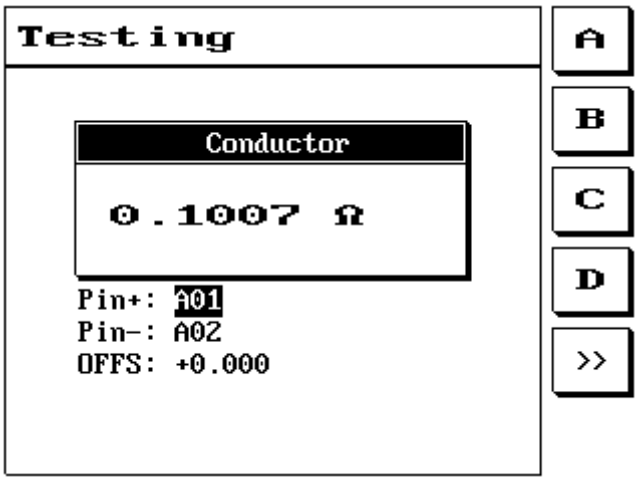
3.1.5 Meter Mode

Here can select to measure conductance, R/L/C/D, insulation, withstanding.



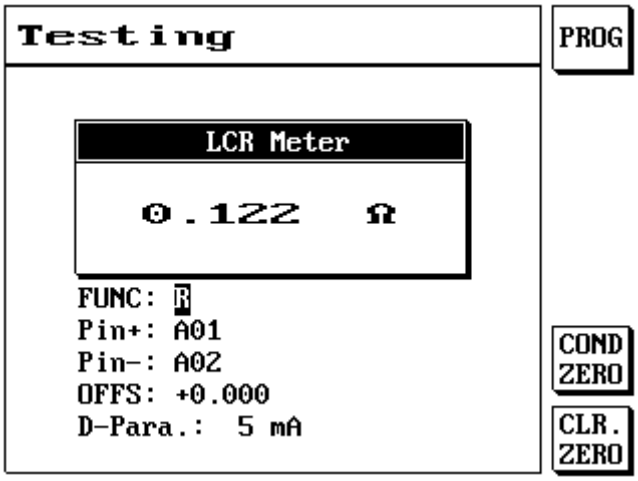
(1) Conductance

Measure conductance between setting pins.



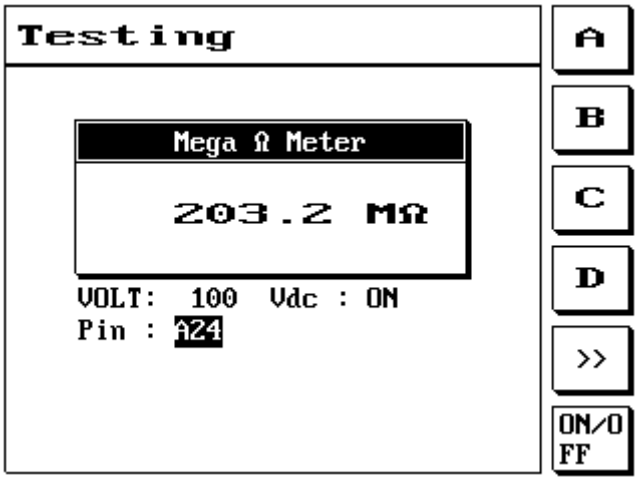
(2) R/L/C/D

Setting Func, pin+ and pin- then insert the DUT to test.



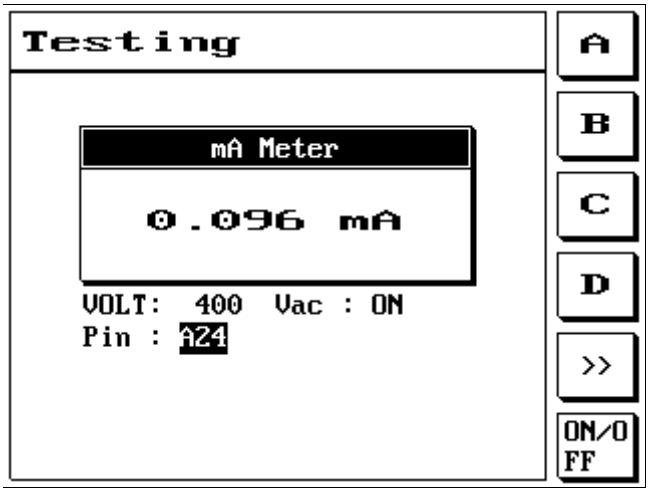
(3) Insulation

Setting VOLT,PIN and press ON/OFF(S6) to test insulation.



(4) Withstanding

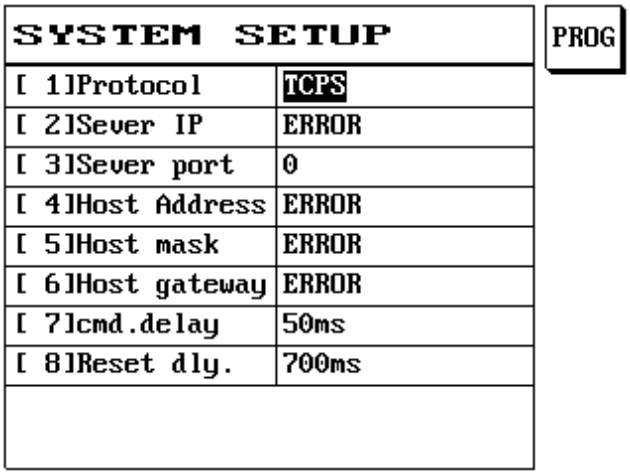
Setting VOLT,PIN and press ON/OFF(S6) to test withstanding.



3.1.6 Ethernet Fixture Setting (Ethernet Fix.)

This function sets the protocol, IP, and server port, etc. for networking.

(1) Press [Func].
(2) Please use [↑] or [↓] to select find network fixture setting (Ethernet Fix.) and press [Enter].
(3) The LCD screen will display as follows:



[1] Protocol:
TCPC: Transmission Control Protocol Client
TCPS: Transmission Control Protocol Server
[2] Sever IP: IP address of server
[3] Sever Port: Server terminal (port) 0-65535

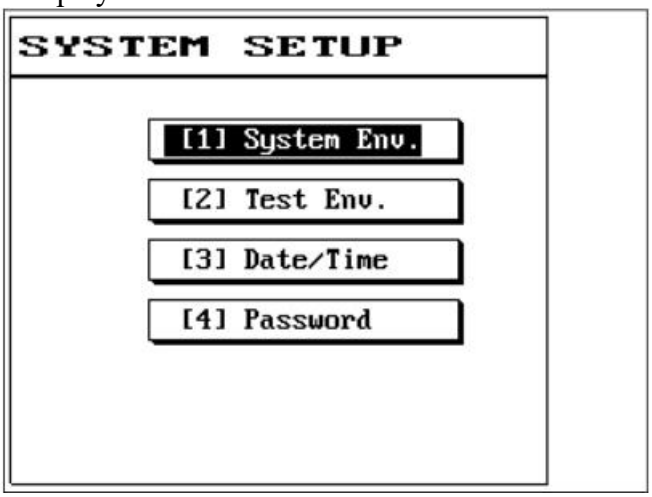
[4] Host Address: Host address
[5] Host Mask: Host mask (mask)
[6] Host Gateway: Host gateway (gateway)
[7] Instruction Delay: Delay time 50-9999ms
[8] Reboot Delay: Delay time 700-9999ms

3.2 System Setup (SYS)

System setting includes system configuration and test related action settings; their operation and function descriptions are as follows:

(1) Press [Sys].

(2) The LCD screen will display as follows:

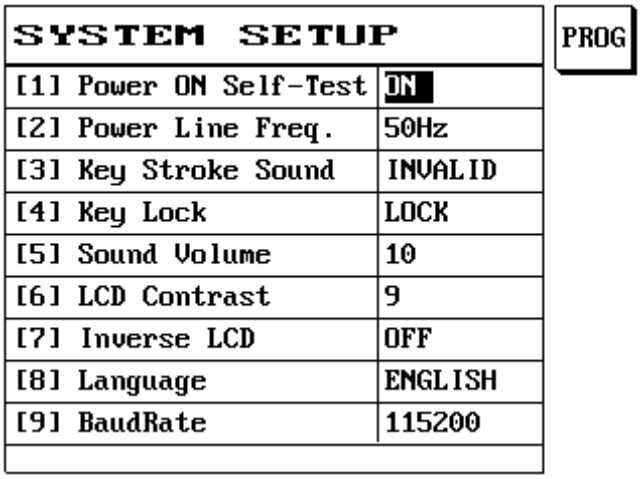


(3) Please use [↑] or [↓] to select the item needed and then press [Enter].

(4) Press [Exit] to exit when completed.

3.2.1 Setting the System Environment

(1) The LCD screen will display as follows:



(2) Please use [↑] or [↓] to select the item needed.

(3) If needed, please press S1 or ←→ [Item selection] to switch.

(4) Press [Exit] to exit when completed.

[1] Power ON Self-Test

There is a total of two options: The default value is │On│.

On: Perform power on self-test.
Off: Do not perform power on self-test.

[2] Power Line Freq

Set the input power frequency (50Hz/60Hz).

[3] Key Stroke Sound

This tester allows enabling/disabling button sounds according to the needs. The default value is |ALLKEY|.
ALLKEY: Set it so that there are sounds when the buttons are pressed.
DISABLE: Set it so that there are no sounds when the buttons are pressed.
VALID: When the button is valid, there is sound when the button is pressed.
INVALID: When the button is invalid, there is sound when the button is pressed.

[4] Key Lock

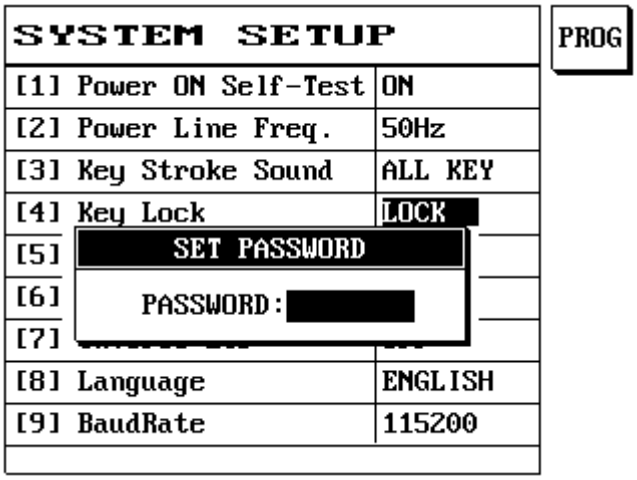
This machine provides key lock protection in order to prevent data from being modified randomly; please first go to system **settings to change the system password** and then go to **key lock** and select | Lock | before this function can be used.



Note:

1. **A password must be entered when the release key lock protection is selected, so please read the User Manual carefully.**

i. Press [Sys] and use [↑] or [↓] to select this item function.
ii. Press S1 (PROG) or →← [Item selection].
iii. The LCD screen will display as follows.



[5] Sound Volume

Press S1 or →← [Item selection] to adjust the volume size (1~10).

[6] LCD Contrast

Press S1 or →← [Item selection] to adjust the LCD brightness level.

[7] Inverse LCD

Press S1 or →← [Item selection] to switch the LCD display method.

[8] Language

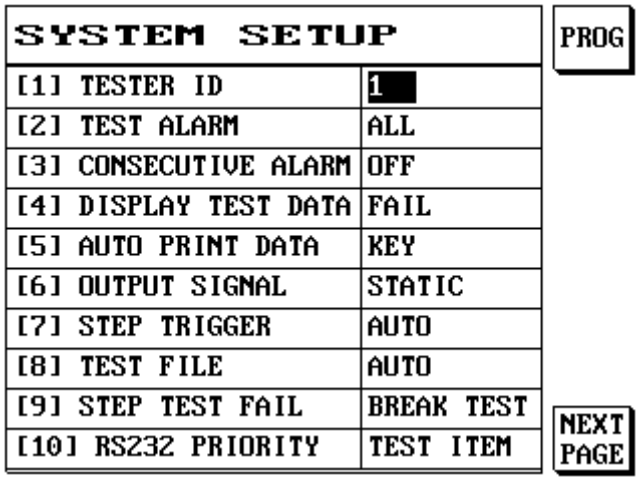
Press S1 or →← [Item selection] to switch between Chinese or English display.

[9] Baud Rate

Press S1 or →← [Item Selection] to switch between1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, and 115200.

3.2.2 Setting the Test Environment

(1) The LCD screen will display as follows:



8c

(2) Please use [↑] or [↓] to select the item needed.
(3) If needed, please press S1 (PROG) or ←→ [Item selection] to switch.
(4) Press [Exit] to exit when completed.

[1] TESTER ID

Allows assigning an ID for this tester.

[2] TEST ALARM

This function provides alarms for test results; there are a total of 4 options that can be set according to the needs.

ALL There is sound whether the result of the DUT is good or failed.
NO There is no sound whether the result of the DUT is good or failed.
PASS There is only sound when the result of the DUT is good.
FAIL There is only sound when the result of the DUT failed.

[3] CONSECUTIVE ALARM

When errors occur during testing, a continuous alarm will sound.
ON: Enables the consecutive alarm function.
OFF: Disables the consecutive alarm function.

[4] DISPLAY TEST DATA

This function is used to set the display of the test statistical data and print format; there are a total of three options.
ALL Display and print test data whether there are errors or not.
NO Do not display and print test data whether there are errors or not.
FAIL Display and print error step.

[5] AUTO PRINT DATA

Whether to print test data automatically. There is a total of two options and the default value is |Key|.

KEY: Auto print data mode is off and keys are used to control whether to print the test data.
AUTO: Auto print data mode is on.

[6] OUTPUT SIGNAL

Selects signal output mode. There are three modes: STATIC, PULSE, and ON.

OFF: Remote control with no output.
STATIC: Remote control is continuous output until the next test. When you are unsure of the PLC reception speed, please set it as continuous mode, and note that the output signals all have a pull-up resistor of 4.7K when sent to PLC input.
PULSE: When the remote control has a pulse output of 200ms. Users can set the pulse width according to their needs.

[7] STEP TRIGGER

Selects the step start mode. There are three modes. KEY, AUTO, and EXTERNAL.

[8] TEST FILE

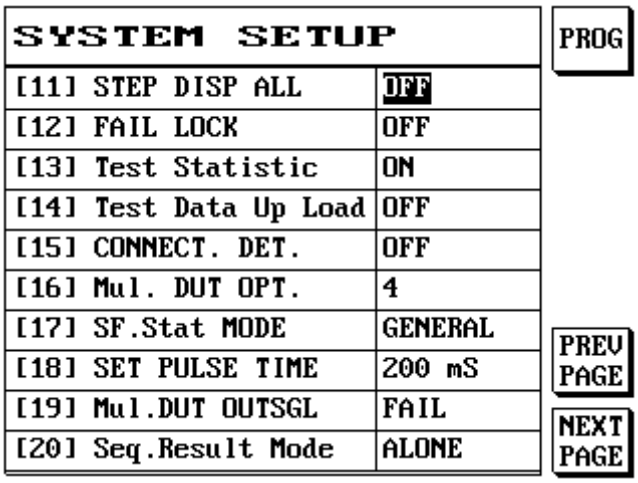
Choose whether to use SINGLE or MULTI-STEP test.
SINGLE: Current file test (which is the {**Current file**} displayed on the main screen).
MULTI-STEP: Step file selection test.
AUTO: Use step file test when there are step files, and use current file test if there are none.

[9] STEP TEST FAIL

Processing method to use when the step file test failed. Available selections include BACK FIRST, REPEAT FIRST, BREAK TEST and TEST ALL.

[10]RS232 PRIORITY

Choose TEST ITEM or MUL.DUT to upload to RS-232 first.



[11]STEP DISP ALL

Whether to display the steps when using step file test.
ON: Yes
OFF: No

[12]FAIL LOCK

Lock the keys when test failed. Test signal must be sent remotely in order to unlock.

[13]TEST Statistic

Whether the keep statistics of the test results.

[14]Test Data Up Load

Function to select whether to upload the test results.
OFF: Do not upload the test results.
USB STORE: Generates a test result file on the USB flash drive.
TO PC USB: Transmits the test result to the computer terminal through the RS232 interface.

[15]CONNECT. DET

Tests the step files one by one and ends the test when PASS is matched. The test result is PASS. If the test results of all step files failed, the test result is FAIL. When this function is enabled, the function becomes invalid when "[9] Step test fail".

[16]Mul. DUT OPT

4: The maximum number of DUTs that can be set for multi-DUT is 4 sets.
14: The maximum number of DUTs that can be set for multi-DUT is 14 sets (expansion box required for use with REMOTE signal output).

[17]SF. Stat MODE

General: Statistics is performed once the test has completed.
Empty: After DUT has been removed when test has completed, statistics is performed once the short-circuit breaker is in an empty state.
Multi-DUT MUL.DU: When the test has completed, multiple DUTs will be included in the statistics.

[18]SET PULSE TIME

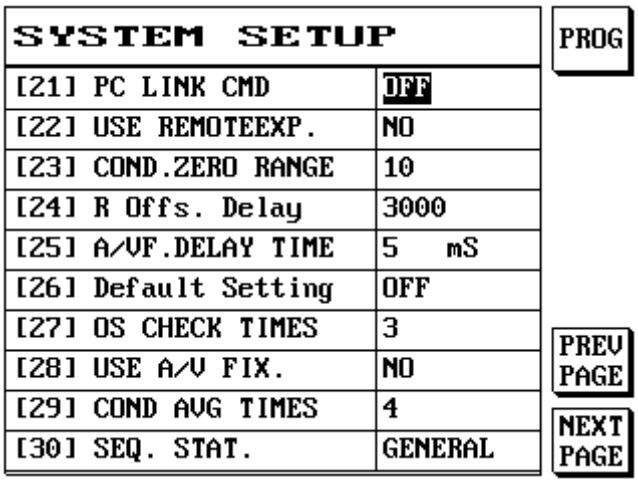
The pulse holds time 1-1000s when pulse mode is used for the REMOTE signal output.

[19]Mul. DUT OUTSGL

PASS: Test result is PASS output signal.
FAIL: Test result is FAIL output signal.

[20]Seq. Result Mode

Individual MERGE: Output result for each step individually.
Merge ALOND: Merge (OR) output results of each step.



[21]PC LINK CMD

ON: Used with official connection software.
OFF: Not used with official connection software.

[22]USE REMOTEEXP.

ON: Enable remote expansion box.
OFF:Disable remote expansion box.

[23]COND.ZERO. RANGE

When the offset value exceeded the value set, give up offset 1-45.

[24]R Offs. Delay

When component R is testing delay offset 3000-60000.

[25]A/VF. DELAY TIME

When the fixture current box is testing, delay 1ms-1000mS after outputting current.

[26]Default Setting

ON: Execute reset to default setting.
OFF: Do not execute reset to default setting.

[27]OS CHECK TIMES

If the number of short-circuit test results failed is the same as the number of times set, determine the result as fail 1-1000.

[28]USE A FIX

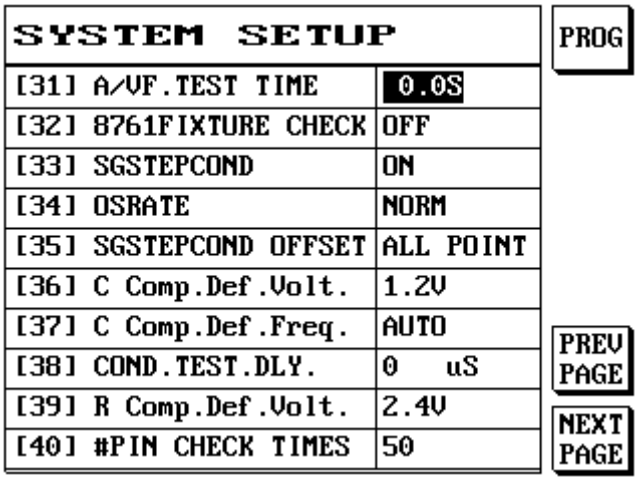
No: No using current box.
A I: Use first generation current box.
A II: Use second generation current box.

[29]COND AVG TIMES

Conduction test times 1-99.

[30]SEQ. STAT

General: Statistics is performed once the test has completed.
Multi DUT MUL.DU: When the test has completed, multiple DUTs will be included in the statistics.



[31]A/VF. TSET TIME

Total test time for fixture current box; the test results within this time are aggregated and averaged. 0 means single test.

[32] 8761 FIXTURE CHECK

To check the Output pin sense and force is at the same point on the fixture.

OFF: Disable this function.
First: Enable this function at first time.
On: Enable this function every time.

[33]SGSTEPCOND

To enable conduction test under single step mode.

On: Enable this function.
Off: Disable this function.

[34] OS RATE

FAST: OS test speed-fast (Default)
NORM: OS test speed-normal

[35] SGSTEPCOND OFFSET

ALL POINT: Offset the single step conductance together.
SGPOINT: Offset the single step conductance one by one.

[36] C Comp.Def.Volt.

Set the default voltage for capacitor test.

[37] C Comp.Def.Freq

Set the default frequency for capacitor test.

[38] COND.TEST.DLY.

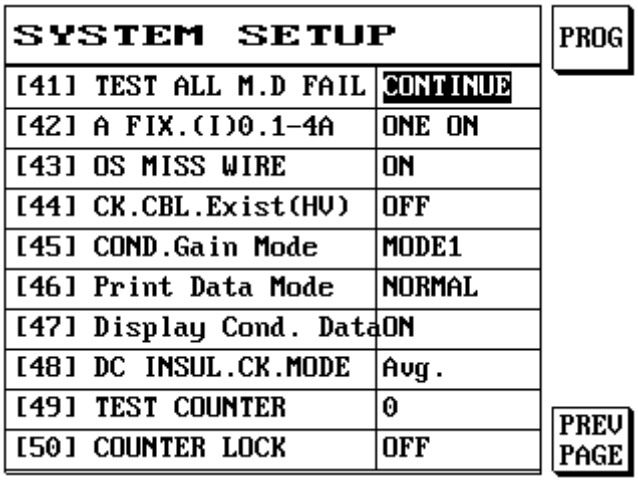
Set the delay time of C.C(Constant Current) test.

[39] R Comp.Def.Volt.

Set the default voltage for resistance test.

[40] #PIN CHECK TIMES

The number of confirmations for the point-finding function, the point is confirmed as the point if the number of point detection matches the number of confirmations



[41]TEST ALL M.D FAIL

Fail CONTINUE: Multi-DUT test is used with continuous testing under all test completed mode; when there are DUTs that fail, continue testing until test has completed.
All Fail STOP: Multi-DUT test is used with continuous testing under all test completed mode; stops when all DUTs fail.

[42]A FIX. (I) 0.1-4A

ALL ON: All channels output current.
ONE ON: Fixed single channel outputs current.

[43]OS MISS WIRE

ON: Enables the OS misplacement detection function.
OFF: Disables the OS misplacement detection function.

[44] CK. CBL. Exist (HV))

ON: Gives a warning when DUT is removed before high voltage test is completed; the DUT must have a short-circuit breaker.
OFF: Disables the warning function.

[45] COND.Gain Mode

Mode1: stability-Middle (Default)
Mode2: stability-High
Mode3: stability-Low

[46] Print Data Mode

Normal: Print all the test result.
Simple: only print total pass or fail.

[47] Display Cond. Data

On: Display conductance on the test result.
Off: Undisplay conductance on the test result.

[48] DC INSUL. CK. MODE

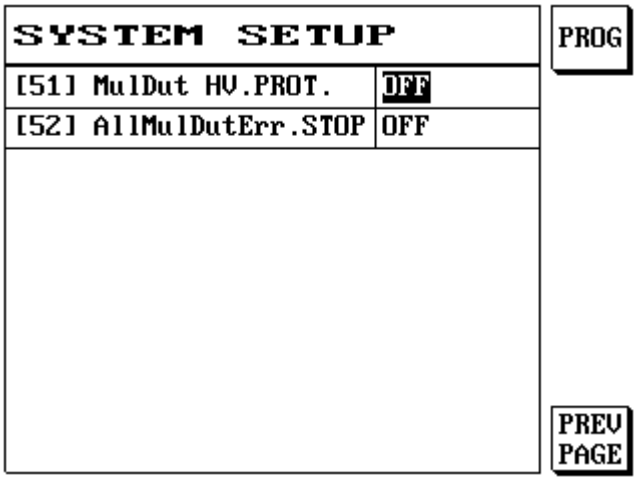
immediate IMM: determine every time
average AVG: average the test result during the test time.

[49] TEST COUNTER

Gives a warning when the number of tests reaches the number of times set; 0 disables this function, 0-999999.

[50]COUNTER LOCK

Select the lock method after counter is completed.
There are Off, remote, exit, P,W can be selected.



[51] MulDut HV.PORT.

To protect DUT when it's testing the Hipot under multi-DUT mode.

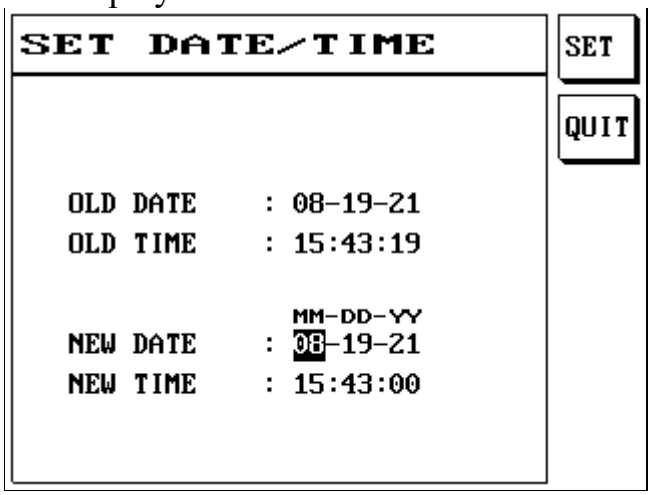
[52] AllMulDutErr.STOP

Stop the test when all the DUT are test fail under multi-DUT mode.

3.2.3 Setting the System Time

This function can adjust the system's year/month/day/hour/minute/second.

(1) Press [Sys].
(2) Use [↑] or [↓] to select [3] Date/Time function.
(3) The LCD screen will display as follows.



(4) The time format is MM/DD/YY; please press S1 [SET] to save when input is completed.
(5) Press [Exit] to exit.

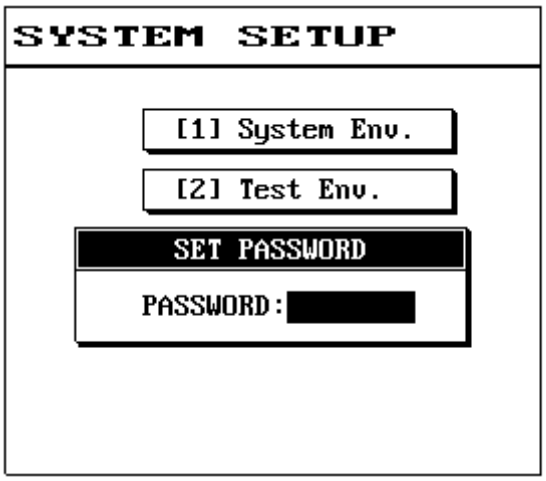


Note:
1. Hour is in 24 hour format

3.2.4 Changing the System Password

This tester provides key lock protection in order to prevent data from being modified randomly.

(1) Press [Sys].
(2) Please use [↑] or [↓] to select this item and then press [Enter].
(3) The LCD screen will display as follows.



(4) If you are setting the password for the first time, enter the new password directly. If you have previously set a password, then you must first enter the original password and press [Enter].
(5) Then enter the new password again and press [Enter]; the screen will display {Successfully set} at this time.
(6) Once the new password was successfully set, it will automatically return to the function menu.
(7) To change the password, please repeat the setting steps described above.

3.3 Print

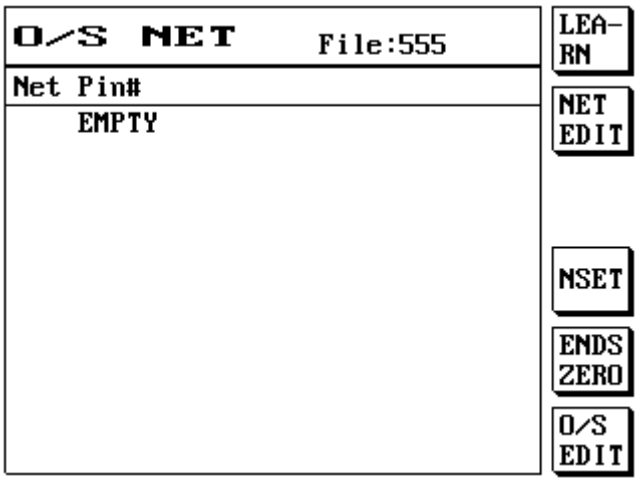
This tester provides direct printer output, making it easy for you to print out the data needed; its operation and function descriptions are as follows:

(1) Select the data or screen needed.
(2) Simply press [Print].

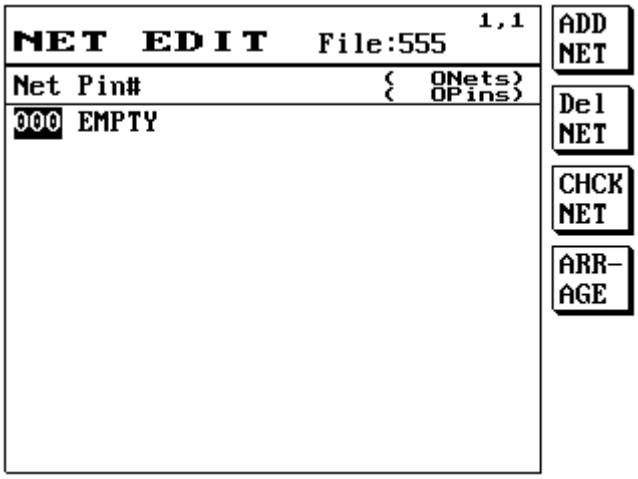
3.4 Learn & Edit

The short circuit setting of this machine is set by learning, which means saving the test cable connection conditions in the system memory and the system will display the test results on the LCD.

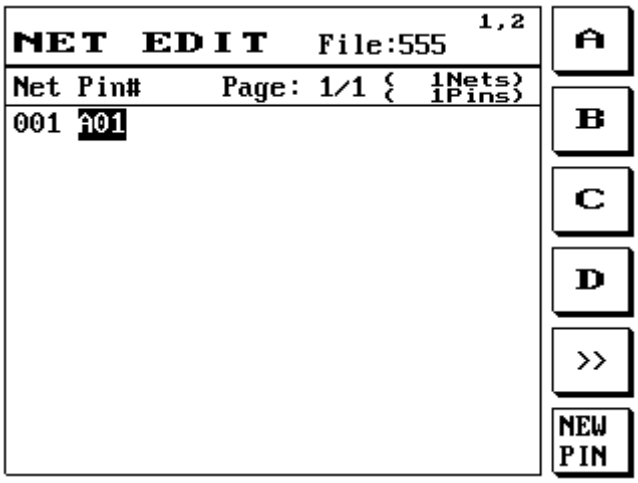
(1) Connected the DUT and press Learn (S1) to learn nets.



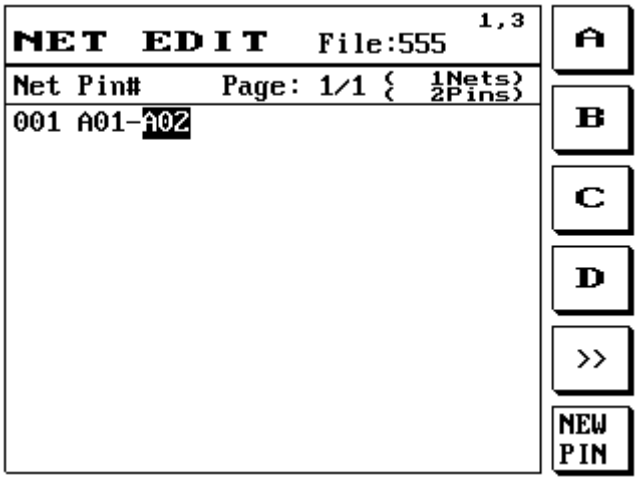
(2) Press Net Edit (S2) to create the nets.



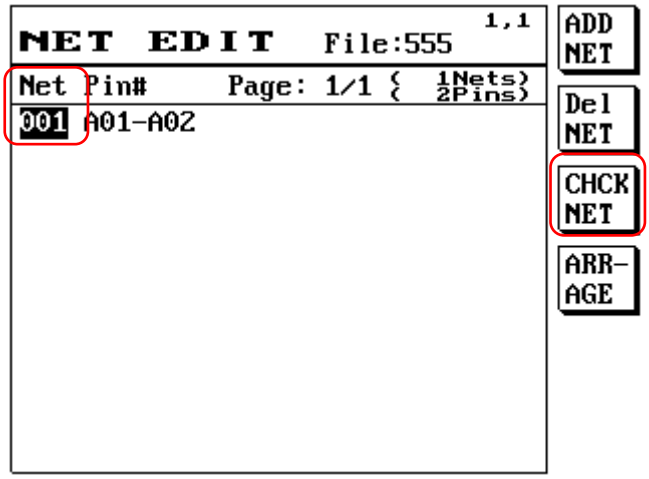
2.1. Press Add net (S1)
2.2. Press A (S1) and number key 1



2.3. Press A (S1) and number key 2



2.4. After completed the edit, move the cursor to the net and press check net(S3) to finish the function.



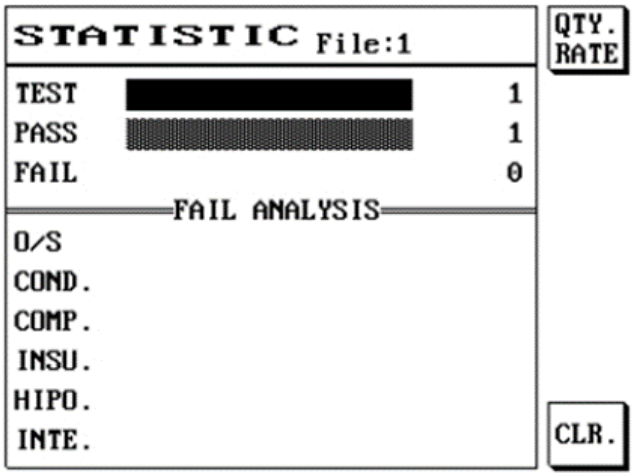
3.5 File

For information on Section 3.5, please refer to Chapter 4 Comprehensive testing mode, Section 4.3 File for details.

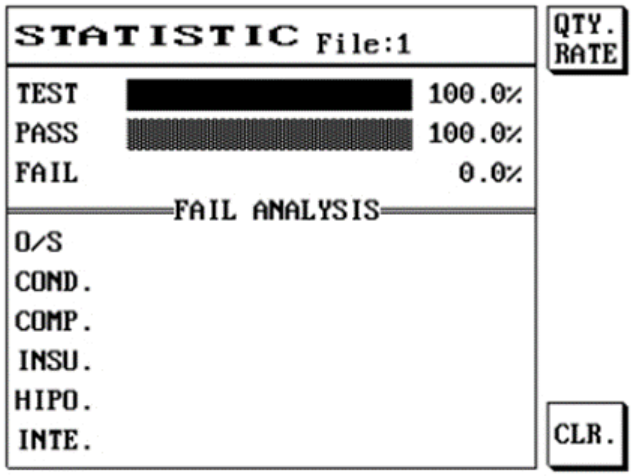
3.6 Statistic

This function allows viewing of the test result statistical data, including: total number of tests, number of passes, number of fails and cause of failure analysis, which searches for the number of fails in each item category.

(1) Press [Stat].
(2) The LCD screen will display as follows.



(3) Press S1 [QTY.RATE] to display the statistical data using percentages.
(4) The LCD screen will display as follows.

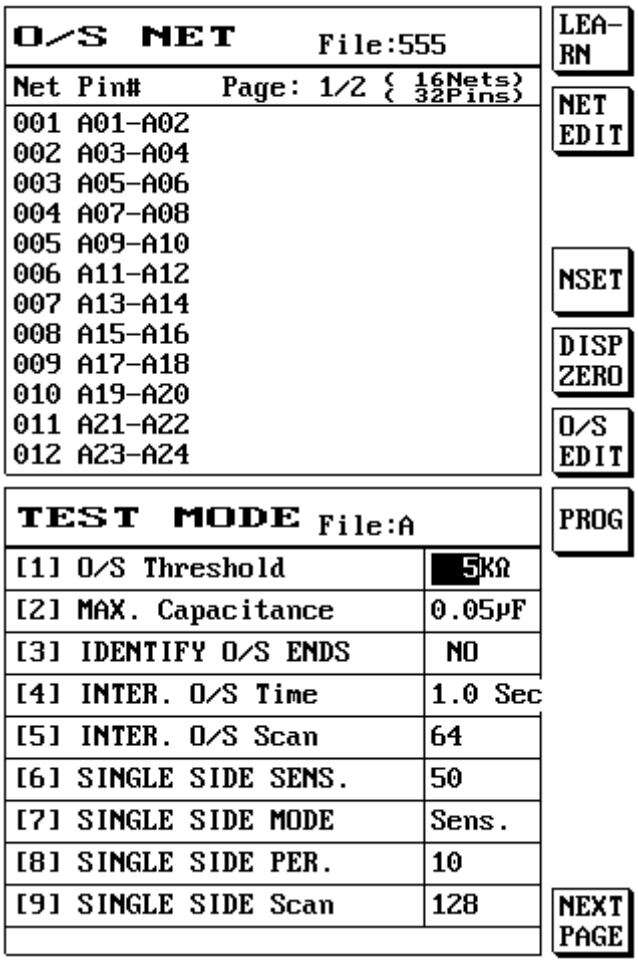


(5) Press S6 [CLR] to clear all current statistical data.
(6) Press [Exit] to exit when completed.

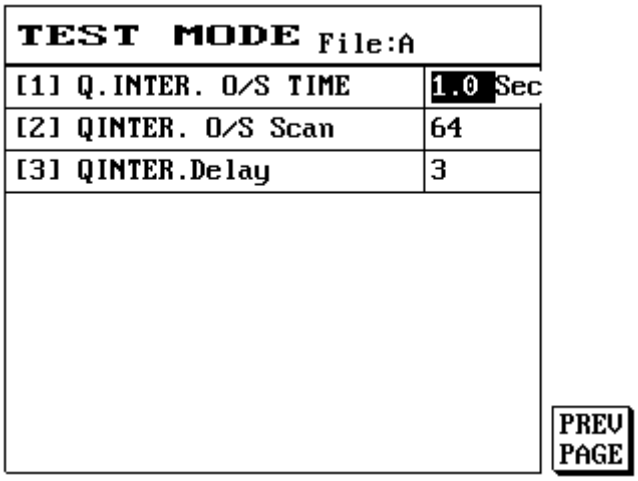
3.7 Mode

3.7.1 Test Mode

Press [O/S] and then press S6 [O/S EDIT] to enter TEST MODE.



(1) Press S6(NEXT PAGE).
(2) The LCD will display the following screen:



[1] O/S Threshold:

Available options include 2K, 5K, 10K, 20K and 100K; other functions are used to determine the short circuit value. If it is set as 2K, cables with resistance under 2K are considered to be short-circuited and with resistance above 2K are considered to be open circuit.

[2] Max. Capacitance:

Can be set between 0.05u-5u; this value should be set to a great number when the cables are longer in order to have stable tests.

[3] IDENTIFY O/S ENDS:

This is able to display the index display for the A Port or B Port short circuit.

[4] INTER. O/S TIME:

Unlimited when set to 0; the test will only stop when the DUT is removed. When a value is set, it is the number of seconds to test.

[5] INTER. O/S Scan:

128/256/512 items can be set.

Sets test point upper limit; if set as 128, the test will scan from PIN1 (A01) to PIN128 (B64). To reduce test time.

[6] SINGLE SIDE SENS:

This act when the cable type is set as unilateral; it is considered short circuit when the test value is higher than the value set here.

[7] SINGLE SIDE MODE:

Sensitivity Sens.: Uses single side test sensitivity as the standard value; when the test value is greater than the standard value, the test result is FAIL.

Percentage Perc.: Uses the capacitance value learned as the standard value; when the test value is greater than the percentage range of the standard value, the test result is FAIL.

[8] SINGLE SIDE PER.:
The percentage setting value for the percentage mode of the single side test mode.

[9] SINGLE SIDE Scan:

The max pins to be scanned of Single side

[1] Q.INTER. O/S TIME:

Sets test time, 0 means repeat test and the result is determined as PASS when DUT is removed.

[2] QINTER. 0/S Scan:

Sets test point upper limit; if set as 128, the test will scan from PIN1 (A01) to PIN128 (B64). To reduce test time.

[3] QINTER. Delay:

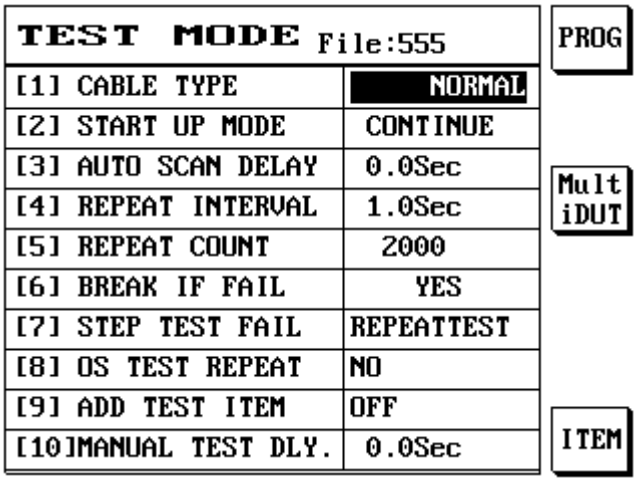
The capacitance of the DUT itself causes the test to be unstable; increasing the delay time will increase the test stability.

3.7.2 Mode

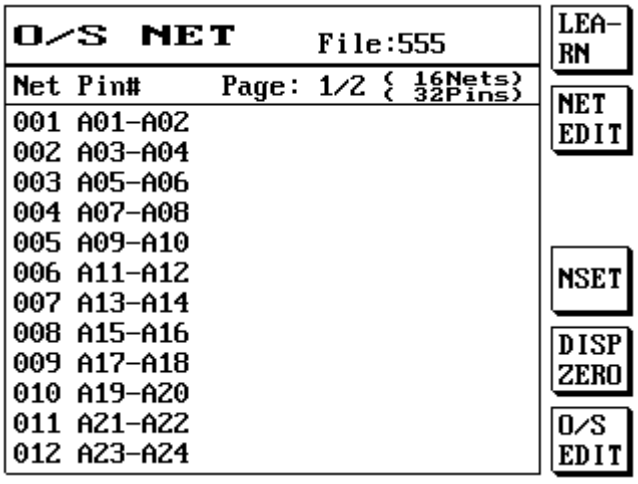
(1) Press [Mode]
(2) The LCD screen will display as follows:

[1] CABLE TYPE:

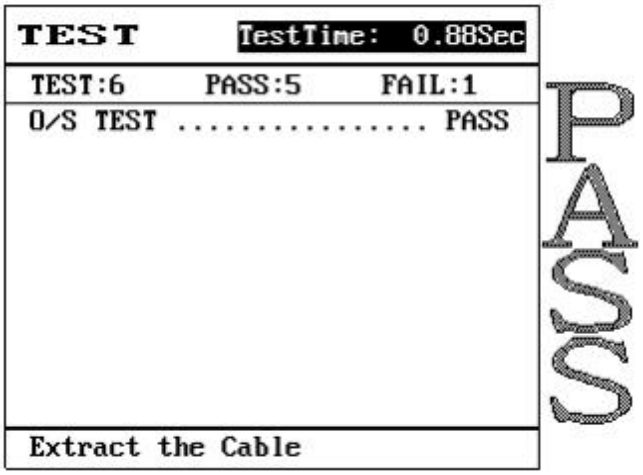
{NORMAL}



Press [Learn]; the LCD screen will display as follows:

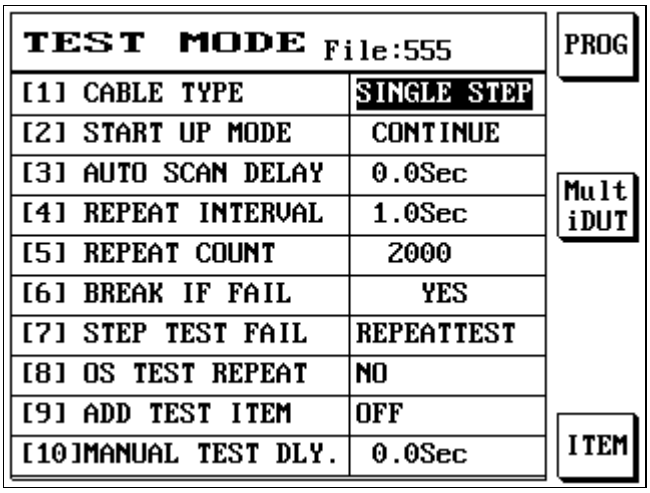


When performing the cable test, press [TEST] and the LCD screen will display as follows:

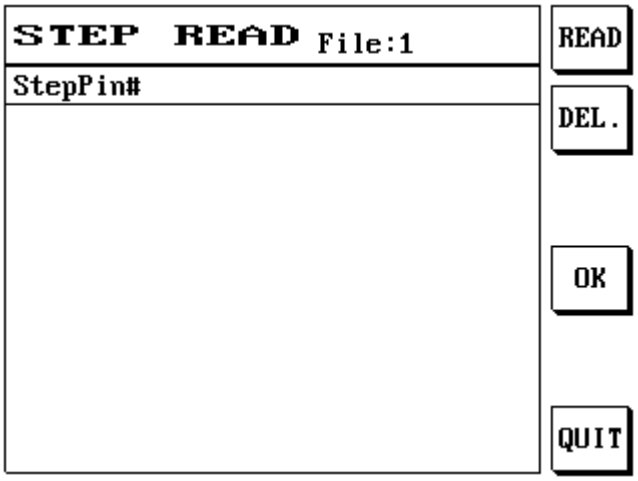


From the LCD display screen, we can find out the total number of tests and the number of passes and fails.

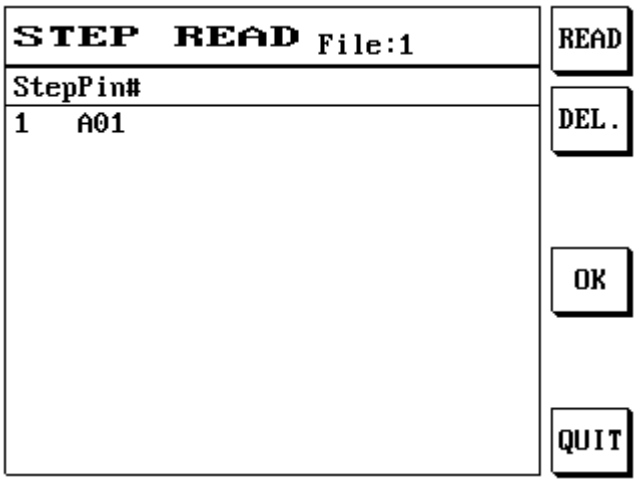
{SINGLE STEP}.



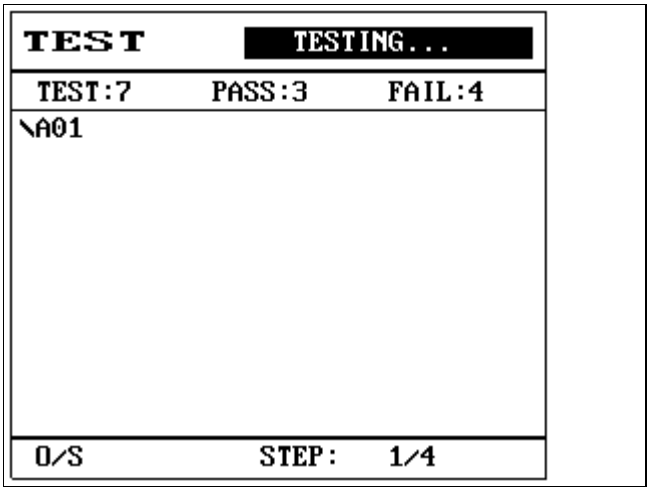
Press [Learn]; the LCD screen will display as follows:



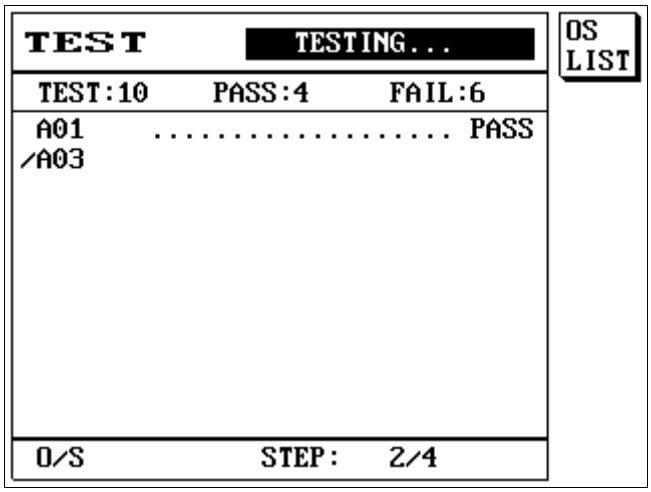
Use the automatic pin search probe to specify the short circuit pin to test; example is as follows:
When using the PIN SEARCH probe on the panel, touch the relative position (A01) specified by the cable and the LCD will display that pin.



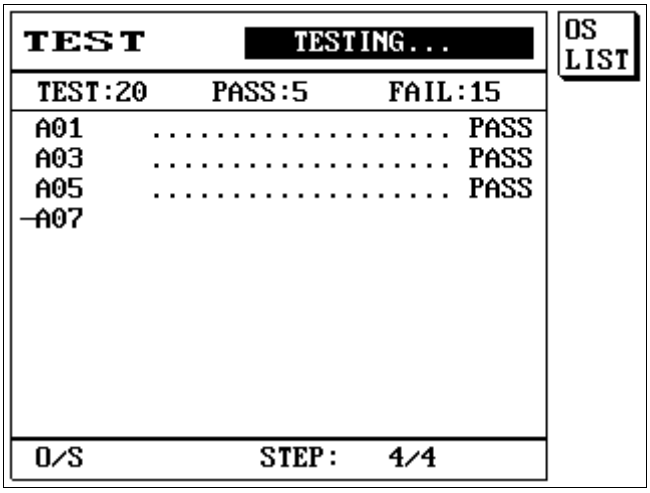
Place the probe sequentially on the pins specified by the cables (A03, A05, A07) and also press S1 [READ]; press S4 [OK] when completed.
When performing the cable test, press [TEST] and the LCD screen will display as follows:



Please use the automatic pin search probe and place it on A01; the LCD screen will display as follows:



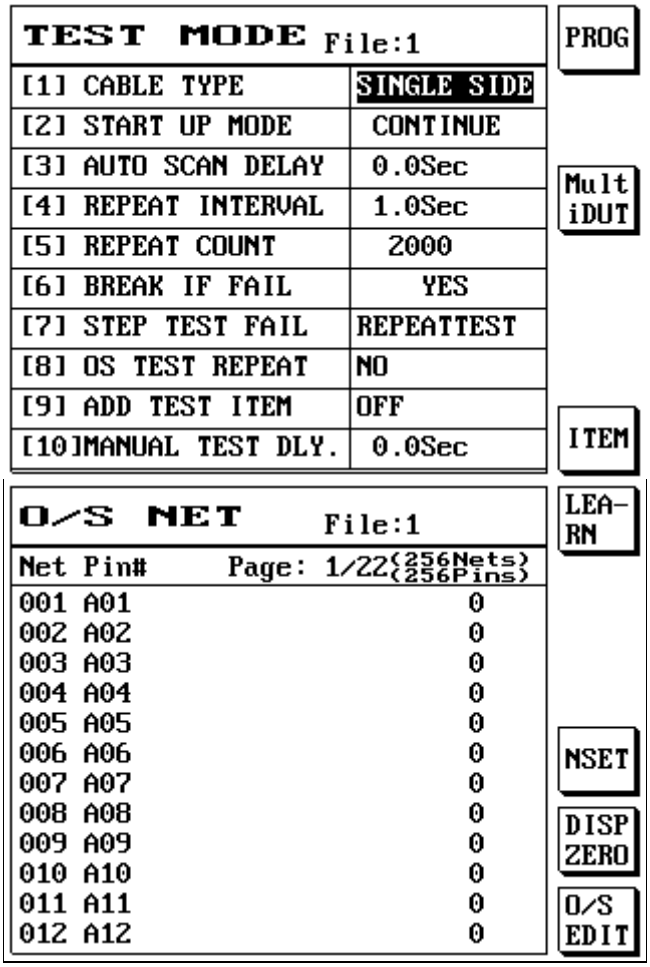
The automatic pin probe must be placed on A03, A05, and A07 sequentially in order to complete the cable test action.



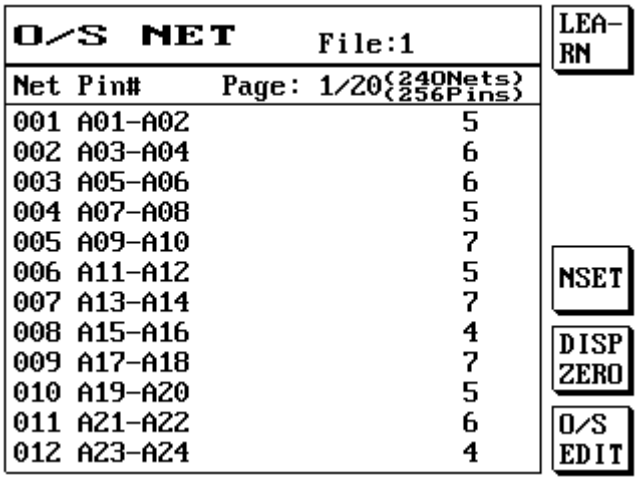
Since we initially have 4 steps preset, so for the test of each DUT, steps 1 to 4 of the step test must be completed successfully in order for it to pass. A maximum of 128 test steps can be set.

{SINGLE SIDE}

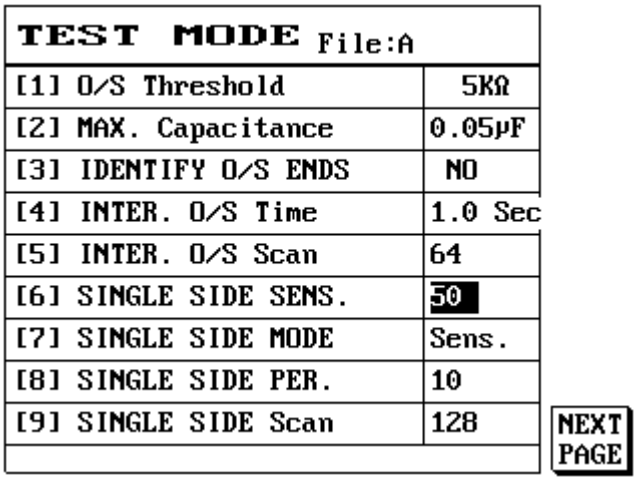
Press [Learn] when there is no DUT, the LCD screen will display as follows:



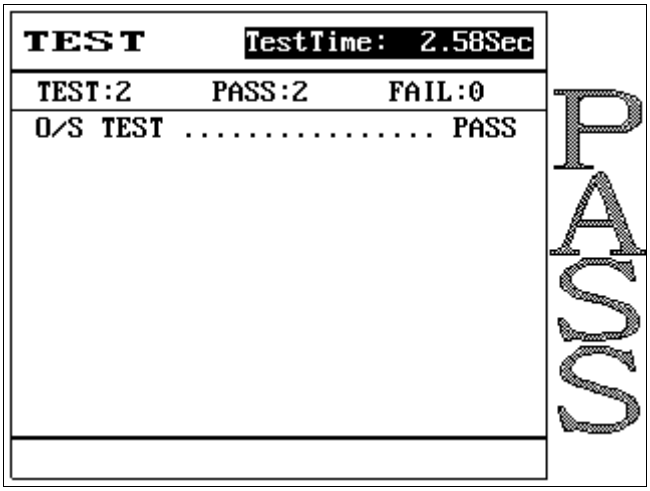
The value displayed at the right of the screen is the unilateral test sensitivity; press S5 O/S ZERO and then press LEARN and the value will change to zero. S4 is the CLR.ZERO value.
Press [Learn] after inserting the DUT, the LCD screen will display as follows:



When test mode is being set, enter the value needed for the **SINGLE SIDE SENSE**.
P.S Use 80-90% of the minimum value learned as the setting value.



When performing the cable test, press [TEST] and the LCD screen will display as follows:



From the LCD display screen, we can find out the total number of tests and the number of passes and fails.

[2] START UP MODE:

AUTO SCAN: Starts test after the DUT is inserted.
MANUAL: Press the Test button after the DUT is placed to start the test.
CONTINUE: Continuous tests are performed after the Test button is pressed.

[3] AUTO SCAN DELAY:

This is only effective when Automatic is selected as the test start method; its function is to wait a few seconds before starting the test after the DUT is inserted.

[4] REPEAT INTERNAL:

The cable activation mode is the repeat test interval of repeat test.

[5] REPEAT COUNT:

This is only effective when Continuous is selected as the test start method; it allows setting of the number of times to test.

[6] BREAK IF FAIL:

If errors occur during test, there are three options displayed at all times: {Stop test}, {Do not test high voltage} and {Finish all tests}.

[7] STEP TEST FAIL:

REPEATTEST: When the cable type is point test and this step test fails, repeat this step test.
BACK FIRST: When the cable type is point test and this step test fails, return to the first step test.

[8] OS TEST REPEAT:

YES: Continue test when short-circuit test fails; determines test result as FAIL when DUT is removed.
NO: Determines test result as FAIL when short-circuit test fails.

[9] ADD TEST ITEM

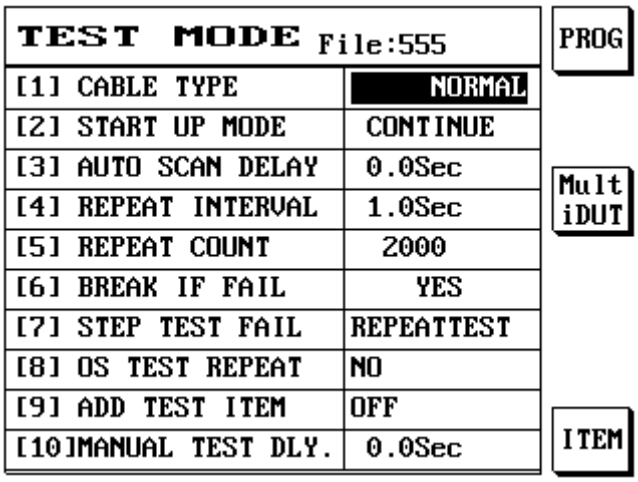
Can selected OPEN/SHORT, CONDUCTANCE, COMPONENT, AC HIPOT, DC INSUL, Q.COND, INTERM O/S, Q.INT.OPEN to test one more time.

[10]MANUAL REST DELAY:

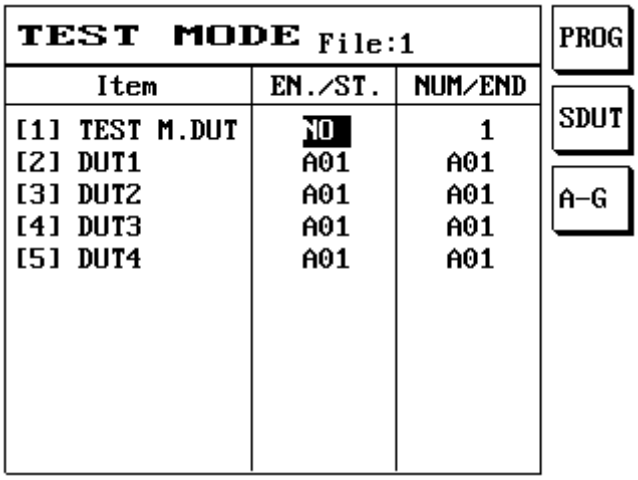
When the test button is pressed, delay in the length of time set and then start test.

3.7.3 MultiDut

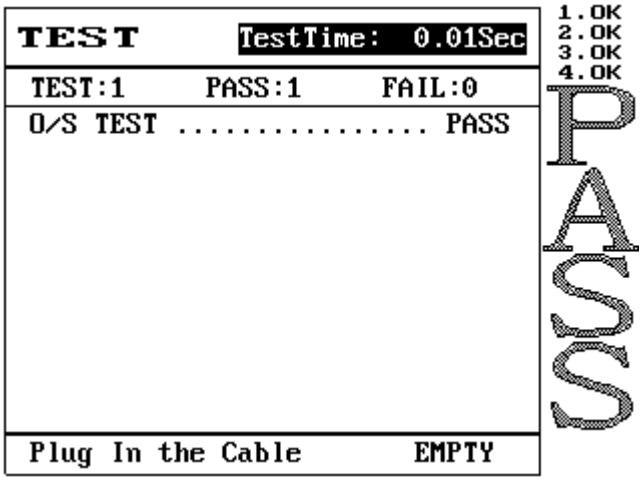
First learn the DUT pin; press mode setting.



Select **MultiDUT**

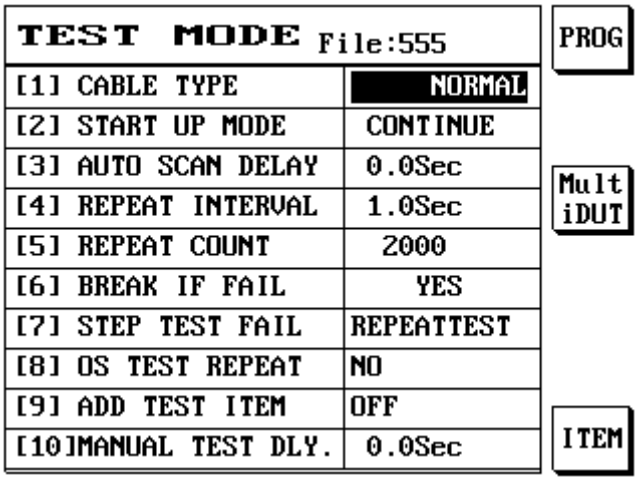


The selection is, set the start and end of the DUT according to the pin learned; a maximum of 4 tests can be selected and the start and end pins of the DUT can be set. (P.S There must be no other DUT at the start and end of the DUT.)
Press “TEST” when setting is completed.

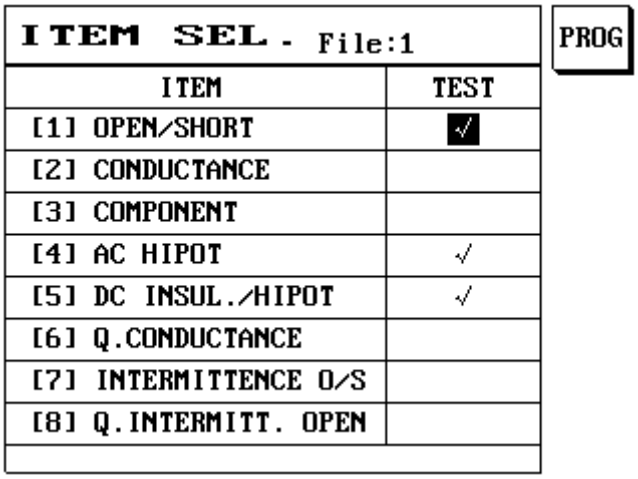


3.7.4 Item

Press **Mode**.



Press **Item**.



(1) Please use [↑] or [↓] to move to the item you want to set.
(2) Press S1 [Item selection] to switch whether to execute test for the selected item.

Chapter 4 Comprehensive Test mode

Test mode uses programmed design functions to perform simultaneous and automatic tests according to the different test conditions set for different test items in order to satisfy different needs and achieve optimal efficiency; it can be divided into:

- **Test condition setting**
- **Comprehensive test implementation**
- **File management**

Detailed descriptions are as follows:

4.1 Test Condition Setting

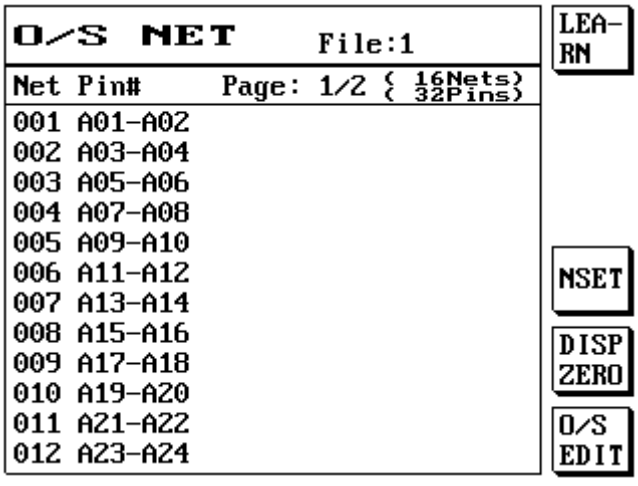
This part refers to the setting of some control standards and corresponding test conditions for the DUT, including O/S / Cond / R / C / HIPOT / Diode settings; its contents mainly includes

- The test signals (frequency, voltage size and current etc.) of each test item (parameter)
- Control standard, specification control standard value, error ratio.

4.1.1Test Condition Setting Short Circuit Table (OPEN/SHORT)

(1) Press [O/S].

(2) The LCD screen will display as follows:

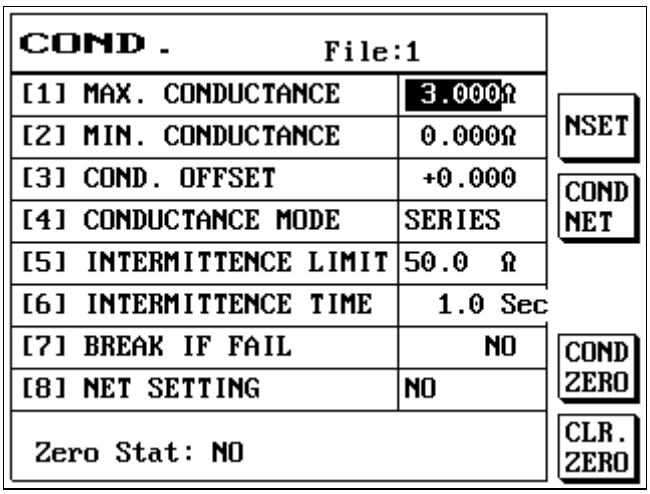


The short circuit table comes from learning.

(3) Press [Exit] to exit when completed.

4.1.2 Conductance

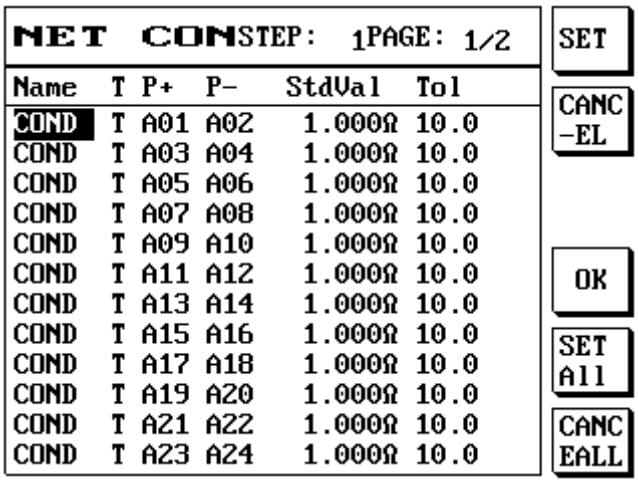
(1) Press [Cond].
(2) The LCD screen will display as follows.
(3) Please use [↑] or [↓] to select the item you want to set.



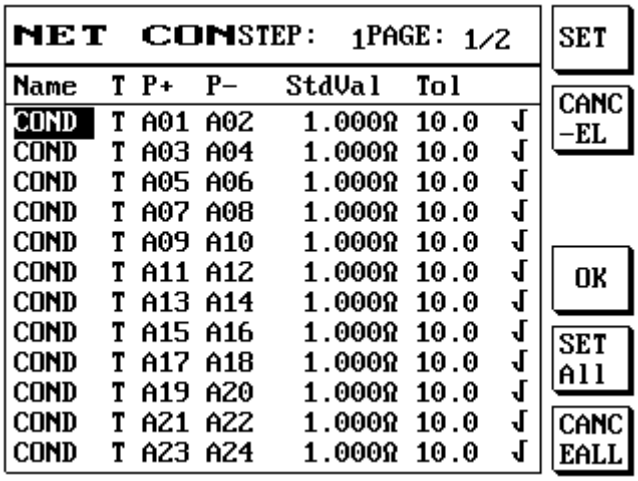
(1) **Maximum conductance value:** Please use the number buttons to enter a value according to your needs as the upper limit of the cable conductance.
(2) **Minimum conductance value:** Please use the number buttons to enter a value according to your needs as the lower limit of the cable conductance.
(3) **Conductance adjustment value:** Resistance value can be entered to increase or decrease the resistance of the fixture.
(4) **Conductance mode:** Use S1 [Item selection] to switch between serials, radiation, or composite.
(5) **Intermittence limit:** Resistance value can be entered to be used as the basis to determine the test result.
(6) **Intermittence time:** A time value can be entered to be used as the continuation time for the test.

Press S3 [COND NET] to enter conduction edit:

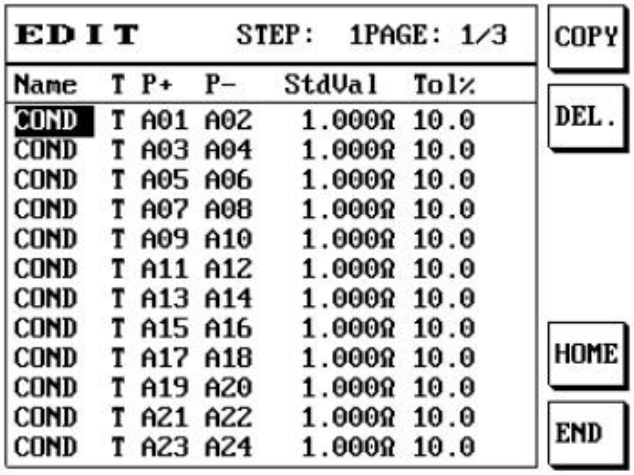
COND NET: Allows importing of the O/S learned into component edit.



Press S1 [Select] the item needed and then press S4 [Import component]:



Import to component edit:



(7) Cable off: After inserting the offset fixture, press S5 [COMD ZERO] to perform offset, and the cable offset located at the bottom left will display: Yes.

(8) Clear offset: Press S6 [CLR ZERO] to clear the previous conduction value, and the cable offset located at the bottom left will display: None.

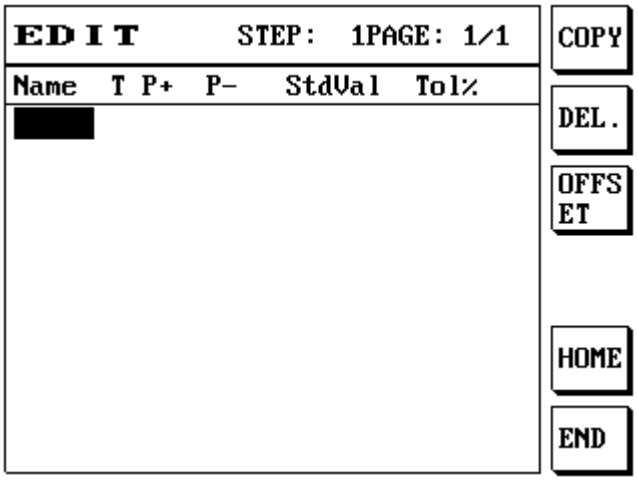


Note:

1. **Short circuit according to the minimum resistance value of the DUT's NET for offset fixture**

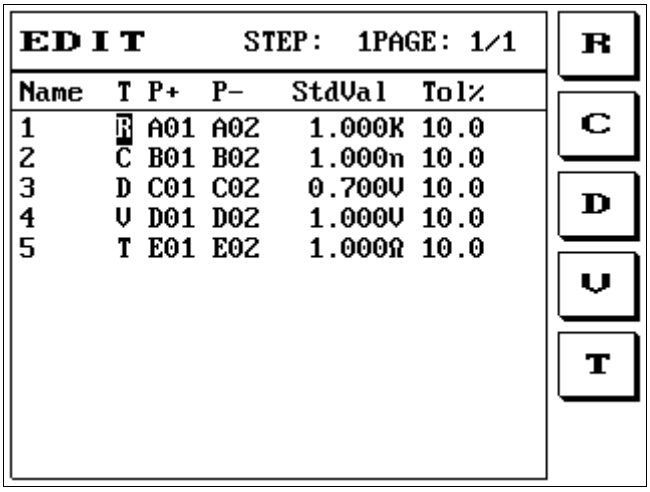
4.1.3 R/C/D Component Setting Edit (Resistance)

(1) Press the [R/C/D] button and the screen will display as follows:



(2) After entering the name, move the cursor to line T and then use S1 S2 S3 to select test capacitance C, resistance R, and diode D.

(3) The voltage (V) function must be used with the 8740 CC3 constant current box (purchased optionally), and only the following points can be used to perform cable voltage drop/impedance test. Point operation restrictions are as described in the table below.



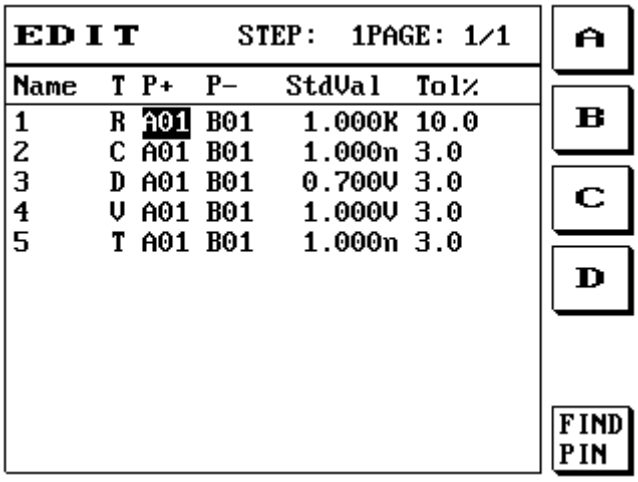
(4) When users pay more attention to the precision of the cable voltage drop and the impedance, connect all DUTs first, then use the short cable (internal resistance less than 10mΩ) to short-circuit the red and black terminal in front of the constant current box and then press offset. When the test current is changed, offsetting is recommended in order to measure the more accurate data.

Loop	Current Positive Point	Current Negative Point	0.1A-4.0A (±10%)				When Current Exceeds 4.0A (open all four channels)
1	A2	B2	ON	---	---	---	ON
2	A8	B8	---	ON	---	---	ON
3	A18	B18	---	---	ON	---	ON
4	A24	B24	---	---	---	ON	ON

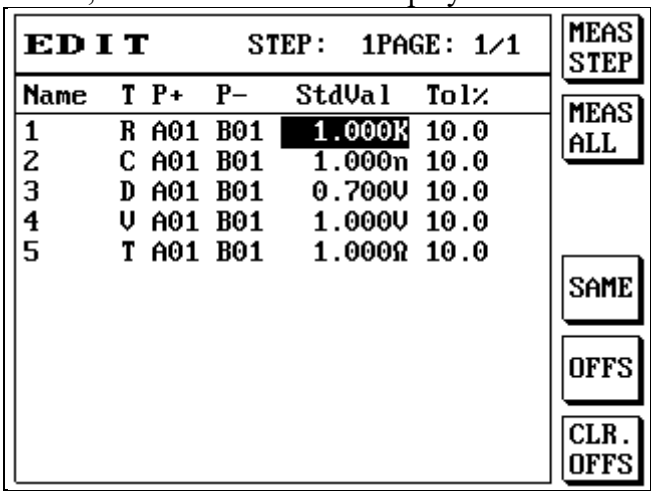
When the 8740 host is used with the 8740 CC3 constant current box to perform cable voltage drop test, use of a genuine fixture adapter board is recommended; if users need to use their own adapter board, please beware of the PIN definitions of the DUT and the PIN definitions in the previous table, as well

as the operation restrictions. In order to measure the most accurate voltage drop and ensure that the DUT was not tested out of spec, prevent over-current from causing damage to the cable/contact due to overload.
Setting the current for more than 4A is mainly used for low resistance (under 0.2Ω) tests; users must beware that the enabling of the loop is different from under 4A (included). This will give different test results; users must beware of the difference of this setting.

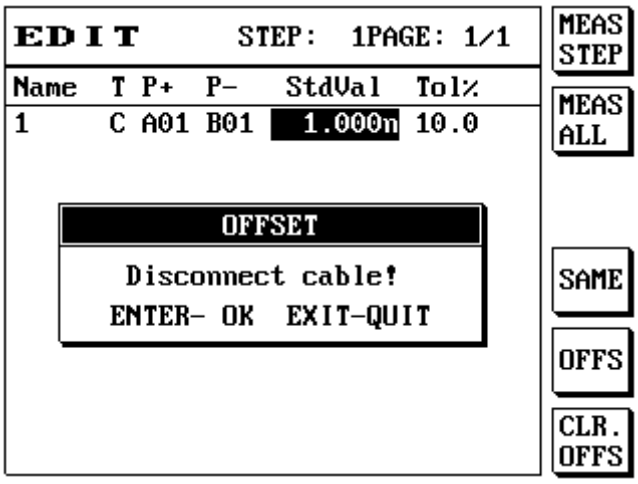
(5) Set the + - pins; the pins can be entered manually or use automatic pin search (to use automatic pin search, the probe must be inserted to the PIN SEARCH located at the front panel and then touch the ABCDEFG Port pins); the LCD screen will display as follows:



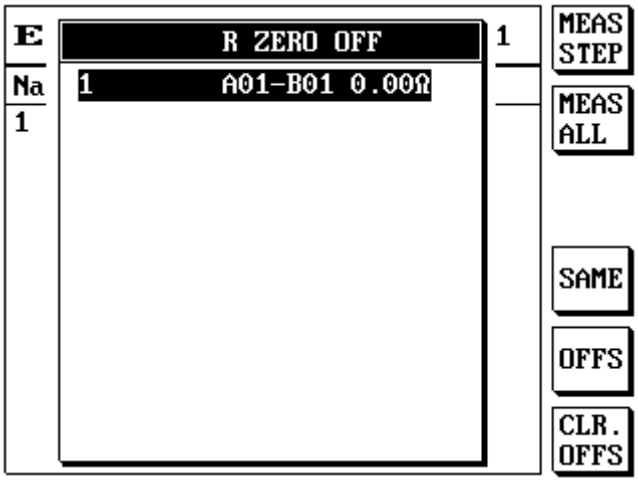
(6) After the cursor moves to the standard value line, enter the actual test value or use the S1 [Learn] and S2 [MEANS All] function; the LCD screen will display as follows:



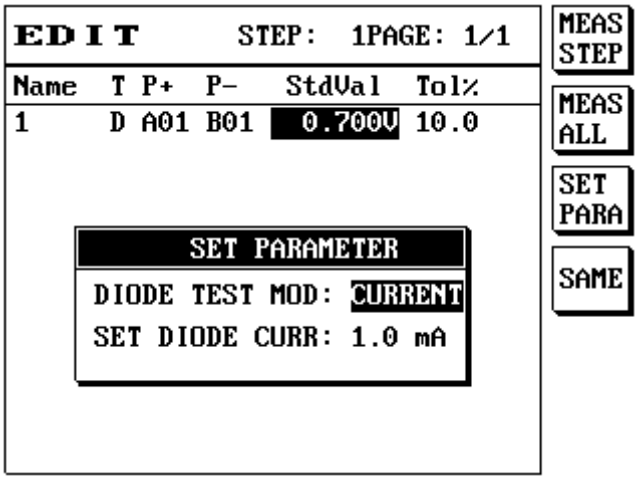
(7) When the component is resistance or capacitance, press S5 [CLR.OFFS] to offset; the LCD screen will display as follows:



(8) Press [Enter] to perform the offset action.
(9) Press S6 [ALL SAME] to clear the data used for resistance or capacitance offset.
(10) When the component is resistance, press SHIFT+S5 [CLR.OFFS] to display the data for resistance offset; the LCD screen will display as follows:



(11) When the component is diode or current leakage, press S3 [SET PARA] to perform parameter setting; the LCD screen will display as follows:



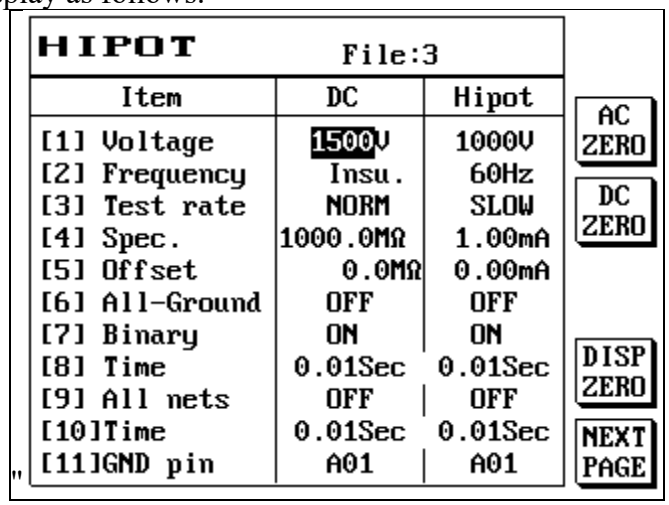
(12) Item descriptions are as follows:

- Name Please enter the name for the resistance test group set.

- +Pin (Positive pin) Positive pin setting; please enter the pin selected.
- – Pin (negative pin) Negative pin setting; please enter the pin selected.
- Standard value Standard value setting; please enter the value needed.
- Error % Error value setting; please enter the setting value according to your needs, it ranges from 0-9999.9. Press S6 [SAME] to set all the error % to the same value.
  - >= STD Press S1 [Greater than] to set the error % as greater than or equal to the standard value.
  - <= STD Press S2 [Less than] to set the error % as less than or equal to the standard value.

4.1.4 High Voltage Setting Edit (HV)

This function is the setting for DC insulation, test voltage for AC tolerance, frequency, time, specification, and other items.
(1) Press [HV].
(2) The LCD screen will display as follows.



(1) Please use the direction button sot move to the item you want to set.
(2) Enter your specification control standard value.
(3) Descriptions of the insulation and tolerance items are as follows:

AC Offset AC ZERO:
Used to deduct the small leakage current of the internal loop of the tester and on the test fixture in order to measure more precise AC HIPOT leakage current.

DC Offset DC ZERO:
Used to deduct the equivalent insulation value of the internal loop of the tester and the text fixture in order to test higher DC IR insulation.

Beware when using the two functions described above: The AC/DC offset value must be less than 1/4 of the test value; it must not be less than 1:1 under the worst case, and this means that the offset value is the same as the test value signal size. Under poor environments, it is difficult for the offset value to be provided steadily and used for extended periods of time.
The offset function can also be used to determine the condition of the fixture terminal. For production engineers to import and use in stage analysis.

(1) Voltage
Set the test voltage value for DC insulation and AC tolerance; the DC voltage is 50V-1000V

(8740N/8740NA) or 50V-1500V (8740FA), and the AC voltage is 100V-700V (8740-NA) or 100-1000 (8740FA).

(2) Frequency

Set the test frequency; only the AC part can be set (50/60Hz), DC insulation: switches between tolerance and insulation, which is switching the test specification type. The tolerance test specification is uA and the insulation test specification is MΩ.

(3) Test rate

Slow: Test method that uses a stable test value as top priority.

Regular: Test method that finds a balance between stable test value and test speed.

Quick: Test method that saves gear changing time under known test specification conditions.

(4) Spec

Set the test specification of the DC insulation and AC tolerance test; the DC insulation specification can be set between 0.1MΩ-1000MΩ, 0.1uA-1000uA.

※ When the setting is set as 5MΩ or below 5uA, the maximum test voltage is 650V and the AC tolerance specification can be set between 0.01mA-5mA.

(5) Offset

AC tolerance test offset.

(6) All-Ground

Ground pin must be set for this mode to perform insulation test for non-grounded cable to specified grounded cable; its advantage is that the test speed is fast, but its disadvantage is that insulation test is not performed between non-grounded cables.

	A	B	C	D	E	F	G	H
Step 1	+	+	+	+	+	+	+	—

All ground test method

(7) Binary

This mode is similar to quick categorization; if there are 8 test pins DUT A B C D E F G H, when test is performed for each cable or pin, it has to be tested 7 times sequentially in order to determine whether the DUT passed. But if the quick test method is used, the first time A B C D and E F G H are divided into two groups for testing, and the second time A B E F and C D G H are divided into two groups for testing, and the third time A C E G and B D F H are divided into two groups for testing, then the test only needs to be performed three times to confirm whether the DUT passed. Therefore if the DUT has 128 pins, if test is performed for every cable or pin, the test has be performed 127 times, but with the quick test method the test only has to run 8 times. However, the disadvantage is that it cannot find out which are the error pins and the cable segment resistance will be slightly lower than the actual value because the cable segments were tested in parallel.

	A	B	C	D	E	F	G	H
Step 1	+	+	+	+	—	—	—	—
Step 2	+	+	—	—	+	+	—	—
Step 3	+	—	+	—	+	—	+	—

Quick binary test method

(8) Time

Set the DC insulation and AC voltage continuation time for [6] All-Ground and [7] Binary;

the continuation time can be set between 0.01Sec-60Sec.

(9) All nets

This is the most fundamental test method for the high voltage insulation test; high voltage is connected to the test pin A and the other pins are grounded to observe its current leakage or insulation value, and then high voltage is connected to test pin B and the other pins are grounded to observe its current leakage or insulation value and so on. High voltage is connected to each pin while other pins are grounded to observe their current leakage or insulation value. This way it can confirm that all the test pin high voltage insulation tests have no problems, and the number of tests for this method is N-1 times. This test method is more accurate and it can find the insulation and current leakage value for each pin; its disadvantage is that it is slower.

	A	B	C	D	E	F	G	H
Step 1	+	—	—	—	—	—	—	—
Step 2	—	+	—	—	—	—	—	—
Step 3	—	—	+	—	—	—	—	—
Step 4	—	—	—	+	—	—	—	—
Step 5	—	—	—	—	+	—	—	—
Step 6	—	—	—	—	—	+	—	—
Step 7	—	—	—	—	—	—	+	—
Step 8	—	—	—	—	—	—	—	+

One to other test method

(10) Test time

Set the DC insulation and AC voltage continuation time for [9] All nets;
the continuation time can be set between 0.01Sec-60Sec.

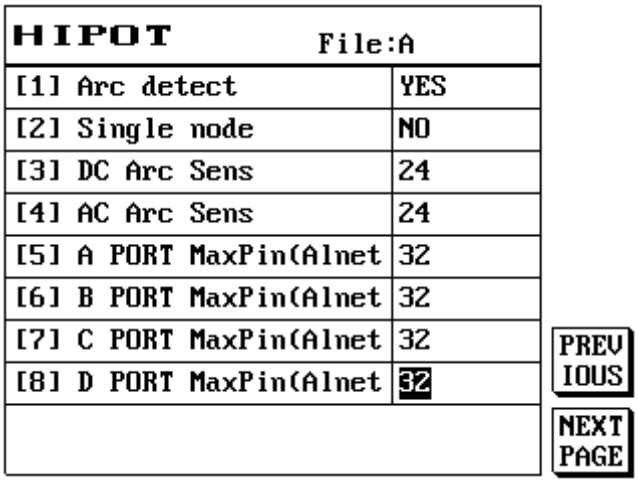
(11) Ground pin

Ground pin set

Select S6 [NEXT PAGE] and the LCD screen will display as follows:

The following requirements must be followed for quick test:

1. Quick test is a test method designed to be used specifically when the insulation value of the DUTs are within fixed range and saves time by not jumping sections, and has the goal of gaining highest capacity.
2. Each 1V can only test 1M ohm 1uA is a very small current.
3. Set the correct test specifications; to test 100M test specifications, the voltage must be set to 100M ohm.
4. Make suitable adjustments for the test time according to the DUT.



(1) Arc detect

Set whether to enable arc detection.

(2) Single node

Set whether to test for empty pins; it is mainly used to test tests with no circuits.

(3) DC arc Sens

Set the DC arc detection sensitivity; the lower the value the more sensitive it is, the higher the value the less sensitive it is.

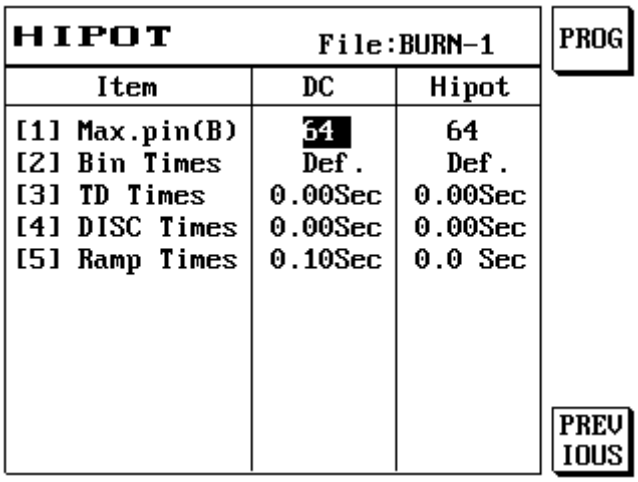
ARCING LEVEL	Peak current (uA)	ARCING LEVEL	Peak current (uA)
1	40	25	992
2	79	26	1032
3	119	27	1072
4	159	28	1111
5	198	29	1151
6	238	30	1191
7	278	31	1230
8	317	32	1270
9	357	33	1310
10	397	34	1349
11	437	35	1389
12	476	36	1429
13	516	37	1468
14	556	38	1508
15	595	39	1548
16	635	40	1587
17	675	41	1627

18	714	42	1667
19	754	43	1707
20	794	44	1746
21	833	45	1786
22	873	46	1826
23	913	47	1865
24	952	48	1905

(4) AC arc Sens
Set the AC arc detection sensitivity; the lower the value the more sensitive it is, the higher the value the less sensitive it is.

(5) A (B, C, D, E, F, G, H) PORT MaxPin (Alnet
Set the final pin of A (B, C, D, E, F, G, H) PORT.

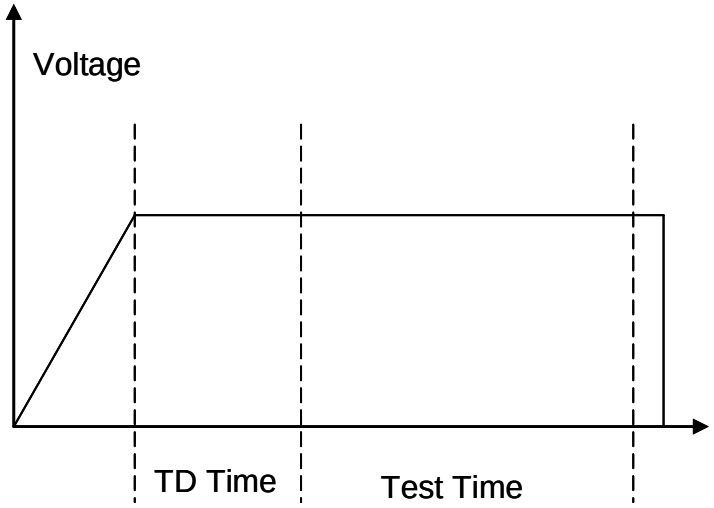
Select S6 [NEXT PAGE] and the LCD screen will display as follows:



[1] **Max .Pin(B):**
Set the maximum number of pins for the quick binary test.

[2] **Bin Times:**
Binary quick test times, the corresponding point to the high voltage is different in each time. If 8 point is 3 times, the 1st high voltage corresponding point is +-+-+-+-, the 2nd time is ++--++--, and the 3rd time is ++++----. The default binary test for the 128-point model is 7 times.

[3] **TD Times:**
Users can set to wait for a period of time after the high voltage climbs to the specified voltage before performing the test; this is mainly to allow the DUT charging time constant to stabilize before measuring the insulation value. This way more consistent data can be measured.



[4] **DISC Times**

Increase discharge time.

[5] **Ramp Times**

Setting DC Insulation and AC Hipot Ramp time.

4.2 Comprehensive Test Implementation

After the settings above are completed, comprehensive test implementation can be performed. Since the operating procedures are different, it can be divided into two types: Real Time Test and Existed Test; individual descriptions are as follows:

4.2.1 Real-time Test

This part set the test conditions saved in the main memory as the test condition and performs test to DUTs in real time. It is the most commonly used test method. Its step descriptions are as follows:

(1) First check whether the test condition settings are correct.
(2) Press [Mode] to display the test mode setting screen.
(3) Check and confirm whether the test mode settings are correct, and change according to your needs.
(4) After confirming there are no errors, press [EXIT] to exit and return to the main screen.
(5) Press [TEST] to start testing.
(6) When the test is complete or if the test needs to be interrupted, please press [EXIT] to exit.

4.2.2 Existed Test

You can load Existed Files saved in the memory to the main memory to perform testing; instructions are as follows:

(1) Press [File].
(2) Please use [↑] or [↓] to move the cursor to select the file name to load.
(3) After confirming, press [Enter]; the tester will start loading the selected file into the main memory
(4) At this time the LCD screen will return to the main screen and the name of the file you selected will be displayed for current file; file loading has been completed at this time.
(5) Please press [EXIT] to exit and return to the main screen.
(6) Press [Mode] to display the test mode setting screen.
(7) Check and confirm whether the test mode settings are correct, and change according to your needs.
(8) After confirming there are no errors, press [EXIT] to exit and return to the main screen.
(9) Press [TEST] to start testing.
(10) When the test is completed or if the test needs to be interrupted, please press [EXIT] to exit.

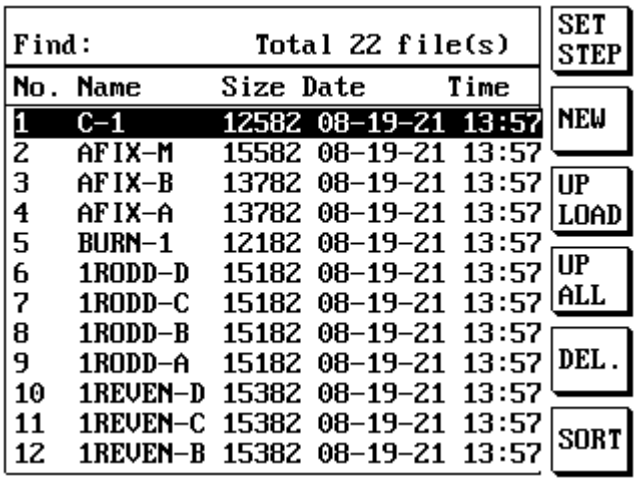
4.3 File Management

You can execute select old file/delete old file/file sorting actions to make it easier to manage and use the files; instructions are as follows:

4.3.1 Select File

Select file loads files saved on the permanent memory to the main memory so that they can be used for other purposes, including testing, editing, and printing etc. Instructions are as follows:

(1) Press [File].
(2) The LCD screen will display as follows.

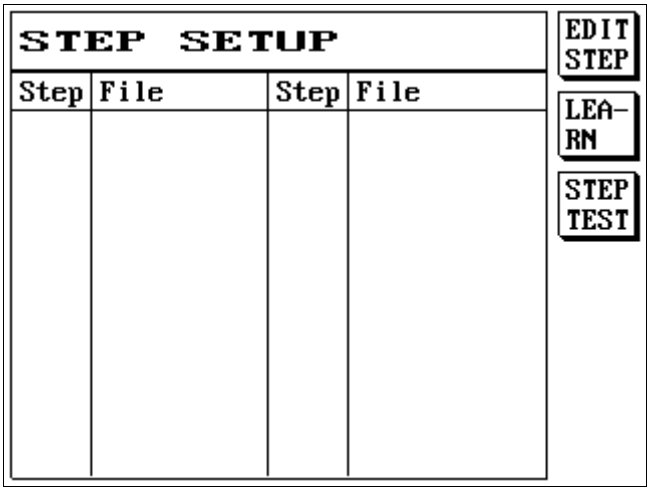


(3) Please use [↑] or [↓] to move the cursor to select the file name to load.
(4) Press [Enter] to execute the load file action.
(5) The tester will start loading the selected file into the main memory.
(6) At this time the LCD screen will return to the main screen and the name of the file you selected will be displayed for current file; file loading has been completed at this time.

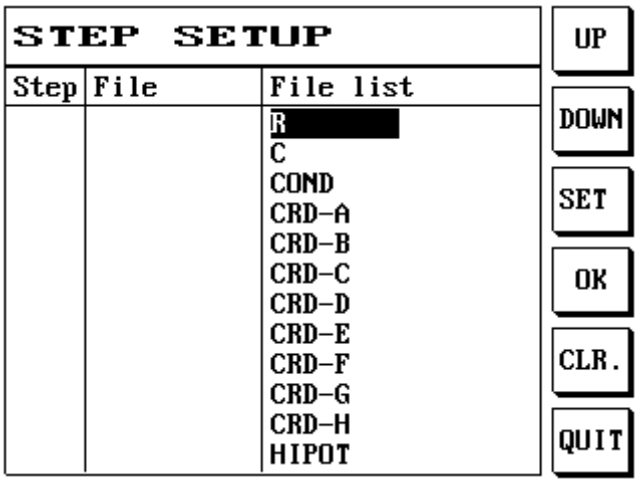
4.3.2 Step Setting

When you need to perform multiple test steps to a DUT, you can set the test steps that need to be performed using step test to simplify your test process and reduce your test time.

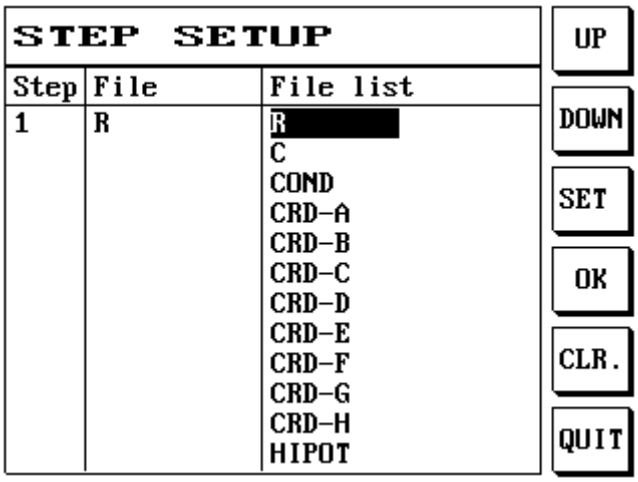
(1) Press [File] and then press S1 [SET STEP].
(2) The LCD screen will display as follows:



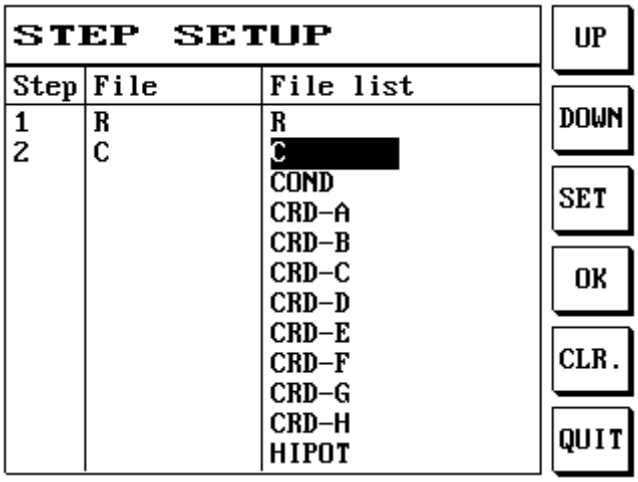
(3) You can press S1 [EDIT STEP]; the LCD screen will display as follows:



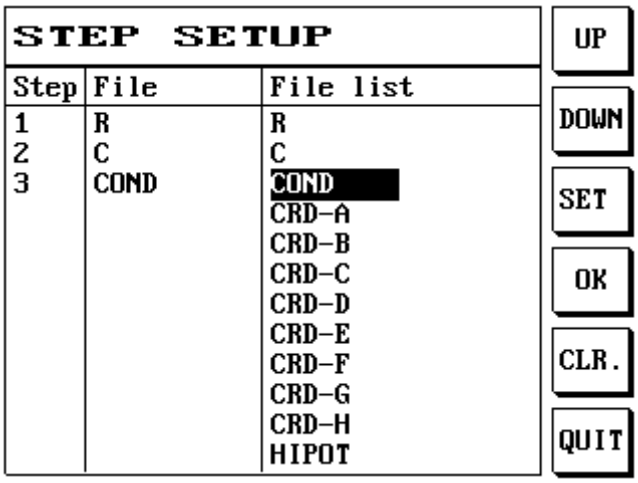
(4) Use [↑] or [↓] to move the cursor to select and set the test steps needed to be performed to the DUT.
(5) For example: We selected the three files EX1, EX2 and EX3.
(6) Use [↑] or [↓] to move the cursor to EX1, and then press S3 [SET].
(7) The LCD screen will display as follows:



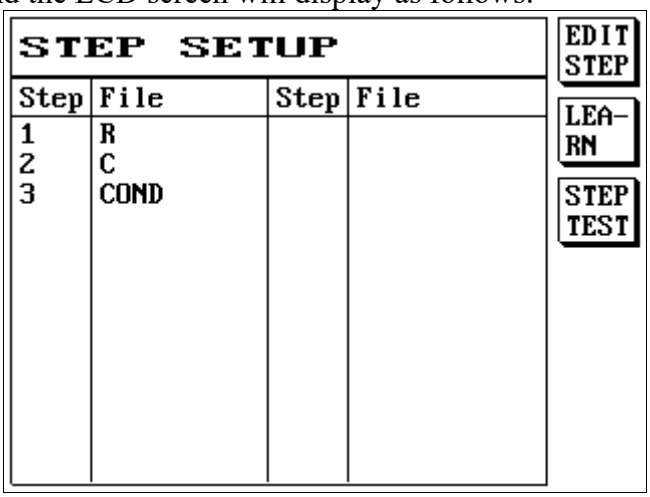
And then use [↑] or [↓] to move the cursor to EX2, and then press S3 [SET].
(8) The LCD screen will display as follows:



(9) Continue to use [↑] or [↓] to move the cursor to EX3, and then press S3 [SET].
(10) The LCD screen will display as follows:

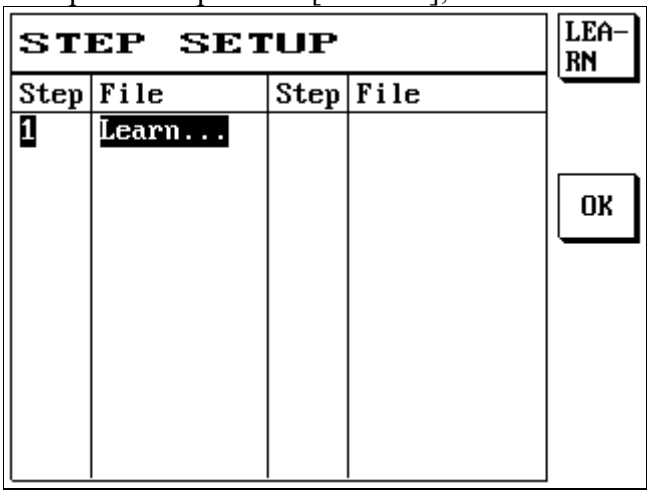


(11) Please press S4 [OK] and the LCD screen will display as follows:

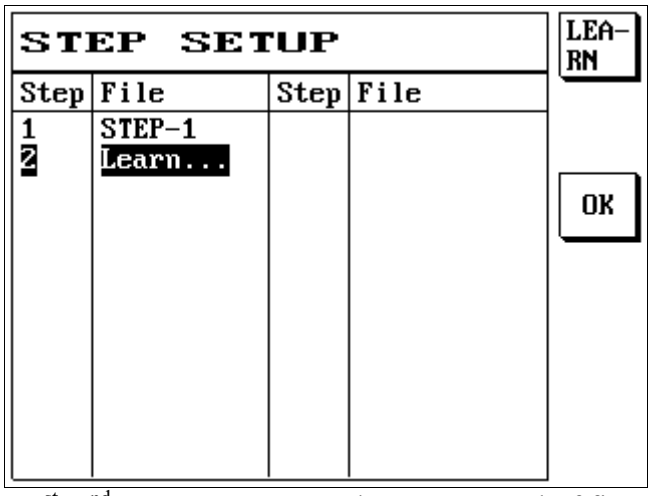


(12) This way step test setting is complete; S2 [LEARN] can also be used for setting.

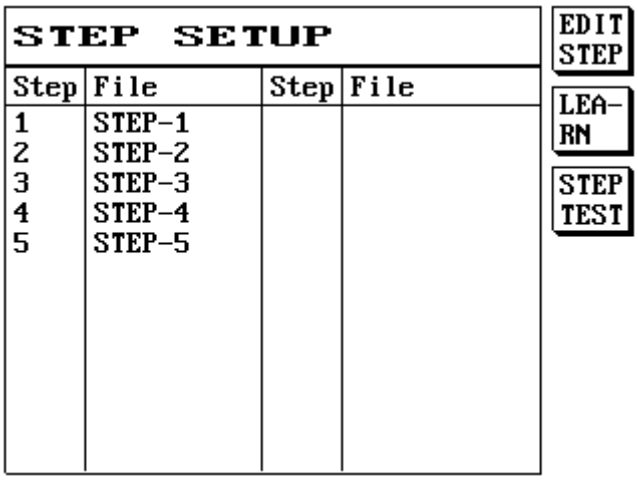
(13) For example: Put the DUT in place and press S2 [LEARN]; the LCD screen will display as follows:



(14) Press S1 [Learn] and the 1st step setting will be generated; the LCD screen will display as follows:

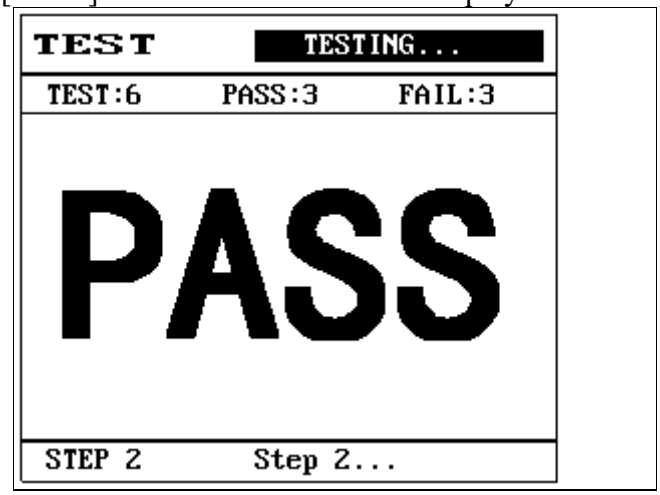


(15) And so on; we can set the 1st, 2nd...step. Assume we have set a total of five test steps, once setting is completed, press S3 [OK] and the LCD screen will display as follows:

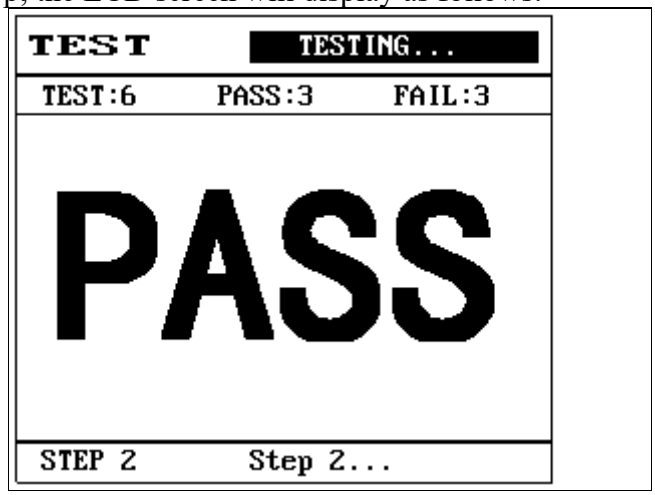


(16) This also completes the setting for step test.

(17) Press S3 [Step Test] or [TEST] and the LCD screen will display as follows:

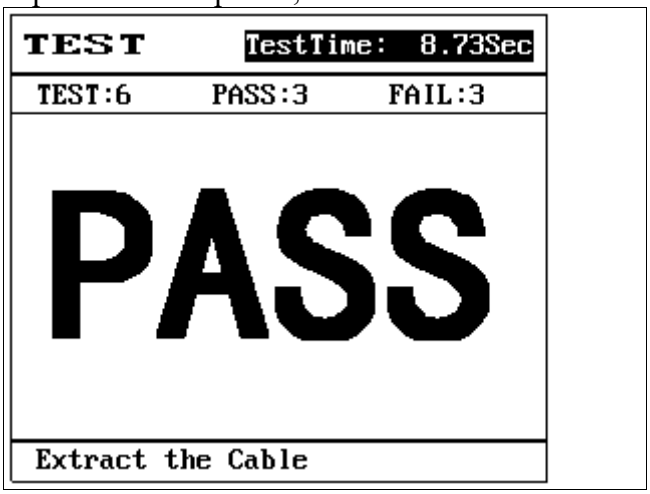


(18) Performs the 1st test step; the LCD screen will display as follows:



(19) First step PASS, the LCD screen will display {wait for test step 2}.

(20) And so on until all five steps set are completed, then the LCD screen will display as follows:



(21) This completes the step test.



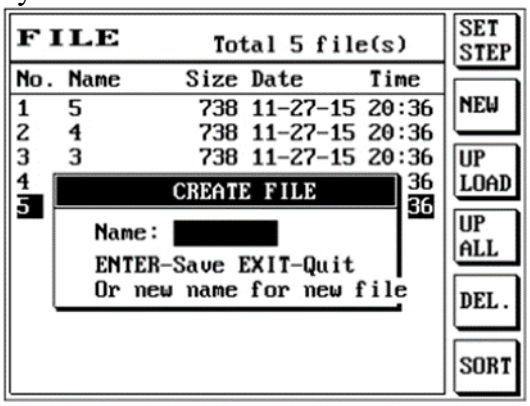
Note:

1. **When each test step is completed, the machine will scan for short circuits (O/S). The machine will only perform the next test step after the short circuit (O/S) status changes.**
2. **If you want the machine to perform the next test step without waiting for the short circuit (O/S) status change, please set the [test start method] in the file test mode of that test step as |continuous|.**

4.3.3 Create New File

The function to create a new file in the permanent memory; its instructions are as follows:

(1) Press [File].
(2) Press S2 [NEW] to perform the create new file action.
(3) The LCD screen will display as follows:

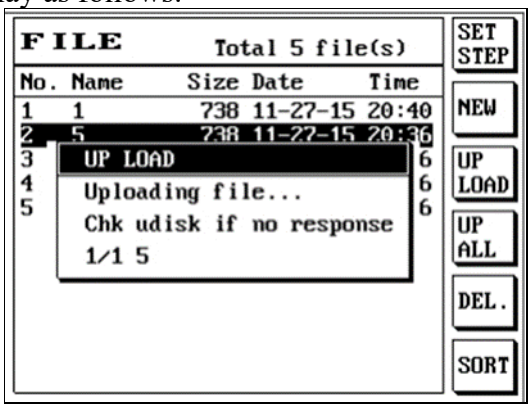


(4) Enter file name
(5) Confirm the file name you want to create and press [Enter] to complete the create new file action.

4.3.4 Upload File

Upload file uploads the selected single file to the USB flash drive; its instructions are as follows:

(1) Press [File] and use [↑] or [↓] to move the cursor to select the file name to upload, and insert the USB flash drive into the front panel.
(2) Press S3 [UPLOAD] to execute the upload file action.
(3) The LCD screen will display as follows:

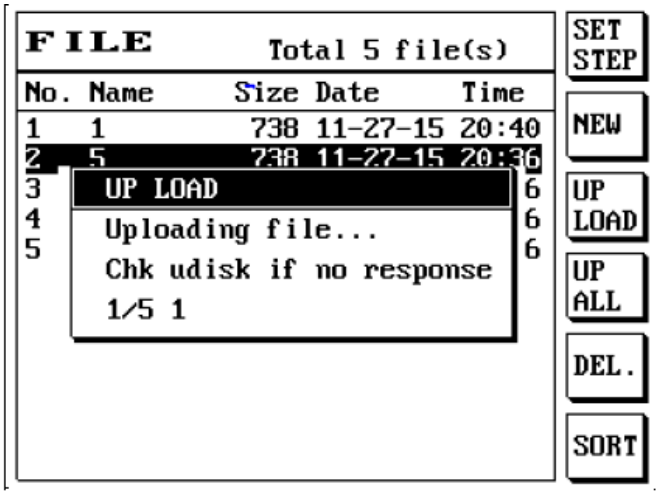


(4) Confirm the file name you want to upload and press [Enter] to complete the upload file action.

4.3.5 Upload All

Upload all uploads all the files to the USB flash drive; its instructions are as follows:

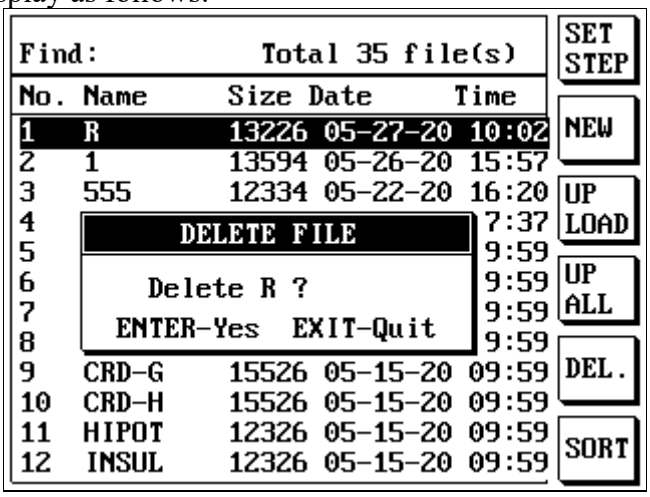
(1) Press [File].
(2) Press S4 [UP ALL] to execute the upload all files action.
(3) The LCD screen will display as follows:



4.3.6 Delete File

Delete file permanently deletes files saved on the permanent memory in order to avoid using up precious permanent memory; its instructions are as follows:

(1) Press [File] and use [↑] or [↓] to move the cursor to select the file name to delete.
(2) Press S5 [DEL.] to execute the delete file action. [SHIFT] + S5 S5 [DEL.] deletes all files.
(3) The LCD screen will display as follows:



(4) Confirm the file name you want to delete and press [Enter] to complete the delete file action.

4.3.7 Sort File

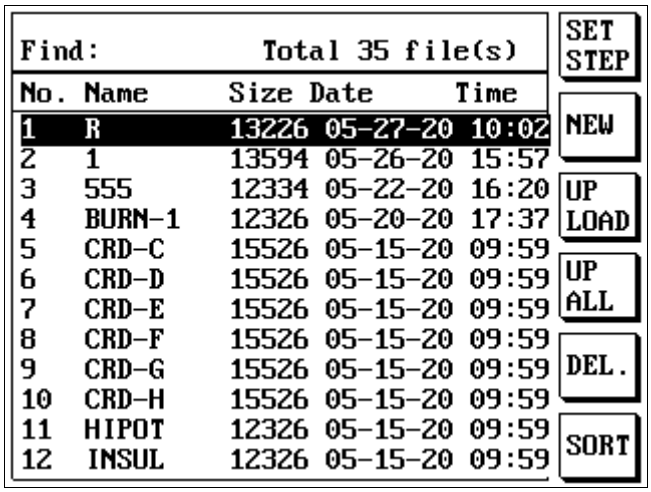
Sort file sorts the files according to four rules (); its instructions are as follows:

(1) Press [File].

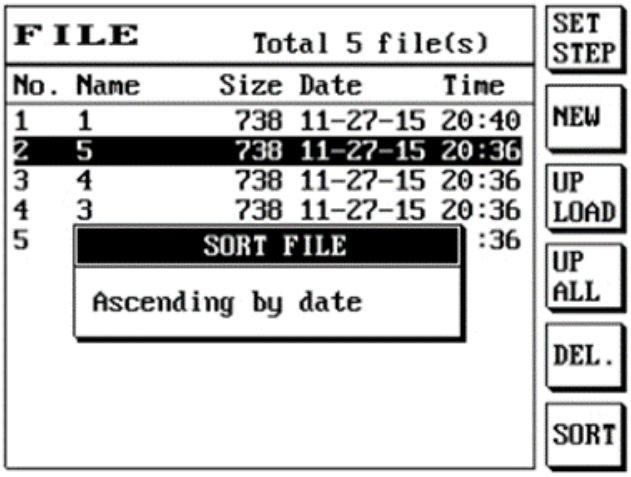
(2) Press S6 [SORT] to execute the file sort action.
The LCD screen will display as follows:

(3)

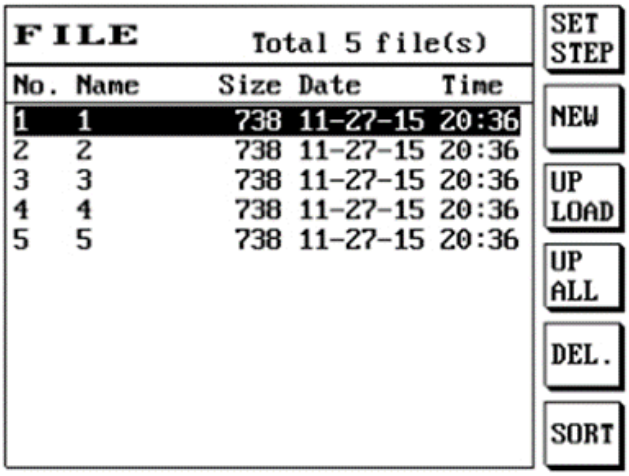
1. Unsorted files.



2. Press S6 [SORT] to execute the file sort action.



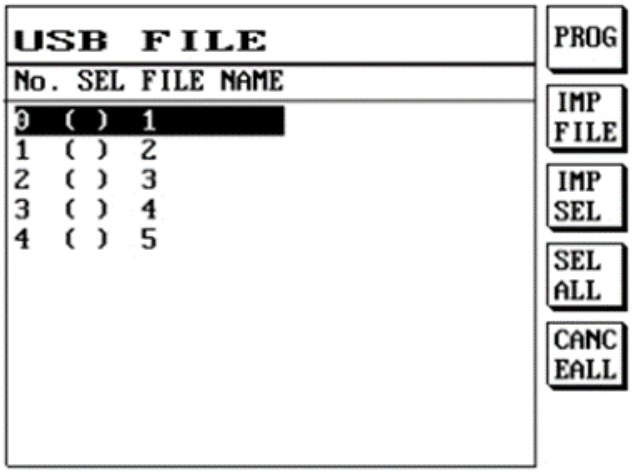
3. File order after sorting.



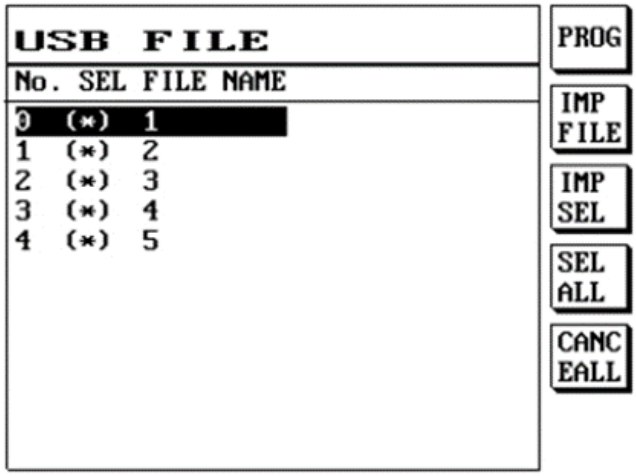
4.3.8 Import File

Import file imports files on the USB flash drive to the tester; its instructions are as follows:
(1) Press [SHIFT] + [File].
(2) The LCD screen will display as follows:

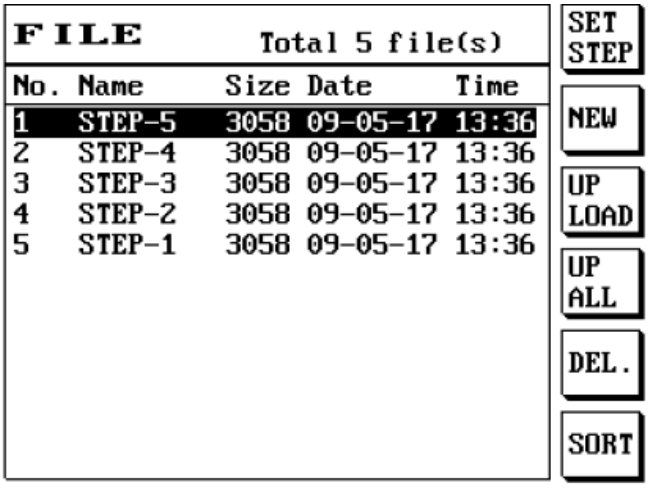
1. Enters the import file screen.



2. Press S1 [PROG] or S4 [SEL ALL] to select the file to import; on the other hand you can press S5 [CANCEALL] to cancel the selected files.



3. Press S1 [IMP SEL] to import the file currently selected (highlighted) using the up and down buttons; the file will be imported whether it was selected or not. Press S3 [IMP SEL] to import the file selected using S1 [PROG] or S4 [SEL ALL].


FILE
Total 5 file(s)
No. Name Size Date Time
1 STEP-5 3058 09-05-17 13:36
2 STEP-4 3058 09-05-17 13:36
3 STEP-3 3058 09-05-17 13:36
4 STEP-2 3058 09-05-17 13:36
5 STEP-1 3058 09-05-17 13:36
SET STEP
NEW
UP LOAD
UP ALL
DEL.
SORT

APPENDIX A Cable Wiring Configuration

1. RS-232C CABLE

Baud Rate：115200bps

Character Length：8bits

Stop Bit：One Bit

Parity：Non-Parity

Character：ASCII Character

Function	8740	Controller
RxD	Pin2	Pin3
TxD	Pin3	Pin2
GND	Pin5	Pin5

2. PRINTER CABLE

25-PIN connector (male)	36-PIN connector (male)	Signal
1	1	STROBE
2	2	DATA 0
3	3	DATA 1
4	4	DATA 2
5	5	DATA 3
6	6	DATA 4
7	7	DATA 5
8	8	DATA 6
9	9	DATA 7
10	10	ACKNLG
11	11	BUSY
13	13	SLCT
18 - 25	19 - 30, 33	GND

3. REMOTE CABLE

The definition of the 15-PIN connector is as described below; ***CTL[7:0] is open collector output and requires an external pull-up resistor to provide high potential.***

PIN	Signal Name	Reference Potential	Single DUT	MultiDUT signal	Pull-up Resistor
1	CTL0	EGND	Testing	Testing	Must use 4.7K-10KΩ
2	CTL1	EGND	High voltage testing	High voltage testing	Must use 4.7K-10KΩ
3	CTL2	EGND	PASS Status	Total PASS	Must use 4.7K-10KΩ
4	CTL3	EGND	FAIL Status	Total FAIL	Must use 4.7K-10KΩ
5	CTL4	EGND		DUT 1 FAIL/PASS	Must use 4.7K-10KΩ
6	CTL5	EGND		DUT 2 FAIL/PASS	Must use 4.7K-10KΩ
7	CTL6	EGND		DUT 3 FAIL/PASS	Must use 4.7K-10KΩ
8	CTL7	EGND		DUT 4 FAIL/PASS	Must use 4.7K-10KΩ
9	EGND	EGND	The internal isolated power reference potential and GND has an insulation relationship of >2GΩ.		
10	SW1	EGND	Test can be started when EGND + SW1 short-circuits (Panel Test).		
11	SW2	EGND	Exits when EGND+ SW2 short-circuits (Exits Panel).		
12	RESET	EGND	Machine reset when RESET+ EGND short-circuits (Panel Reset).		
13	+5D	EGND	The internal isolated power's 5V 0.2A output capability must not short-circuit with the external power.		
14	+12D	GND	The internal 12V requires the use of a REMOTE extension cable. Connect EGND and GND.		
15	EGND		The internal isolated power reference potential and GND has an insulation relationship of >2GΩ.		

4. REMOTE Output Waveform

SW1 (TEST)

CTL0 (Testing)

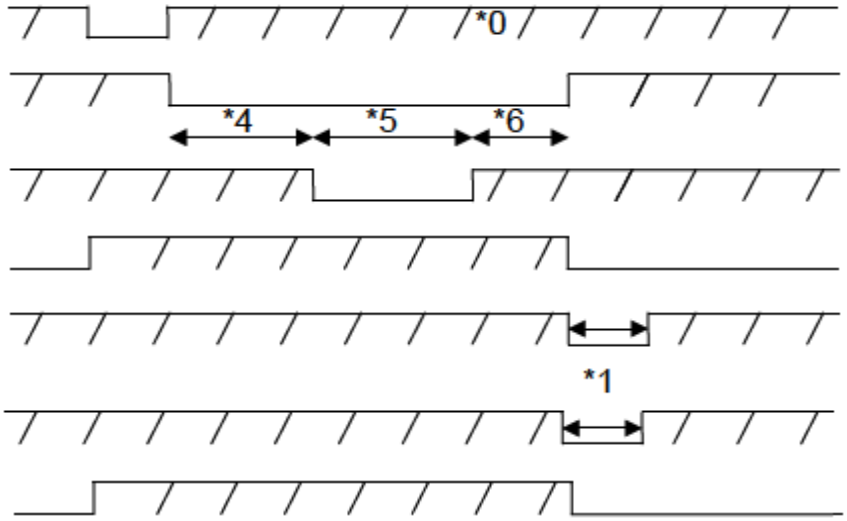
CTL1 (High Voltage Output)

CTL2/3 (PASS/FAIL) Continuous

CTL2/3 (PASSFAIL) Pulse Signal

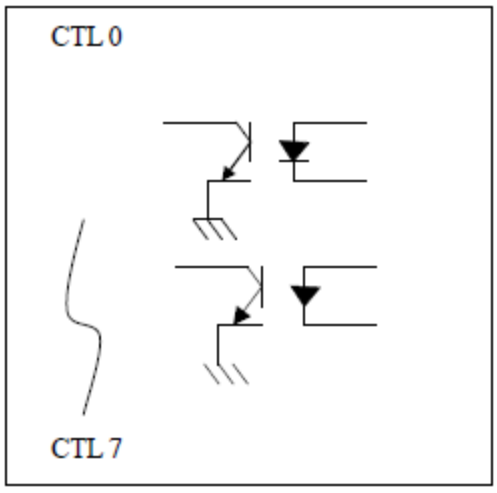
CTL4-CTL7 (PASS/FAIL)
Multi-DUT Pulse Signal

CTL4-CTL7 (PASS/FAIL)
Multi-DUT Continuous Signal



*0 Output high potentials require pull-up resistors to achieve; the voltage can reach a maximum of 30V.
*1 Pulse holding time output can be set to 1ms-1000ms.
*2 Activate test when there is low potential.
*3 Hold until the next round of testing has started.
*4 The length of this interval is set according to the pretest items of the high voltage test.
*5 There is the only output when AC/DC high voltage is enabled.
*6 The length of this interval is set according to the post-test items of the high voltage test.
The above is the output waveform for a single test file when defined as all tests completed; details are set according to the test file.

5. CTL0 - CTL1 internal circuit diagram is as shown in the figure below:



APPENDIX B Test Range and Functions

Item	Symbol	Test range	Tolerance	Minimum test voltage
Resistance	R	0.05Ω - 1Ω	±10%	
	R	> 1Ω && <= 10Ω	±5%	
	R	> 10Ω && <= 100Ω	±2%	
	R	>100Ω && <=1KΩ	±2%	
	R	>1KΩ && <=10KΩ	±2%	
	R	>10KΩ && <=100KΩ	±2%	
	R	>100KΩ && <=1MΩ	±2%	
	R	>1MΩ && <=20MΩ	±2%	
Capacitance	C	0~10pF	±20%	
	C	>1pF && <=20pF	±10%	
	C	>20pF && <=12uF	±5%	
Conductance	COND	0.001Ω - 52.0Ω	±(2%+8mΩ)	
Insulation resistance	IS	1MΩ - 1.99MΩ	±10%	50V
	IS	2.00 MΩ - 4.99 MΩ	±10%	50V
	IS	5.00 MΩ - 9.99 MΩ	±10%	50V
	IS	10.00 MΩ - 19.99 MΩ	±10%	50V
	IS	20.00 MΩ - 49.99 MΩ	±10%	50V
	IS	50.00 MΩ - 99.99 MΩ	±10%	100V
	IS	100.0 MΩ - 199.9 MΩ	±10%	200V
	IS	200.0 MΩ - 499.9MΩ	±20%	500V
	IS	500 MΩ - 1000.0MΩ	±20%	1000V
Diode	D	0.6 - 6.8V	±25%	
		>=7.0V	---	
Short circuit determination value	O/S	2KΩ - 50KΩ 100KΩ	±10% ±20%	
Intermittence test		20Ω - 2KΩ	±10%	
Unilateral test		1pF-999pF	±20%	
HIPOT current leakage		0.02mA-0.0499mA	±50%	
		0.05mA-0.099mA	±20%	
		0.1mA-0.199mA	±20%	
		0.2mA-0.499mA	±20%	
		0.5mA-4.99mA	±10%	

APPENDIX C Technical specifications

Advanced functions	Programmable continuous testing
	Automatic pin search
	Self-diagnosis
	Self correction offset
Basic accuracy	±5%
Test scan mode	Switchable automatic/short circuit scan
Test signal source	Inside DDS Simulated 50/60Hz
Low voltage test signal	1V rms
Rated output	5Vdc
	±5% accuracy
DC insulation/AC tolerance test range	Insulation 1M~1000MΩ HIPOT 0.0001A~0.0005A
8761-FA	50-1500VDC /100-1000VAC
8761-NA	50-1000VDC /100-700VAC
8761-NAC	50-1000VDC /100-700VAC
8761-N	50-1000VDC /----------
	50V Resolution
High voltage output accuracy	±5% accuracy
Display/sound device	320x240 resolution graphic LCD display
	6 digit digital display digit
	Pass/Fail LED red green indicator/screen display/sound
Test pin	Max 256 independent measurement contacts.
	64/128/256 contacts can be selected.
	High voltage correction positive and negative output
	Automatic pin search terminal
Control panel	System/quick/edit/function button group
Interface	RS-232 communication port (only for future connection software use)
	Printer port
	Remote control port
	USB port (test result/test setting file/system update) USB Disk Detailed Supported Specifications: Speed USB 2.0, File System: FAT32, Capacity 32G Bytes and below (including 32GB).
Memory device	Built-in 2048KB SRAM
	A maximum of 250 set of test setting files can be saved.
	Built-in CR2032 battery
Power supply	AC 115/230V 1.1A Switchable Voltage Input±10%
	60/50Hz