



HI-POT TESTER

7600

User Manual

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1. SAFETY

1.1 General

This equipment has been designed to meet the requirements of EN61010-1 'Safety requirements for electrical equipment for measurement, control & laboratory use' and has left the factory in a safe condition.

The following definitions in EN61010-1 are applicable:

OPERATOR	Person operating equipment for its intended purpose. Note: The OPERATOR should have received training appropriate for this purpose.
RESPONSIBLE BODY	Individual or group responsible for the use and maintenance of equipment and for ensuring that operators are adequately trained.

The RESPONSIBLE BODY must ensure that this equipment is only used in the manner specified. If it is not used in such a manner, the protection provided by the equipment may be impaired. This product is not intended for use in atmospheres which are explosive, corrosive or adversely polluted (e.g. containing conductive or excessive dust). It is not intended for use in safety critical or medical applications.

The equipment can cause hazards if not used in accordance with these instructions. Read them carefully and follow them in all respects.

Do not use the equipment if it is damaged. In such circumstances the equipment must be made inoperative and secured against any unintentional operation.

AC Power Supply

Power cable and connector requirements vary between countries. Always use a cable that conforms to local regulations, terminated in an IEC320 connector at the instrument end. If it is necessary to fit a suitable AC power plug to the power cable, the user must observe the following colour codes:

WIRE	EUROPEAN	N. AMERICAN
LIVE	BROWN	BLACK
NEUTRAL	BLUE	WHITE
GROUND	GREEN/YELLOW	GREEN

The user must also ensure that the protective ground lead would be the last to break should the cable be subject to excessive strain.

If the plug is fused, a 3-amp fuse should be fitted.

If the power cable electrical connection to the AC power plug is through screw terminals then, to ensure reliable connections, any solder tinning of the cable wires must be removed before fitting the plug.

Before switching on the equipment, ensure that it is set to the voltage of the local AC power supply.

WARNING!

Any interruption of the protective ground conductor inside or outside the equipment or disconnection of the protective ground terminal is likely to make the equipment dangerous. Intentional interruption is prohibited.

1.2 Adjustment, Maintenance and Repair

WARNING!

The equipment **must** be disconnected from all voltage sources before it is opened for any adjustment, replacement, maintenance, or repair.

When the equipment is connected to the local AC power supply, internal terminals may be live and the opening of the covers or removal of parts (except those to which access can be gained by hand) is likely to expose live parts.

Capacitors inside the equipment may still be charged even if the equipment has been disconnected from all voltage sources.

Any adjustment, maintenance, or repair of the opened equipment under voltage must be carried out by a skilled person who is aware of the hazards involved.

Service personnel should be trained against unexpected hazards.

Ensure that only fuses with the required rated current and of the specified type are used for replacement. The use of makeshift fuses and short-circuiting of fuse holders is prohibited.

1.3 Static Electricity

The unit supplied uses static-sensitive devices. Service personnel should be alerted to components which require handling precautions to avoid damage by static electrical discharge. Before handling circuit board assemblies containing these components, personnel should observe the following precautions:

- 1) The work surface should be a conductive grounded mat.
- 2) Soldering irons must be grounded and tools must be in contact with a conductive surface to ground when not in use.
- 3) Any person handling static-sensitive parts must wear a wrist strap which provides a leaky path to ground, impedance not greater than 1M .
- 4) Components or circuit board assemblies must be stored in or on conductive foam or mat while work is in progress.
- 5) New components should be kept in the supplier's packaging until required for use

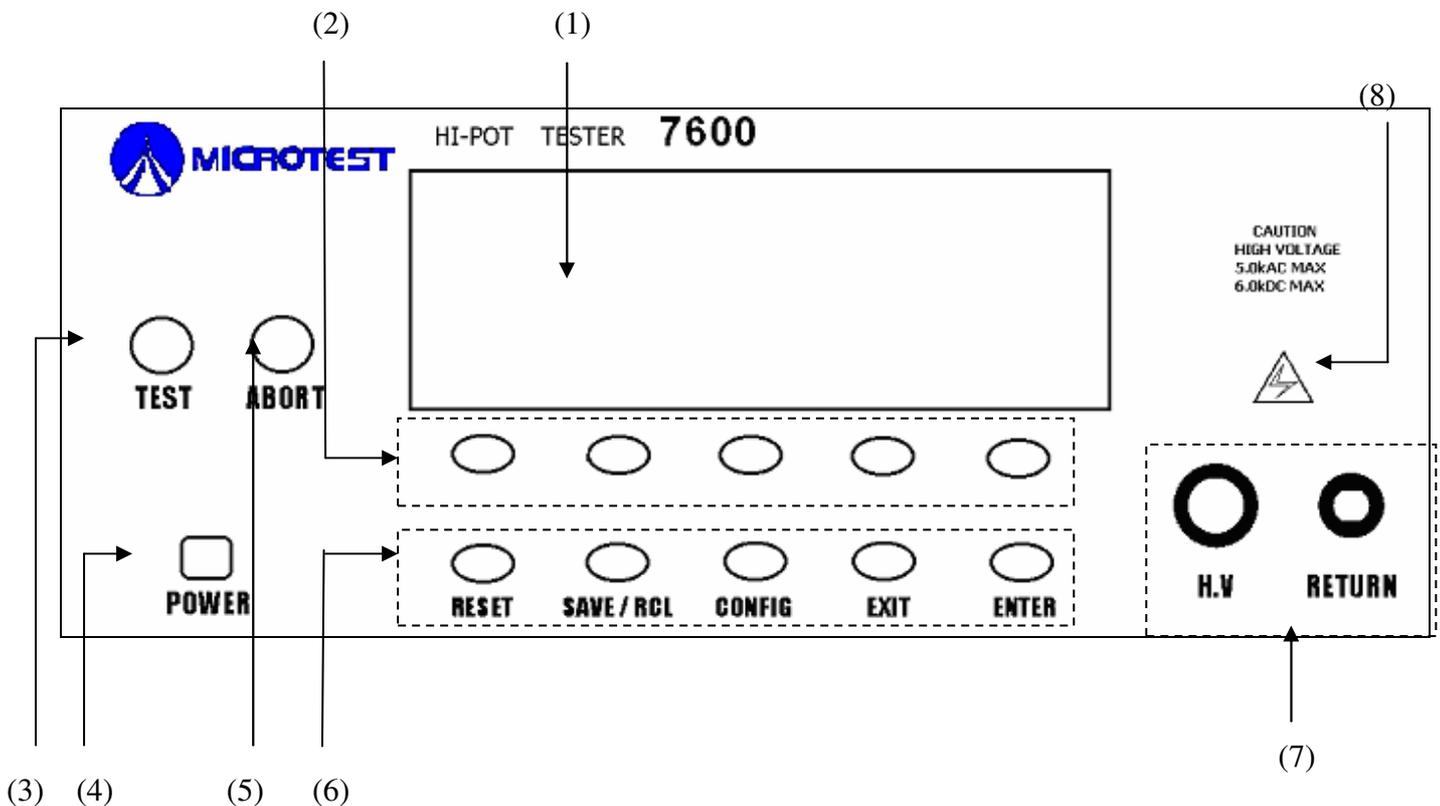
2. GENERAL:

2.1 Packing and accessories:

The standard accessories for the HT-7600 high-pot tester are the following items:

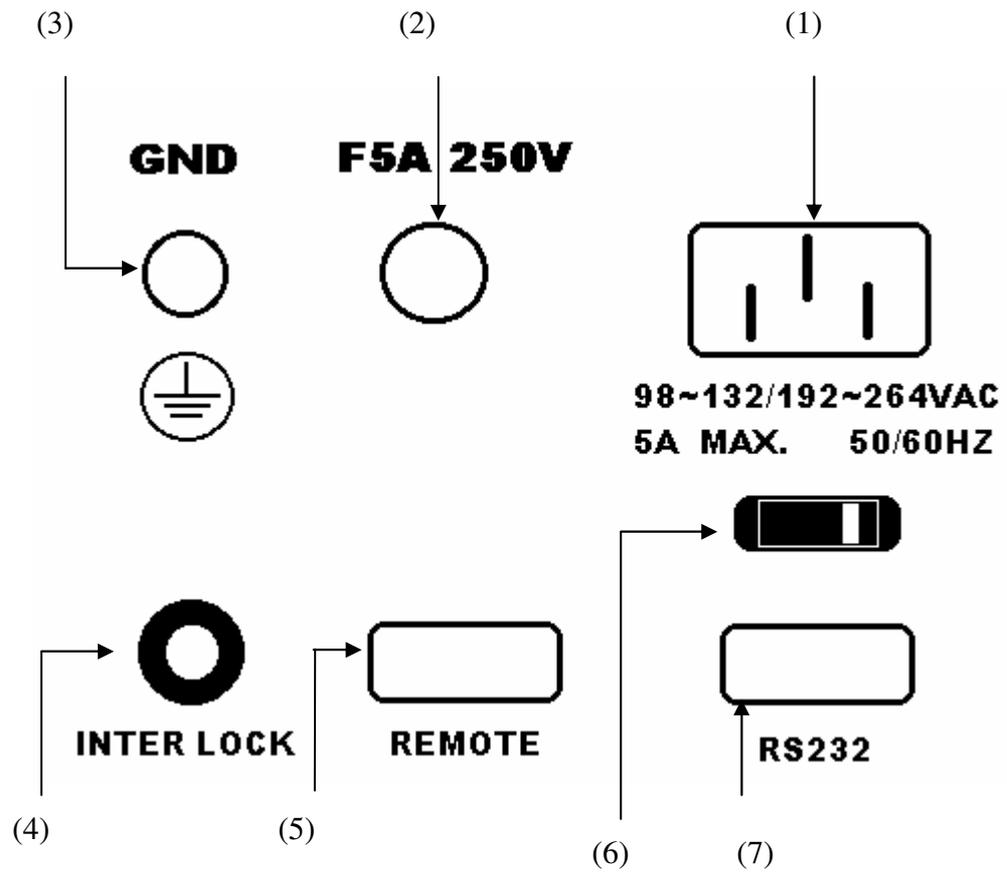
1. HT-7600 hi-pot tester *1
2. High voltage testing lead (red) *1
3. High voltage testing lead (black) *1
4. Power cord *1
5. Power cord adapter*1
6. Operation manual *1
7. High voltage safety plug *1

2.2 The Front Panel:



- (1) LCD display
- (2) S1 ~ S5 Soft Key
- (3) Test button (including PASS light)
- (4) Power switch
- (5) Abort button (including FAIL light)
- (6) High voltage output terminal
- (7) High voltage alarm light

2.3 The Rear Panel



(1) AC power socket

(2) Fuse holder

(3) Grounding terminal

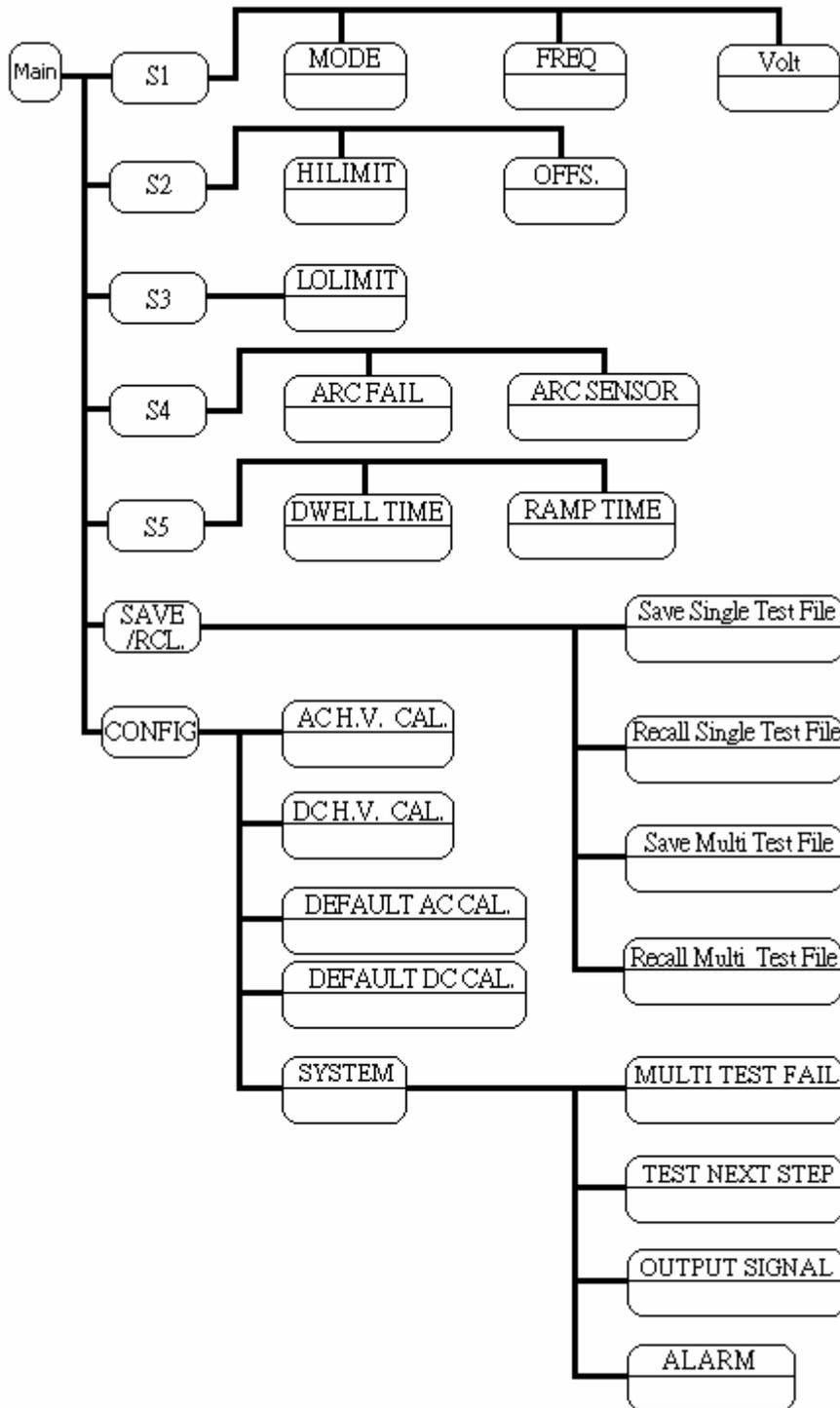
(4) Inter-lock plug

(5) Remote control port

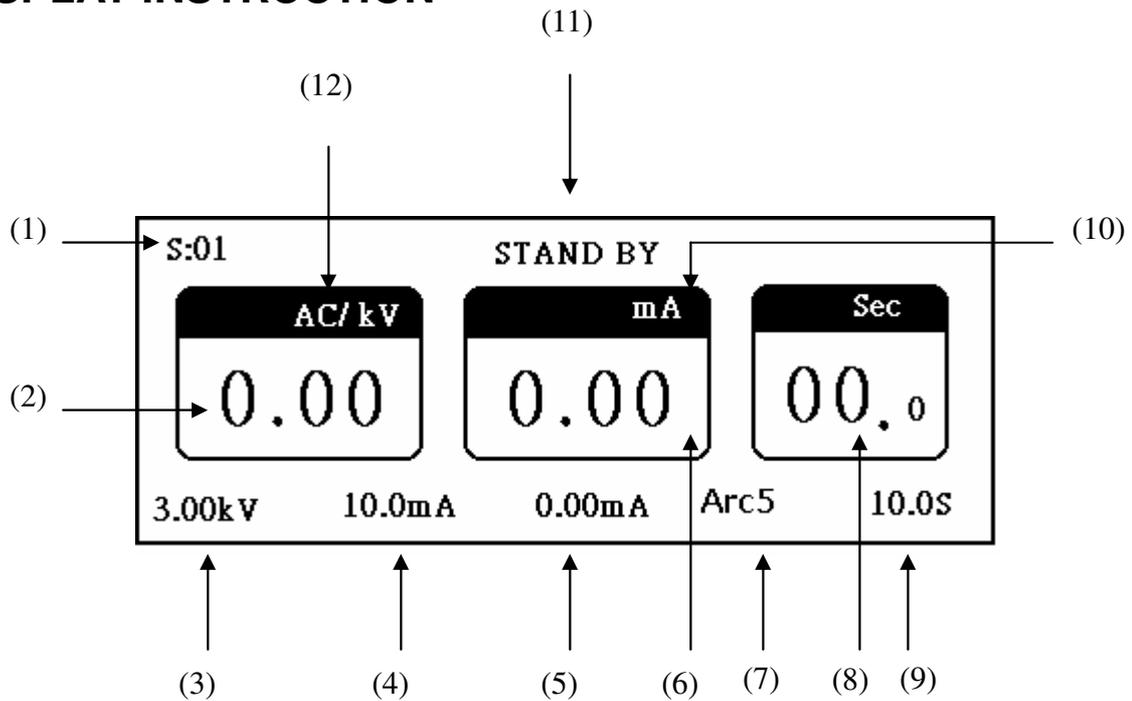
(6) Voltage selector

(7) Serial port

2.4 Function block diagram:



3. DISPLAY INSTRUCTION



- (1) Display the testing file, S stands for single file, M stands for multi-test files. The two numerical digits following the character stand for the file number.
- (2) Display the tested voltage value of the high voltage output terminal.
- (3) Display the set voltage value.
- (4) Display the upper limit value
- (5) Display the lower limit value.
- (6) Display the tested current value. Or display resistance value when switched to IR model.
- (7) Display the sensitivity of set electric arc. Display OFF when the function is turned off.
- (8) Display elapsed time.
- (9) Display the set testing time.
- (10) Display the unit of measurement. Show up Ω in IR model.
- (11) Message row. Display the testing status.
- (12) Display testing mode, including AC, DC and IR.

4. OPERATION:

Before testing, please assure the high voltage safety plug (inter-lock plug) is plugged appropriately. If not, high voltage will not be generated, and the display will show "HI-POT LOCK".

4.1 Testing mode and voltage setting:

Press S1 to show setting display as figure 1.

Parameter 1 is testing model setting. Press S1 to choose AC, DC, or IR.

Parameter 2 is AC frequency setting. Press S3 to choose 50 or 60 HZ.

Parameter 3 is output voltage setting. Press S5 to enter voltage setting display as figure 2, then press S2 ~ S3 to adjust voltage. Press S3 to add 1 on the value, and S4 to subtract 1. S5 to input set value, and will adjust the value into maximum if your setting is higher than the maximum value, or adjust it into minimum if the setting is lower than the minimum value.



Figure 1

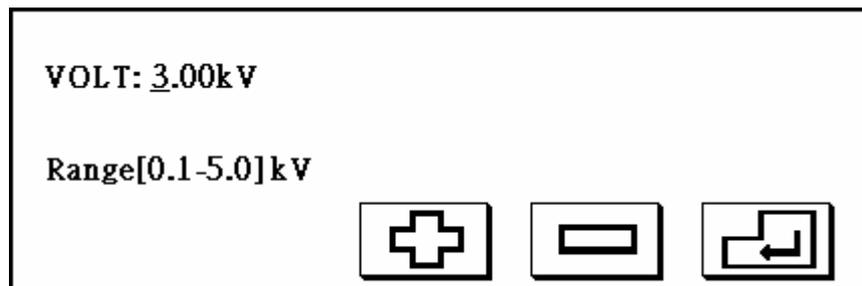


Figure 2

4.2 Upper limit setting and zero trim:

Press S2 to enter setting display as figure 3.

Parameter 1 is upper limit setting. Press S2 in setting display to enter upper limit setting display. Upper limit setting procedure is the same as the voltage setting procedure; if tested current is higher than upper limit, the display will show HILIMIT and FAIL light will turn on.

Parameter 2 is zero trim setting. Press S4 in setting display to enter zero setting display as figure 4. There are two setting modes; one is manual setting, the other is automatic setting. For manual setting, the procedure is the same as voltage setting. For automatic setting, press TEST button and then the tester will execute testing by the set voltage and display the tested result on the screen. After testing, screen will show SAVE=ENTER. Press ENTER to save tested value, or press EXIT to quit without saving.

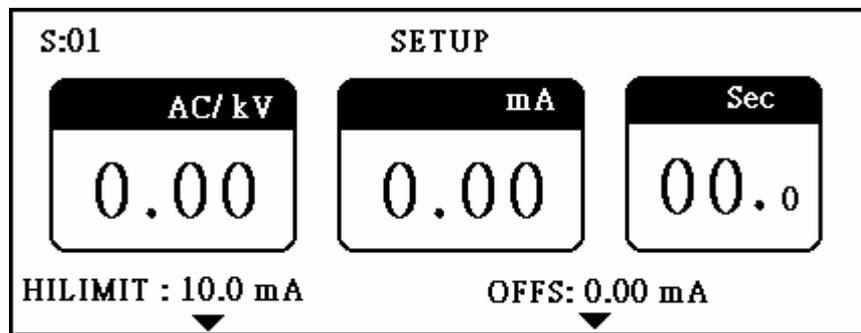


Figure 3

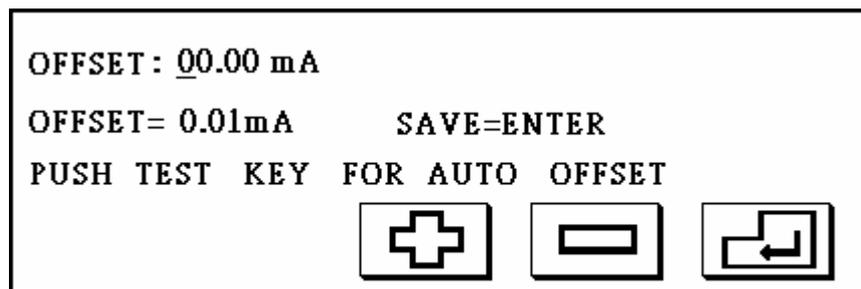


Figure 4

4.3 Lower limit setting:

Press S3 to enter lower limit setting display as figure 5.

The setting procedure is the same as general setting (please refer to voltage setting). If tested current is lower than lower limit, the display will show LOLIMIT and FAIL light will turn on.

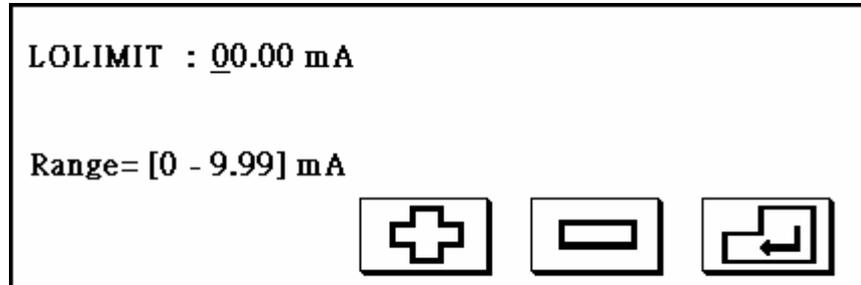


Figure 5

4.4 The setting for sensitivity of electric arc:

Press S4 to enter electric arc detection switch setting display as figure 6.

Parameter 1 is electric arc detection switch. Press S1 to switch ON/OFF. Detected electric arc will be ignored if condition is set to OFF. On the other hand, it will be judged by electric arc sensitivity if condition is set to ON.

Parameter 2 is electric arc sensitivity setting. Press S4 to enter sensitivity setting display as figure 7. The setting procedure is the same as general setting. The larger the set value, the lower the sensitivity.

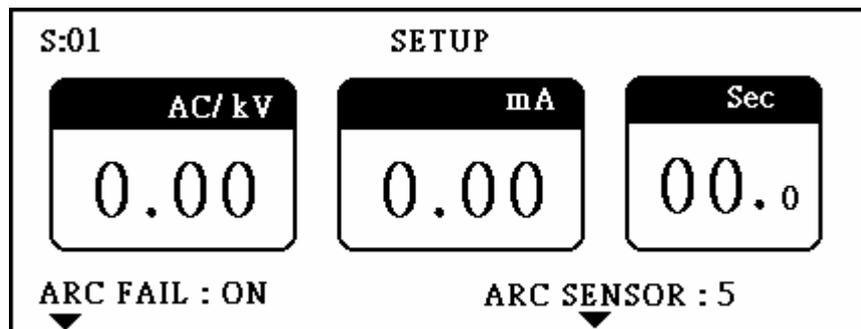


Figure 6

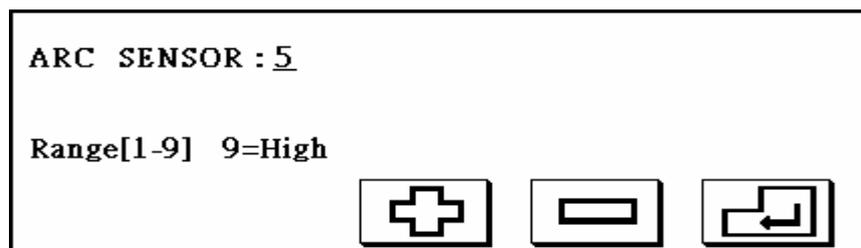


Figure 7

4.5 Setting for dwell time and voltage ramping time:

Press S5 to enter voltage dwell and ramping time setting display as figure 8. Parameter 1 is voltage dwell time setting. Press S1 to enter setting display. The setting procedure is the same as general setting. The set time is the testing time, and it would be non-stop testing if set to 00.0. Parameter 2 is voltage ramping time setting. Press S5 to enter setting display. The setting procedure is the same as general setting. The set time is the time that power rises from zero to the set voltage.

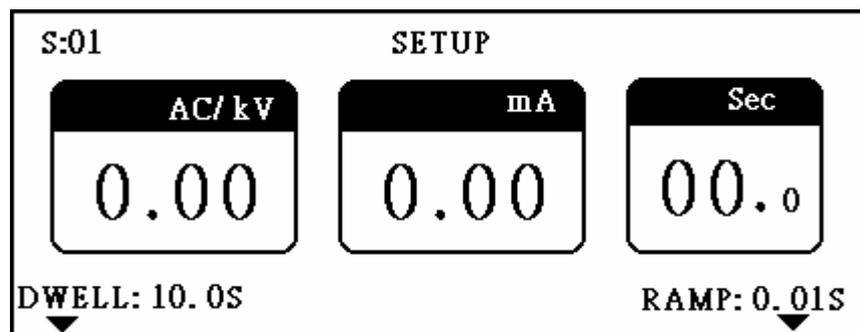


Figure 8

5. FUNCTION KEY INSTRUCTION:

- (1) **TEST button:** Press this button to trigger the test.
- (2) **ABORT button:** Press this button during test to abort the test. If test result is fail, red light will turn on and buzzer will alarm. To stop red light and buzzer, also press this button.
- (3) **RESET button:** Press this button to reset system.
- (4) **SAVE/RCL button:** Press this button to enter SAVE/RECALL display as figure 9.
Option 1 is to save single test file. When all settings are done, choose this item to save file. Press S1 to enter single file saving display, and key in numerical file name (could save 25 files at most). The setting procedure is the same as general setting. All set values will be saved in non-volatile memory, and won't be lost even if the tester is turned off.
Option 2 is to recall single test files. Press S2 to enter single file recalling display. The setting procedure is the same as the general setting. If the recalled file name is new, all settings will be the default value.
Option 3 is to save multi-test file. The item is to save several single test files into one multi test file, and recalls single files to do test one by one from the multi test file. Totally, you can save 10 multi test files, and 8 single test files in one multi test file. The setting

procedure is to press S3 to enter multi test file setting display as figure 10; and then set a multi test file number, press ENTER to move cursor to next row, and key in single test file number. Please follow STEP sequence to set single file number (If only set STEP 1 and 3, the tester will only test STEP1). When complete one STEP, please press ENTER to move to next one. When all are completed, please press S5 (SAVE on the display) to save files.

Option 4 is to recall multi test file. Press S4 to enter multi test file recalling display as figure 11. Please key in file number and press ENTER to preview the file. When settings are done, press S5 to recall the file (RE-CALL on the display).

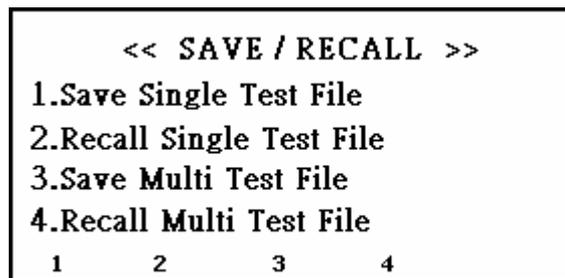


Figure 9

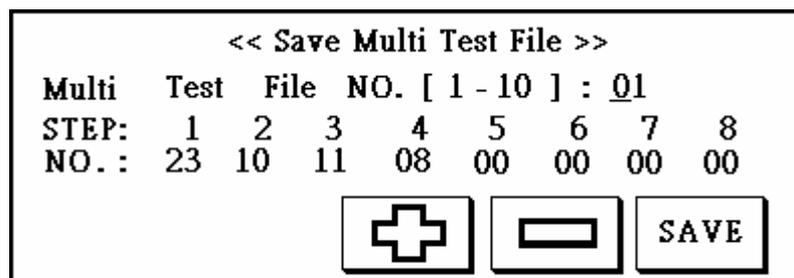


Figure 10

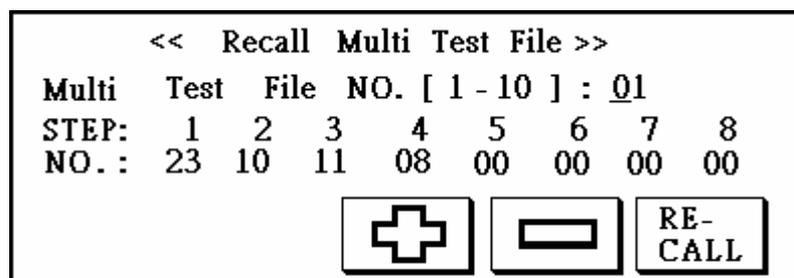


Figure 11

(5) CONFIG button:

Press this button to enter system configuration display as figure 12.

Option 1 is AC high voltage calibration. Calibration procedure is, first, to press S1 in the display which will show up "High Voltage will output", and disconnect test leads to prevent inaccuracy caused by output loading. Press ENTER to get into AC high voltage

calibrating display as figure 13. On the left side of the display is voltage set value, voltage calibration code in the middle, and voltage measured value on the right side. At beginning, the cursor makes a stop on the row of 500V and corrects the voltage by S3 (plus correction code) and S4 (minus correction code); after correcting measured value to the set value approximation, press S5, jump to the next row and to do the other correction. By this procedure to correct voltages to 2500V, press S5 and the cursor will back to the row of 500V again. In this moment, you can press S2 passing to next page and do another correction. When all voltage corrections are done, press EXIT to leave the display, and high voltage code would be saved automatically.

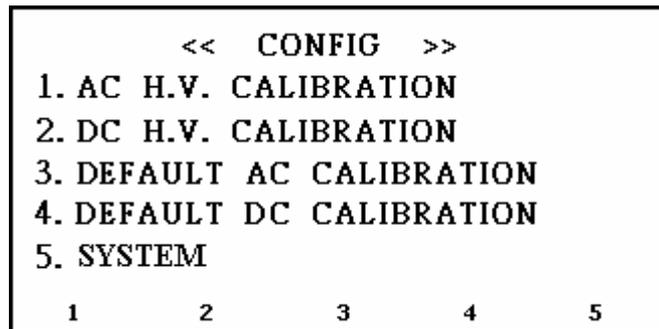


Figure 12

<< AC CALIBRATION >>		
VOLTAGE	CODE	READING
500V	66	499
1000V	150	1001
1500V	222	1499
2000V	295	2000
2500V	367	2501
Page ▲	Page ▼	Adj +
		Adj -
		ENTER

Figure 13

Option 2 is DC high voltage calibration. The setting procedure is the same as AC calibration.

Option 3 and 4 are load default AC and DC calibration value. Press S3 or S4 in system configuration display, and display would show up “correction codes will be lost”. Press ENTER to turn correction codes into default ones; on the other hand, press EXIT to quit without change.

Option 5 → System setting:

Press button S5 to enter system setting page (figure 12).

There are four options in this page, and the functions of these options are described as following:

1st option: The multi-test setting for NG products. Press S1 button to change status between STOP and CONTINUE. When status is STOP, the tester will stop testing if NG

products are detected. On the other hand, when status is set to CONTINUE, the tester will complete the whole test procedure even NG products are tested.

2nd option: The multi-test setting for next step. Press S2 button to change status between TEST KEY and AUTO. If TEST KEY were selected, the test button should be pressed before proceeding to the next test step. Conversely, AUTO will automatically complete all test steps without pressing any test key.

3rd option: The multi-test setting for signal display. Press S3 to change status between YES and NO. For YES, the tester will display pass or fail signals on the screen when ending each step. For NO, all signals won't display until all test steps are completed (if any unqualified product in any step were detected, the final judgment would be NG.)

4th option: Alarm setting. Press S4 to change status between ON and OFF. If the status is ON, the buzzer and FAIL light will be turned on when NG products are detected. Otherwise, if the status is OFF, buzzer will be switched off when NG products are detected, but the FAIL light still workable.

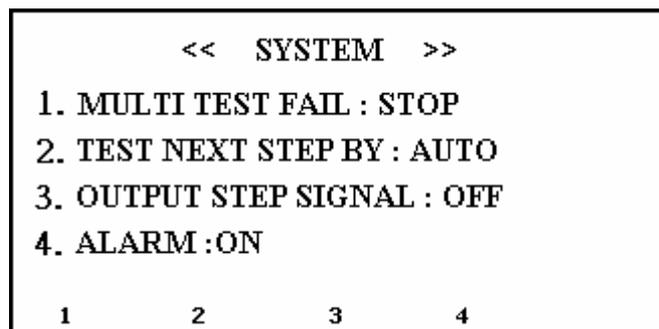


Figure 14

(6) **EXIT button:** Press this button in any mode to exit setting display, and back to the previous display or standby status.

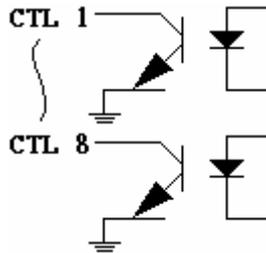
(7) **ENTER button:** To confirm the input data.

(8) **Keyboard Lock:**

When turning on the tester and getting into the turning-on page, press ENTER and the screen will display KEY LOCK: ON to lock keyboard. In the same way, one can unlock the keyboard by RESET the tester and redo the procedure. When keyboard is locked, one cannot edit data, but the test functions are still workable.

6. REMOTE CONTROL:

There is a remote port (REMOTE) on the rear panel of the tester. To control the tester output from external signals, please connect the cable to the connector. Because the control is from exterior, please avoid operators contacting high voltage output terminal.



Circuit

PIN#	NAME	FUNC
1	CTL1	WIND1
2	CTL2	WIND2
3	CTL3	WIND3
4	CTL4	WIND4
5	CTL5	FIXTURE
6	CTL6	PASS
7	CTL7	FAIL
8	CTL8	H.V. ON
9	V1	+12V
10	SW1	TEST
11	SW2	ABORT
12	RST	RESET
13	V2	+5V
14	V3	+12V
15	GND	

Descriptions:

(1) TEST: A test is performed whenever GND (pin15) and SW1 (pin10) are shorted.

(2) ABORT: Test is abort whenever GND (pin15) and SW2 (pin11) are shorted.

(3) RESET: System is reset whenever GND (pin15) and RST (pin12) are shorted.

(4) PASS: To indicate the PASS state.

Active: Ground

Inactive: Floating

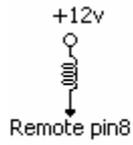
(5) FAIL: To indicate the FAIL state.

Active: Ground

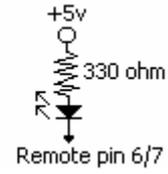
Inactive: Floating

(6) H.V.ON: To indicate the testing is in progress.

7. APPRICATIONS:



1. Solenoid control.



2. PASS, FAIL LED indicator.