

HIPOT Analyzer

19055/19055-C

Quick Start Guide

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Material Contents Declaration

The recycling label shown on the product indicates the Hazardous Substances contained in the product as the table listed below.

 : See <Table 1>.

 : See <Table 2>.

<Table 1>

Part Name	Hazardous Substances					
	Lead	Mercury	Cadmium	Hexavalent Chromium	Polybrominated Biphenyls	Polybromodiphenyl Ethers
	Pb	Hg	Cd	Cr ⁶⁺	PBB	PBDE
PCBA	○	○	○	○	○	○
CHASSIS	○	○	○	○	○	○
ACCESSORY	○	○	○	○	○	○
PACKAGE	○	○	○	○	○	○

“○” indicates that the level of the specified chemical substance is less than the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

“×” indicates that the level of the specified chemical substance exceeds the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

Disposal

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new one, the retailer is legally obligated to take back your old appliances for disposal at least for free of charge.



<Table 2>

Part Name	Hazardous Substances					
	Lead	Mercury	Cadmium	Hexavalent Chromium	Polybrominated Biphenyls	Polybromodiphenyl Ethers
	Pb	Hg	Cd	Cr ⁶⁺	PBB	PBDE
PCBA	×	○	○	○	○	○
CHASSIS	×	○	○	○	○	○
ACCESSORY	×	○	○	○	○	○
PACKAGE	○	○	○	○	○	○

“○” indicates that the level of the specified chemical substance is less than the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

“×” indicates that the level of the specified chemical substance exceeds the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

1. Chroma is not fully transitioned to lead-free solder assembly at this moment; however, most of the components used are RoHS compliant.
2. The environment-friendly usage period of the product is assumed under the operating environment specified in each product's specification.

Disposal

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new one, the retailer is legally obligated to take back your old appliances for disposal at least for free of charge.



Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or specific WARNINGS given elsewhere in this manual will violate safety standards of design, manufacture, and intended use of the instrument. *Chroma* assumes no liability for the customer's failure to comply with these requirements.



BEFORE APPLYING POWER

Verify that the power is set to match the rated input of this power supply.



PROTECTIVE GROUNDING

Make sure to connect the protective grounding to prevent an electric shock before turning on the power.



NECESSITY OF PROTECTIVE GROUNDING

Never cut off the internal or external protective grounding wire, or disconnect the wiring of protective grounding terminal. Doing so will cause a potential shock hazard that may bring injury to a person.



FUSES

Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired fuses or short-circuited fuse holders. To do so could cause a shock or fire hazard.



DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the instrument in the presence of flammable gases or fumes. The instrument should be used in an environment of good ventilation.



DO NOT REMOVE THE COVER OF THE INSTRUMENT

Operating personnel must not remove the cover of the instrument. Component replacement and internal adjustment can be done only by qualified service personnel.

 **WARNING**

1. Lethal voltage. AC source may output 6000 V peak voltage.
2. Touching the connected circuit or output terminal on the front or rear panel when power is on may result in death.

Safety Symbols



DANGER – High voltage.



Explanation: To avoid injury, death of personnel, or damage to the instrument, the operator must refer to an explanation in the instruction manual.



Protective grounding terminal: To protect against electrical shock in case of a fault. This symbol indicates that the terminal must be connected to ground before operation of equipment.



The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.



The **CAUTION** sign denotes a hazard. It may result in personal injury or death if not noticed timely. It calls attention to procedures, practices and conditions.



This indicates important information or tips for the procedures and applications, etc. The contents should be read carefully.

Inspection and Examination

Before the instrument exit the factory, we have a series of inspection and measurement on mechanical and electrical characteristics. Make sure its function of operating for the quality warranty of the product. As soon as the instrument is unpacked, inspect for any damage that may have occurred in transit. Save all packing materials in case that the instrument has to be returned. If damage is found, please file claim with carrier immediately. Do not return the instrument to Chroma without prior approval.

Standard Accessory

Standard Equipment



Main unit



User's Manual CD-ROM

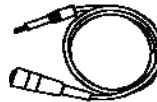
Standard Equipment (Cable)



- USA-type power cord
90° elbow
1.8m x 1



- Power adapter
3PIN to 2PIN x
1



- HV terminal used test cable x 2



- RTN/LOW terminal used BNC test cable



- 10A fuse x 2

Note ■ When order the accessories, please name the item.

The Danger of Operating

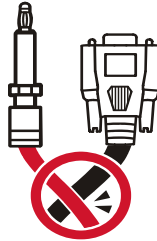
1. When the instrument is under output voltage, please don't touch test area or you may shock hazard and result in death.
Please obey the following items.
 - Make sure the grounding cable is connected correctly and using the standard power cord.
 - Don't touch the output terminal.
 - Don't touch test cable of connecting test termination.
 - Don't touch test termination object.
 - Don't touch any charge component of connecting output terminal.
 - As the instrument end the test or turn off output, please don't touch test unit immediately.

2. The shock accidents are usually occurred on the following conditions.
 - The grounding terminal of the instrument doesn't connect correctly.
 - The insulation glove for testing is not used.
 - After test is completed to touch test unit immediately.

3. Remote control for the instrument: This instrument provided with remote control, normally using the external signal to control high voltage output. For safety reasons and prevent from hazards, please exactly follow instructions below while using remote control.
 - Unexpected high voltage output may exist. Make sure if this instrument is under testing/remote controlling before access to the probes.
 - When the instrument is under testing/operating, any access to DUT, test cable and probe output terminal are prohibited, both for the operator/service personnel.
 - Normally remote control of this instrument is controlled by the high voltage test bar. However, using of other control circuit is also possible. For safety reasons and prevent from hazards, please notice that unintentional access to the control test bar or bridging the control circuit to high voltage terminal and test cables may cause hazards. Please keep this terminal/control from unintentional bridging/access to avoid danger.

WARNING

Don't tie HV cable, RS232, Handler, GPIB control cable and other low voltage cable together. Or it may cause product damaged or PC crashed.

DANGER**Notice**

The detailed about using the notice items and the danger of operating are in Chapter 2 “Notice items before using” of the manual.

Storage, Freight, Maintenance

Storage

When don't use the device, please pack it properly and store under a good environment. (The packing is no needed when the device under appropriate environment.)

Freight

Please use the original packing material when move the device. If the packing material is missing, please use the equivalent buffer material to pack and mark it fragile and waterproof etc to avoid the device damage during movement. The device belongs to precise equipment, please use-qualified transportation as possible. And avoid heavy hitting etc to damage the device.

Maintenance

The device is without any maintenance operation for the general user. (Except for the notice in the manual.) Please contact our company or agent when the device occurred the user judgment abnormal. Don't maintain by yourself to avoid occurred unnecessary danger and serious damage to the device.

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1. Introduction

1.1 An Overview of Product

Automatic withstand / insulation / grounding testers of the instrument are designed for automatic withstand, insulation resistance and short/open circuit detection of electromechanical and electronic equipments.

The aspect of withstand voltage testing, the output power is AC: 500VA(5kV, 100mA), DC: 150VA(6kV, 25mA). Therefore, it is for withstand test of electronic, electromechanical and component.

Testing aspect of insulation resistance, the measurement range is $0.1\text{M}\Omega \sim 50\text{G}\Omega$ and test voltage range is 50V ~ 5000V can be set arbitrary.

In the testing aspect of short/open circuit detection, please test if capacitance is short or open before testing high voltage. Please make sure the DUT good contact then processes high voltage test.

All of setting status, time, current, voltage, resistance value, memory number, etc are listed on the display, it is unnecessary to remember any parameter status which be set.

The tester equipped with Good and No Good judgment machinery and signal output of testing result and remote control. It is also for RS232 interface, SCANNING interface, HANDLER interface and GPIB interface of automatic test system. The above equipments make high efficient and accurate tests for electromechanical, and electronic and component.

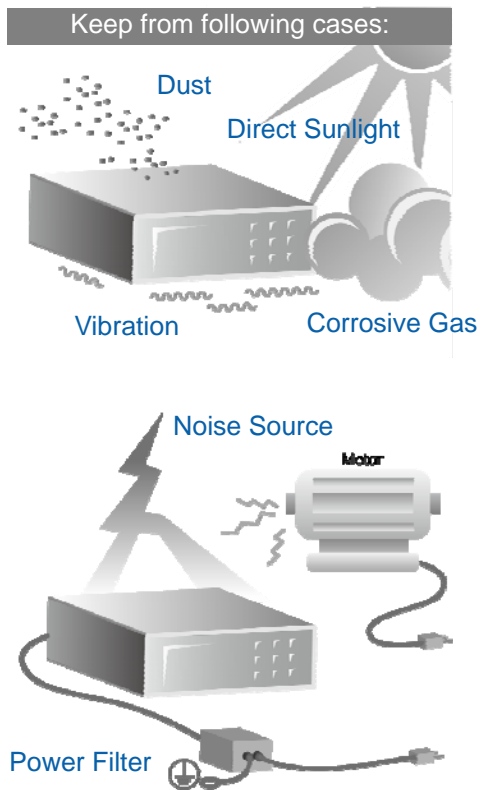
1.2 Features

- Floating high voltage/current simultaneous measurement patent design
- Standard RS232/USB interface
- AC / DC withstand voltage, insulation resistance, short/open circuit detection three in one model
- DC open circuit detection patent design
- Reformation DC quick discharge patent design

- 0.2sec quick discharge
- Keypad locked and data protected function
- Eight kinds of judgment result indication window
- Charge current low limit detection function
- Storage of 500 test setups or 100 sets of memory functions
- GPIB interface optional

1.3 Ambient Environment

1. Do not use the meter in a dusty or vibrating location. Do not expose it to sunlight or corrosive gas. Be sure that the ambient temperature is 0 ~ 45°C and that humidity is 15% ~ 95%.
2. The meter has been carefully designed to reduce the noise from the AC power source. However, it should be used in as noise-free an environment as possible. If noise is inevitable, please install a power filter.
3. The meter should be stored within the temperature range -10°C ~ +50°C. If the unit is not to be in use for a long time, please store it in the original or similar package and keep it from direct sunlight and humidity.



2. Notices before Using

The tester is with high voltage output up to 6KV sending to external test. It may occur injury and death result from error operation. Please peruse notice item of this chapter and remember to avoid accident.

1. Shock Hazard

For preventing shock be occurred. Before using the tester, put on insulation glove firstly and then running function related to electricity.

2. Grounding

There is a ground terminal on the rear panel cover of the tester. Please use appropriate implement to connect the ground terminal to earth actually. If not, there may be high voltage existed on the cover of the tester. It is very danger whatever touches the machine under the above statuses. It may cause shock hazard, therefore please make sure to connect ground terminal to earth as Figure 2-1 shown.

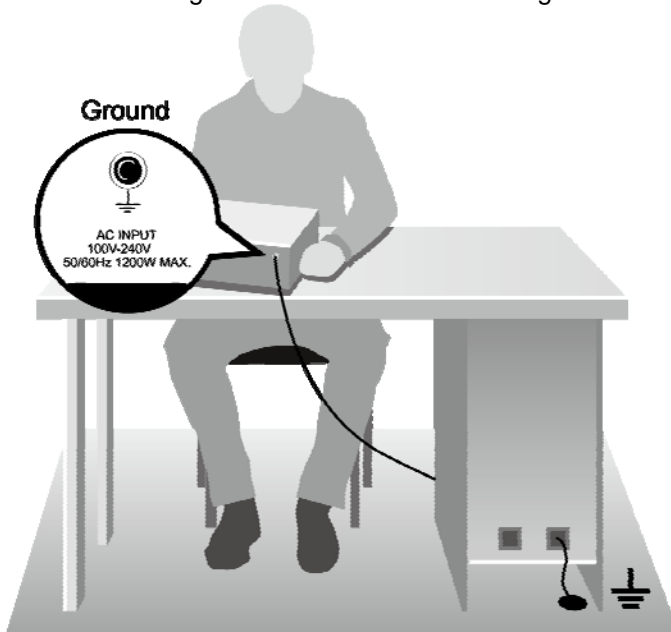


Figure 2-1 Safety Grounding

3. Connect test cable to HV1/HV2 terminal

It is necessary to check if there is loosen or drop occurred in test

cables of HV1 and HV2 terminals under operating condition at any time. If you want to connect DUT by test cable, please connect test cable of HV2 or RTN/LOW terminal to DUT(Device Under Test). The uncompleted connection of test cable of HV2 or RTN/LOW terminal or drop is very danger, as there is full of high voltage on DUT. After plugging high voltage jack in HV1 and HV2 and then rotate 90° to screw up clockwise for avoiding the drop of test cable.

4. Connection test of high voltage output terminal

After the test cable of HV2 terminal has been connected. Then follow the below procedures to connect high voltage output cable.

- Press [STOP] key firstly.
- Confirm DANGER indication LED does not light.
- The test cable of HV2 or RTN/LOW terminal with HV1 terminal is shorted; confirm there is no voltage output.
- Plug high voltage test cable in HV1 terminal.
- Connect the test cable of HV2 or RTN/LOW terminal to DUT finally, and then HV1 high voltage test cable also be connected

5. Test stop

When the test is over the and no need to use, or the tester is not under running status or needs to exit during use, please be sure power switch is on OFF (that is turn off power) as Figure 2-2 shown.

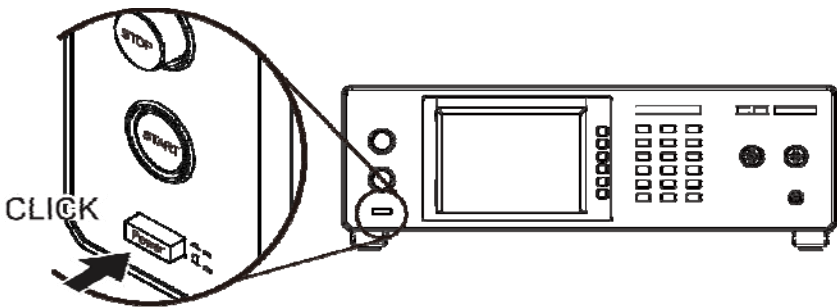


Figure 2-2 POWER SWITCH OFF

6. The dangerous area under test mode

It is very danger to touch high voltage area under operation status. Such as touch DUT, test cable, probe and output terminal.

※ **When the main unit is under test status, please don't touch alligator clip on test cable. Because the insulation of plastic layer is not**

enough, touch it may cause hazard as Figure 2-3 shown.

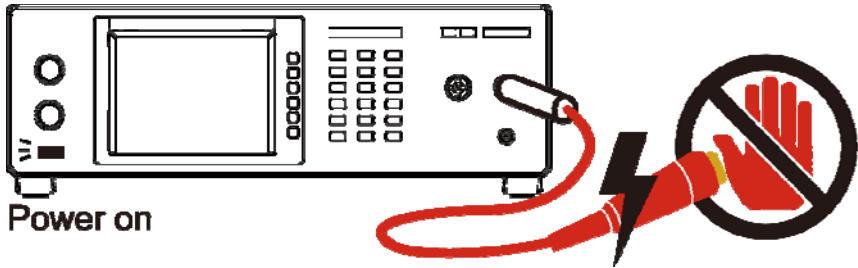


Figure 2-3 Don't touch here while outputting high voltage

<<< Warning ! When the output terminal is cut off >>>

7. **Test complete confirmation**

You may touch DUT, high voltage test cable or output terminal, etc high voltage areas under modifying circuit or others test requested conditions. Please confirm the following at the first.

※ **Power switch is turned off.**

※ **As the insulation resistance test unit, DUT may full of high voltage when test is completed. In the meantime, you need to pay attention to obey descriptions of item 8 and 9. Please follow the described procedures to execute.**

<<< Notice! Insulation resistance is charging as testing. >>>

8. **Charge**

When the insulation resistance is testing, DUT, capacitor, test cable, probe and output terminal even includes the tester may full of high voltage. After turning off the power switch, it needs a period of time to discharge. Please obey the above descriptions, don't touch any place may cause shock especially on power just turn off.

9. **Confirm charging voltage has been discharged completely**

The discharged time of charging voltage depends on testing voltage and DUTs' characteristic. To assume that high voltage add to DUT is equivalent to high voltage add to 0.01uF capacity parallel 100MΩ resistance circuit. After turning off power, the voltage which add on testing and DUT decreasing to lower than 30V and the needed time about 3.5 seconds. When test voltage is 500V needs about 2.8 seconds. To assume the time constant of DUT is known, if you want to know the voltage decreasing to below 30V needed time. Please follow the above procedures, multiply the needed time below 30V by

time constant as Figure 2-4 shown.

$$\text{Formula: } V_0 e^{-t/RC} = V_{IL}$$

$$\text{Ex.: } 1000V \times e^{-t/RC} = 30V$$

$$e^{-t/RC} = 0.03$$

$$-t/RC = \ln 0.03 \quad \therefore t = 3.5 \text{ Sec}$$

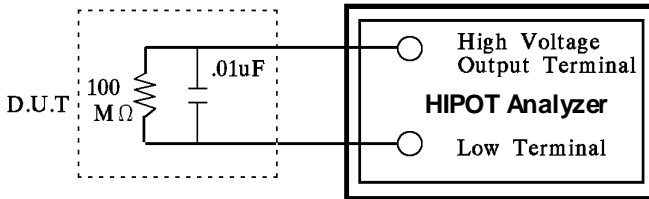


Figure 2-4

10. Remote control the main unit

The instrument with remote control, high voltage output control by external control signal usually. For your safety and prevent from hazard, please obey the following rules.

- Don't allow any unexpected high voltage output that may cause danger.
- When the main unit output high voltage, don't permit the operator or other personnel to contact DUT, test cable and probe output terminal.

※ Notice ※

11. Turn on or turn off power switch

When power switch is cut off, it needs a few seconds to re-turn on. Please don't turn on and turn off continuously. It is very danger to do that under high voltage output. **When turn on or turn off power, don't connect any object to high voltage output terminal to avoid hazard that result from abnormal high voltage output.**

12. Others notice items

Don't make short-circuited of output cable, grounding cable, transmission cable or AC power to prevent from the analyzer is full of voltage. Please connect the cover of the analyzer to earth firstly when high voltage output terminal HV1 is short-circuited with HV2 or

RTN/LOW terminal.

<<< Dangerous Event >>>

13. The danger management

Under any danger circumstances, such as shock, DUT burning or the main unit burning. Please obey the following procedures to avoid the more serious danger.

- Cut off power switch firstly.
- Then pull off the plug of power cord.

<<< Solution >>>

14. Problems

Under the below circumstances, the occurred problems are very danger. Even press [STOP] key, the output terminal may output high voltage.

- When press [STOP] key, DANGER indication LED is still light.
- The voltage meter without voltage reading but DANGER LED still light. When the above conditions are occurred, please turn off power and pull off AC power plug immediately. Don't use it any more, please send it to our company or office for reparation.

15. DANGER indication LED error

When press [START] key, there is already has reading on the voltage meter and DANGER LED still not light. In the meantime, the indication LED may be error please turn off immediately. Please send it to our company or office for reparation.

16. If the analyzer needs long time using under normal operation. Please notice the following items.

If the high limit setting value is 100.0mA (withstand voltage test), please notice its ambient temperature. When the ambient temperature is higher than 40°C, please stop operation until it cools down to normal temperature.

17. The used AC INPUT power of analyzer is 100Vac ~ 240Vac, 47 ~ 66 Hz.

Only can replace fuse under power-disconnected status, remove fuse stand from power socket and press new fuse slightly into fuse stand then plug in the power socket.



WARNING Please use correct specification as replacing fuse or it may cause hazard.

18. Normal operation of the unit is AC power

If the power is unstable, it may cause the unit function is not actual or abnormal. Therefore, please use appropriate equipment to turn to suitable power such as power stabilizer.

19. Output power is 500VA

When DUT drawing mass current before deadline of fail judgment and output current, it may flows mass current (about ten amperes) up to ten milliseconds. Before processing test there also may be the same condition. Please notice the capacity of power cord and the current cable of linking with other instrument or equipment.

20. Storage

The unit normal operating temperature humidity range is 5°C ~ 40°C, 80% RH. If over this range then function may malfunction. Please don't position the equipment so that it is difficult to operate the disconnecting device. The unit storage temperature range is -10°C ~ 50°C, 80% RH. If you don't use it for a long time, please use original material packing and then store it. For correct test and safety, please keep it from direct sunlight or high temperature, vibration, humidity and dusty place.

21. Warm up

All functions of the analyzer are activated when the power switch is turned on. However, please warm the instrument over 15 minutes for attaining the precision in the specification,.

22. Warning signal of testing

**“DANGER – HIGH VOLTAGE TEST IN PROGRESS,
UNAUTHORIZED PERSON KEEP AWAY”**

23. Keep test cable away from the panel

Please keep the high voltage cable or the DUT away from the panel at least 30 cm during operation to avoid the display interference caused by high-voltage discharge.

24. Warnings during Testing

- The grounding system of the device and the automated station should be connected together.

- Add anti-interference iron core to the high voltage cable and the 2 ends (device output and DUT) of RTN/LOW test cable with winding at least 1 circle.
- The high voltage and RTN/LOW test cable must be separated from the control cable.
- The high voltage and RTN/LOW test cable must keep proper distance from the analyzer panel.

3. Description of Panel

3.1 Front Panel

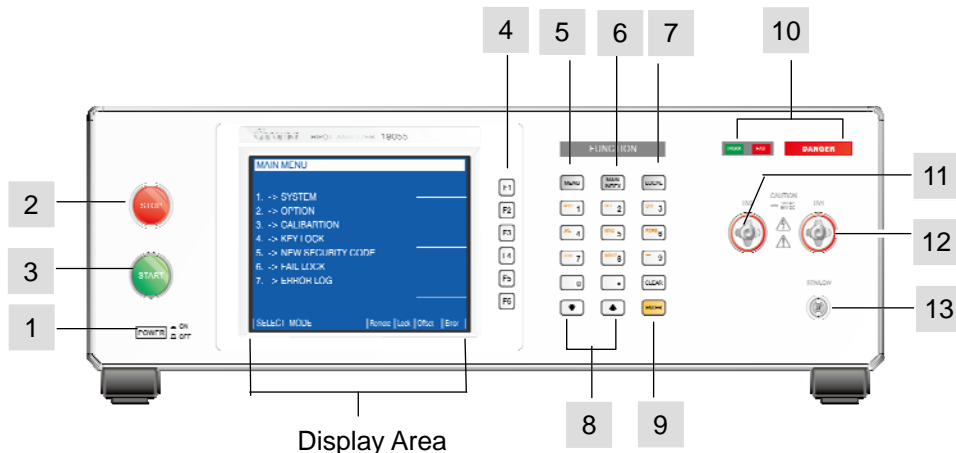
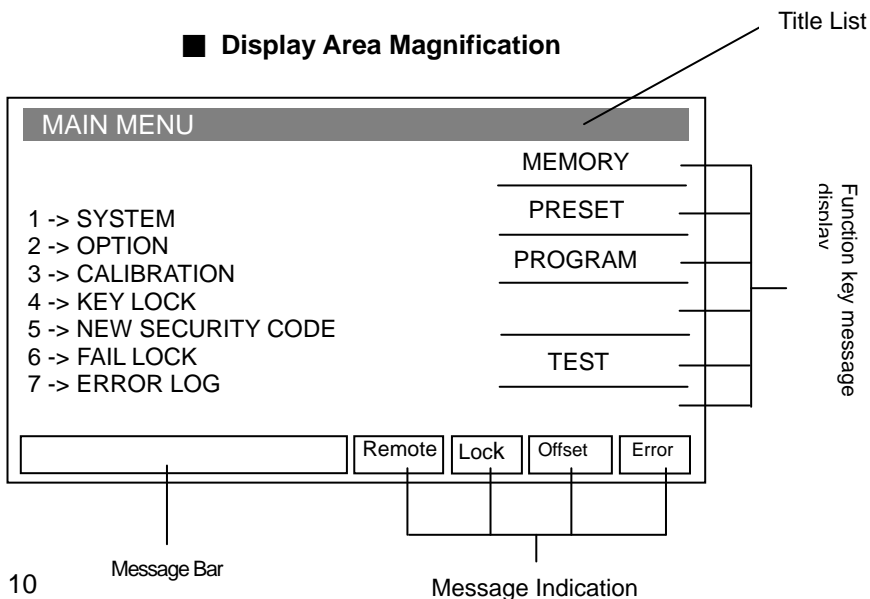


Figure 3-1

Front panel includes several function areas which easy to use. This paragraph will introduce each control and information on screen to you.

■ Display Area Magnification



Display Area

Title List: This list displays the current setting of main unit or testing mode.

Function key message display area:

Under different display menus, there are different function descriptions. The right side of display has corresponding function keys. If the description is blank or gray scale font, it means corresponding function is invalid.

Message Bar: This list indicates the setting method, the range of setting value and the testing time.

Message Indication Diagram:

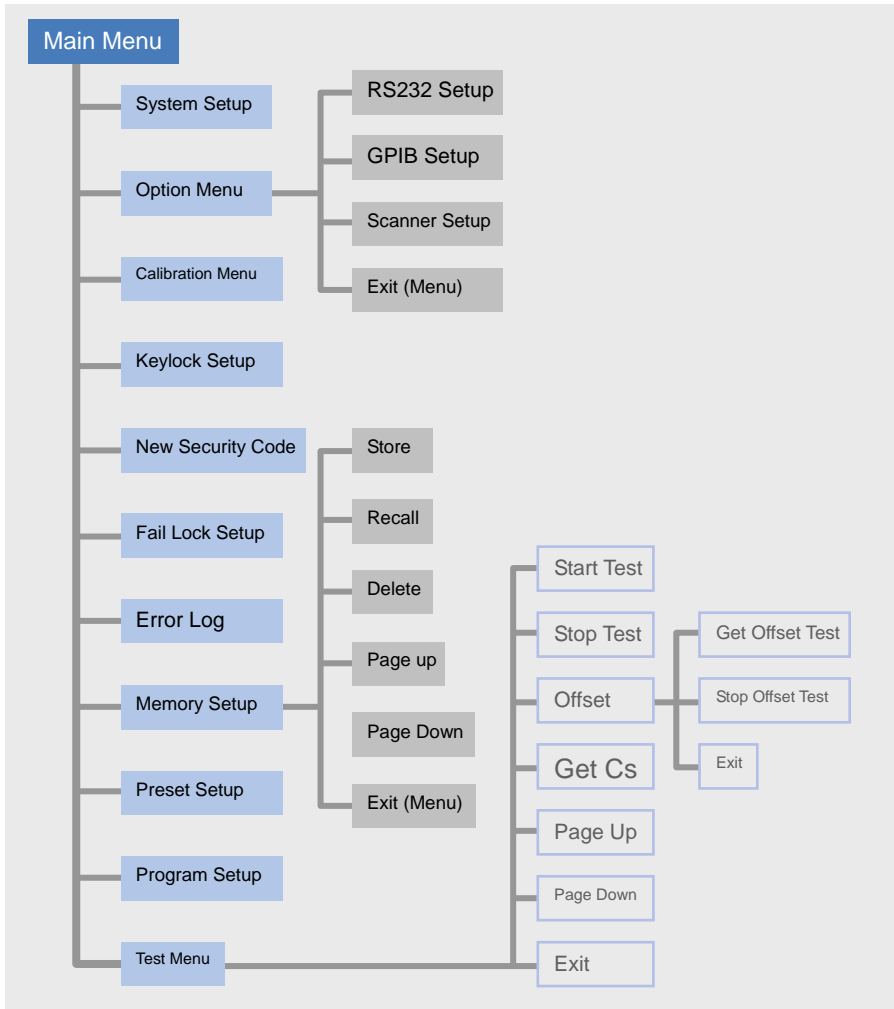
Remote : When this area is highlighted, it means the main unit is under Remote status. That is the main unit controlled by PC through RS232 or GPIB connect to PC. At the same time, all of keys are malfunction except for [STOP] and [LOCAL] keys.

Lock : When this area is highlighted, it means the main unit is under setting parameter protected mode. Other keys are malfunction except for "MEMORY", "TEST" and "KEY LOCK" modes.

Offset : When this area is highlighted, it means the main unit zeroed the leakage current of test cable and test lead currently.

Error : When this area is highlighted, it means there is error message produced.

Simplified Function Flow Chart



Key Area

(1) Power Switch: The switch provides AC power source that the analyzer is needed. Before starting, please read Chapter 2 “Notices before Using” firstly.

- (2) **STOP Key:** Reset key, after pressing this key the main unit returns to standby testing status immediately. That is cuts output and cleans all of judgments simultaneously.
- (3) **START Key:** After pressing this key, the main unit is under testing status. The testing terminal has output and each judgment function starts simultaneously.
- (4) **Function Keys:** Function key. Under different display menus, there are different functions. The right side of display has corresponding function description. If the description is blank or in gray scale font, it means corresponding function is invalid.
- (5) **MENU Key:** Under each main display mode, press this key return to "MAIN MENU" mode.
- (6) **MAIN INDEX:** Press this key to enter GENERAL and BREAKDOWN MODEs for menu selection.
- (7) **LOCAL Key:** When the main unit under Remote status, return the control right to main unit by pressing this key.
- (8) **Cursor Keys:** The [△] and [▽] keys are for moving highlighted cursors.
- (9) **Data Entry Keys/Program Keys**
 - [0][.] ~ [9]: Numeral/character key is for inputting each test parameter data (numeral or alphabet). Under "MAIN MENU" display mode, [1], [2], [3], [4], [5] keys can enter various display modes.
 - [ENTER]: Confirmation key. After inputting test parameter, press this confirmation key. Thus the value of inputting will be confirmed.
 - [CLR]: Clear key. When input test parameter, if there is any error can press this key to cancel error data and then input again.
- (10) **Indicator:** With UNDER TEST to indicate LED and judge/display LED.
- (11) **HV2:** High voltage output RTN terminal (when GFI setting is FLOAT). Therefore, this terminal is very dangerous. Don't touch it when DANGER LED is lit, there is high voltage outputting.
- (12) **HV1:** High electric potential terminal of high voltage output. This terminal belongs to high electric potential output, usually is high voltage output. Therefore, this terminal is very dangerous.

Don't touch it when DANGER LED is lit, there is high voltage outputting.

- (13) **RTN/LOW:** Common test terminal is a reference terminal as high voltage testing, *i.e.* low electric potential terminal. This terminal is almost equal to earth terminal of the cover.

3.2 Rear Panel

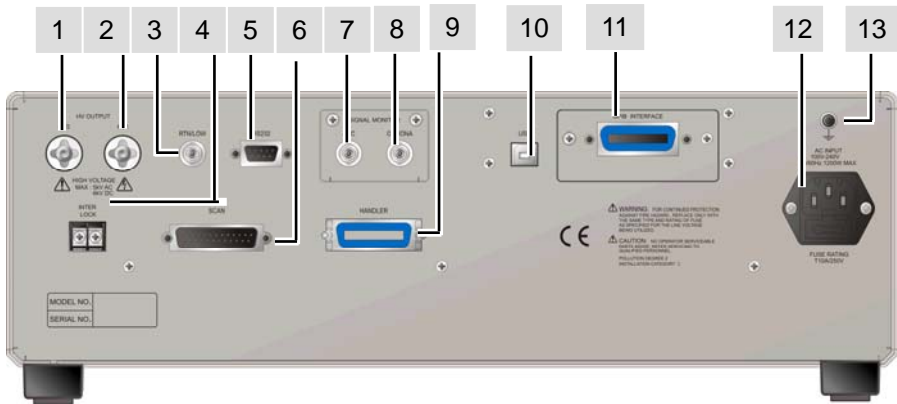


Figure 3-2

- (1) **HV2:** High voltage output RTN terminal (when GFI setting is FLOAT). Therefore, this terminal is very dangerous. Don't touch it when DANGER LED is lit, there is high voltage outputting.
- (2) **HV1:** High electric potential terminal of high voltage output. This terminal belongs to high electric potential output, usually is high voltage output. Therefore, this terminal is very dangerous. Don't touch it when DANGER LED is lit, there is high voltage outputting.
- (3) **RTN/LOW:** Common test terminal is a reference terminal as high voltage testing, *i.e.* low electric potential terminal. This terminal is almost equal to shell earth terminal.
- (4) **INTER LOCK:** The high voltage can be outputted when the two terminals are short-circuited.
- (5) **RS232 Interface:** This socket is for RS232 interface of the instrument. GPIB and RS232 interfaces can't use

simultaneously.

- (6) **SCAN Interface:** This interface and 9030 Scanning Box (option) should be connected for control.
- (7) **ARC Monitor:** ARC test signal can be observed from this BNC socket.
- (8) **CORONA Monitor:** CORONA test signal can be observed from this BNC socket. (This function is for 19055-C.)
- (9) **HANDLER Interface:** This socket is for HANDLER interface of the instrument.
- (10) **USB Interface:** USB terminal
- (11) **GPIB Interface (option):** This socket is for optional GPIB interface.
- (12) **AC LINE:** AC power socket and fuse holder.
A tri-cord power and fuse holder. Input AC power, which the analyzer is needed from AC power socket. The detailed specifications of using fuse please refer “Chapter 2 – Notices before Using” or descriptions of rear panel in this manual.
- (13) **GND Terminal:** Safety GND terminal, please use adaptable implement to connect this grounding terminal actually. If there is no grounding actually, the circuit with GND terminal or other instruments connecting cable with GND terminal are short-circuited. The cover of analyzer may exist high voltage. This is very dangerous, anyone touch the analyzer under the above status may cause damage. Therefore, it is necessary to connect safety GND terminal to ground.

3.3 Notices and Procedures before Operating

1. Before plugging AC power cable, please confirm power that use firstly and description of rear panel is match or not and power switch is OFF status.
2. Before turning on power, please peruse “Chapter 2 – Notices before Using” and remember it.
3. When turns on power, the analyzer will self-test. If there is abnormal condition, please turns off switch and pulls off power cord immediately.


4. Maintenance

4.1 General

Our warranty (at the front of the manual) attests the quality of materials and workmanship in our products. If malfunction should be suspected, or other information be desired applications engineers are available for technical assistance. Application assistance is available in the Taiwan by calling 886-3-3279999 and asking for applications support. For support outside of the Taiwan please contact your local Chroma distributor.

4.2 Battery Replacement

Batteries are included in the instrument. Please contact the service center for battery replacement.

 **CAUTION** ⋮ Don't open the cover of the equipment for battery replacement by yourself.


Battery Rating

1. Model number: CR2032L/1HF
2. Nominal voltage: 3V
3. Typical capacity: 225mAh

4.3 Instrument Return

Before returning an instrument to Chroma for service, please call our Service Department at 886-3-3279688 for return material authorization. It will be necessary to include a purchase order number to insure expedient processing, although units found to be in warranty will be repaired at no-charge. For any questions on repair costs or shipment instructions please contact our service department at the above number. To safeguard an instrument during storage and shipping please use packaging that is adequate to protect it from damage, i.e., equivalent to the original packaging and mark the box "Delicate Electronic Instrument". Return material should be sent freight prepaid, to:

**Chroma Ate Inc.
No. 66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park,
Kuei-Shan 33383, Taoyuan County, Taiwan
Attention: Service Department**

 **CAUTION** ■ ■ ■ This machine is overweight, please use wheelbarrow to
■ ■ ■ avoid injuring.



Headquarters 總公司

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