

## AC/DC/IR HIPOT TESTER MODEL 19070 & 19050 SERIES

### Complete Dielectric Testing Solution

The 19050 series electrical safety tester are advanced digital hipots with load and line regulation to ensure the measurement integrity. Multi-step capability allows users to perform multiple tests in a sequence such as AC hipot followed by IR.

The Chroma Hipot Tester 19050 series provides 3 models for choice. The 19052 is for AC/DC/IR Hipot testing and insulation resistance (IR) measurements.The 19053 IR measurement is with 8 scan channels; and the 19054 IR measurement is with 4 scan channels capability into a single compact unit.

The Chroma Hipot Tester 19070 series provides 3 models for choice. The 19071 is for AC Hipot testing, the 19073 which combines both AC and DC Hipot with insulation resistance (IR) measurements into a single compact unit.

### Open Short Check (OSC)

The OSC function is used to check whether the connection is open circuit between instrument and DUT or breakdown inside DUT before testing the electrical safety.

### Flashover (ARC) Detection

The 19070 series is sensitive enough to monitor current spikes even if they do not exceed the maximum trip current level.

### Ground Continuity Check

All of the 19050 series testers have a ground continuity check feature to determine the resistance, that is between the ground blade of power cord and any exposed metal on the product, is less than  $1\Omega$ .

### Ground Fault Interrupt (GFI)

GFI is required by the National Electrical Code in wet locations. Such devices automatically interrupt power when a ground current > 0.5mA existed for more than a few milli-seconds to protect users.

### Quick Discharge

In DC hipot and IR test the device under test is discharged back through the HV transformer. This technique results in a rapid and safe discharge.

### AC/DC/IR Hipot Tester

### MODEL 19070 SERIES 19050 SERIES

### **Basic Specifications:**

- AC/DC/IR 3 in 1 hipot tester
- AC 5kV and DC 6kV output
- 1kV insulation resistance test
- Insulation resistance measurement from  $1M\Omega$  to  $50G\Omega$
- Ground continuity check

### Key Features:

- Open Short Check(OSC) function
- GFI shutdown the instrument when imbalance current > 0.5mA
- Flashover (ARC) detection
- Quick discharge of DUT in IR and DC test
- Pause mode

### Others:

- Large LCD display (240 x 64 dots matrix)
- UL and TUV approved (\*see spec)
- CE mark
- Programmable ramp/fall and test time
- Programmable high/low limit
- Save/Recall program test function
- Remote control and interface support



# Chroma

GPIB RS-232 PRINTER UL

### **TECHNICAL NOTE**

### FLASHOVER DETECTION

Fast transient in Voltage or Current occured while Hi-Pot testing is called Electrical Flashover. Normally, in AC line frequency (50Hz/60Hz) or DC Hi-Pot testing, the leakage current is the same as 50Hz/60Hz or DC (charge current is excepted). As shown in Figure leakage current varies smoothly.

On the other hand, electrical discharge occurred because of poor insulation in material, electrode gap or surface clearance etc., fast transient in leakage current apparent as shown in figure. This is phenomenon of poor withstanding. Most of Electrical Safety regulations mention the necessity in Withstand Strength Test. Nevertheless, general Hi-Pot tester detects the RMS value of leakage current only without capability to detect Flashover. Therefore, FLASHOVER detection function equipped with Hi-Pot tester is necessary.

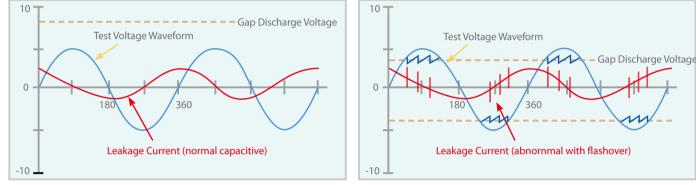


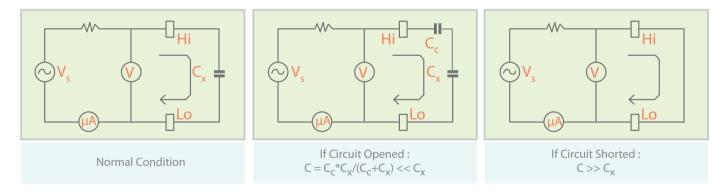
Figure 1 : Normal Leakage Current Waveform



### **OPEN/SHORT CHECK (OSC)**

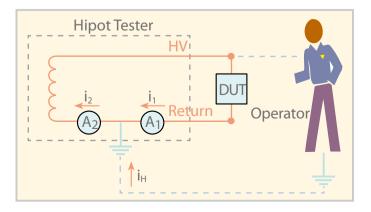
O.S.C function is used to check the connection is open or short circuit between instrument and DUT(equipment under test) before the Electrical Safety Test. If the connection is bad between the instrument and DUT, sometimes like leads or relay oxidation, the judgment is also PASS. In some cases, the DUT is short before testing. Testing continually leads to our instrument broken because suffered the high load current. Therefore, we have to check the open and short circuit to ensure the test effectively and protect instruments.

Generally, the DUT have capacitive load (Cx) from tens to thousands of pF. If the connection opening, a capacitance will appear and then total capacitive load is lower than that in normal condition. If the DUT shorting, total capacitive load is higher than that in normal condition. Therefore, we can measure the value of capacitive load to check the contact is good or not.



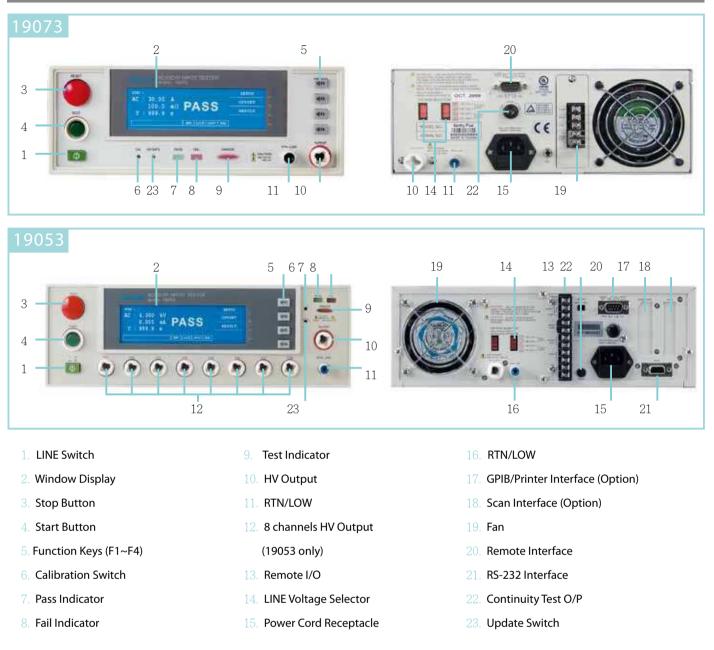
### Ground Fault Interrupt (GFI)

The requirement of test environment indicates that test equipment is equipped with auto interrupt device so that Chroma develops into Ground Fault Interrupt (GFI) function. When the current meter A1 and A2 detect the difference  $(i_2-i_1=i_H)$  between the value  $i_1$  and actual  $i_2$  test current over high, this device can cut the power transiently for protecting human body safety. It is not only compliance with the safety standard but also more safeguards for test personnel.



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### PANEL DESCRIPTION



### APPLICATION

Production test of appliances, instruments and information technology equipment in accordance with UL, IEC, TUV and other standards such as EN 60335, EN 60950, EN 61010, CSA C22.2 No.1010.1, UL 3111 and UL 1950

- Transformer electrical safety test
- Electric motor safety test
- Various electronic components tests

### ORDERING INFORMATION

19071 : AC Hipot Tester 19073 : AC/DC/IR Hipot Tester 19073 : AC/DC/IR Hipot Tester with RS485 A190701 : Remote Control Box A190702 : 40kV Test Probe A190344 : HV Gun (SP02) A190706 : 19" Rack Mount Kit 19052 : Hipot Tester (AC/DC/IR) 19053 : Hipot Tester (AC/DC/IR/ 8CH SCAN) 19054 : Hipot Tester (AC/DC/IR/ 4CH SCAN) A190512 : Auto Control TR. Scan Box A190508 : GPIB Interface A190510 : Printer Interface A190344 : HV Gun (SP02) A150517 : 19" Rack Mount Kit

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	SPECIFICA	TIONS							
ModeACACAC/DC/IRAC/DC/IRAC/DC/IRAC/DC/IR/CANAC/VDC/IR/CANSemaner UnitISemaner UnitSemaner UnitAction 2005 – 6kVAprits.tph and 2005 – 6k	Model			19071	19073	19052	19053	19054	
Seeme Unit Withstanding Voltage Test     A C : 0.05 ~ 5kV, DC : 0.05 ~ 6kV     4 ports,±phase     4 ports,±phase <t< td=""><td colspan="3"></td><td>AC</td><td>AC/DC/IR</td><td>AC/DC/IR</td><td>AC/DCV/IR/SCAN</td><td>ACV/DCV/IR/SCAN</td></t<>				AC	AC/DC/IR	AC/DC/IR	AC/DCV/IR/SCAN	ACV/DCV/IR/SCAN	
Withstanding Voltage Test   AC: 0.05 ~ 5kV, DC: 0.05 ~ 6kV     Output Voltage Regulation   2V     Voltage Regulation   2V     Voltage Regulation   2V     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   AC: 0.1 ~ 20mA, DC: 0.01 ~ 5mA     Current Resolution   0.1 ~ 999 sec., off     Dwell Time   0.1 ~ 999 sec., off     Dwell Time   0.1 ~ 999 sec., off     Voltage Resolution   -   DC: 0.05 ~ 1kV   DC: 0.05 ~ 1kV     Voltage Resolution   -   2V   2V   2V     Voltage Resolution   -   0.1 ~ 999 sec., off   100, -10GQ   1MQ10GQ   10MQ - 50GQ   1MQ10GQ   10MQ - 50GQ   1MQ10GA   5% of setting <t< td=""><td colspan="3"></td><td>-</td><td>_</td><td>-</td><td>8 ports.+phase</td><td>4 ports,±phase</td></t<>				-	_	-	8 ports.+phase	4 ports,±phase	
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Voltage Regulation     2V       Voltage Accuracy     1% of setting + 5 count       Current Accuracy     AC: 0.1 - 20mA, DC: 0.01 - 5mA     AC: 0.1 - 30mA, DC: 0.01 - 10mA       Current Accuracy     AC: 0.1 - 20mA, DC: 0.01 - 5mA     AC: 0.1 - 30mA, DC: 0.01 - 10mA       Current Accuracy     50Hz / 60Hz     50Hz / 60Hz       Output Frequency     50Hz / 60Hz     50Hz / 60Hz       Ramp Time     0.1 - 999 sec., off     0.1 - 999 sec., off       Fall Time     0.1 - 999 sec., off     0.1 - 999 sec., off       Waveform     Sine wave     Sine wave       Insulation Resistance Test     0.1 - 999 sec., off     1.0 - 999 sec., off       Voltage Resolution     -     DC: 0.05 ~ 1kV     DC: 0.05 ~ 1kV     DC: 0.05 ~ 1kV       Voltage Resolution     -     ZV									
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≤ 100V 1MΩ~1GΩ - 10% of setting + 5 count + 5 count   Flashover (ARC) Detection   Setting Mode Programmable setting   Detection Current AC: 1mA ~ 15mA, DC: 1mA ~ 5mA AC: 1mA ~ 15mA, DC: 1mA ~ 10mA   Secure Protection Function AC: 1mA ~ 15mA, DC: 1mA ~ 5mA AC: 1mA ~ 15mA, DC: 1mA ~ 10mA   Fast Output Cut-off 0.4ms after NG happen Ground Fault Interrupt   Ground Fault Interrupt 0.5mA ±0.25mA AC, ON/OFF   Panel Operation Lock Present password   Continuity Check 1Ω ± 0.2Ω, ON/OFF   GO/NG Judgment Window GO: Short sound, Green LED; NG: Long sound, Red LED   Data Hold East tests data memories   Memory Storage 50 instrument setups with up to 20 test steps   Remote control Input: Start, Stop, Interlock (at 11 pin terminal block only); Output : Under test, Pass, Fail		≤ 500V	1MΩ~1GΩ	-	5				
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Remote control Input : Start, Stop, Interlock (at 11 pin terminal block only) ; Output : Under test, Pass, Fail				50 instrument setups with up to 20 test steps					
	Remote & In	iterface							
Communication Interface RS485 (Option) RS232 (Standard), GPIB (Option).	Remote control								
	Communication Interface			RS485 (Option) RS232 (Standard), GPIB (Option).					
General	General								
Operation Environment Temperature : 0°C~40°C, Humidity : 15% to 95% R.H@≤40°C	Operation Environment			Temperature : 0°C~40°C, Humidity : 15% to 95% R.H@≤40°C					
Power Requirements 100V/120V/220V/240V (AC ±10%), 50/60Hz	Power Requirements								
	Power Consumption			30					
Dimension (W x H x D) 270 x 105 x 350 mm 320 x 105 x 400 mm									
	Weight			Approx.12 KG		Approx.15 KG			
	-						UL,TUV,CE CE UL,TUV,CE		
*All specifications are subject to change without notice.			o change without notice						

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