MULTI-CHANNEL HIPOT TESTER
MODEL 19020 SERIES

High Efficiency Hipot Test Solution

Hipot test is one of the major test items in electrical safety test. All electrical components and products including transformers, capacitors, power supplies, chargers and home appliances all require Hipot test.

With more than 25 years of experience in developing the instruments for test and measurement, Chroma creates the 19020 multi-channel Hipot tester with a brand new architecture. It can measure the Hipot leakage current of all channels at the same time and conduct tests on 100 DUTs maximum simultaneously.

There is no need to purchase various Hipot testers to save the production line space. Its one time multi-channel test can increase the efficiency of electrical regulatory test. It improves the productivity and reduces the risk of test for the products that require Hipot test only.

Chroma 19020 also has powerful functions in Flashover detection and Open/Short Check. It contains several international patents and is the best tool for electrical regulatory Hipot test as not only reliable quality can be obtained, but highly efficient test platform can also be created.

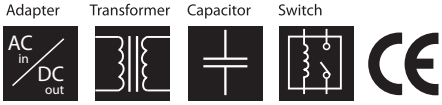
World's First Sync Hipot Test (Patent Registered)

Chroma 19020 has equipped with the world's first sync Hipot test function that one single unit can perform 10 channels sync output and measurements simultaneously. Maximum 10 units (master & slave) can be controlled to have 100 channels in total. They can be grouped for output to avoid creating voltage difference due to adjacent tests as well as to improve the productivity.

Applications

Chroma 19020 can be applied to various electrical products for time consuming tests such as quality assurance sampling test and production line test.

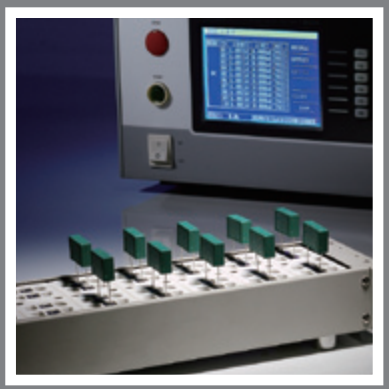
- Power cord
- Capacitor
- Resistance
- Switch
- Connector
- Transformer
- Charger
- Adapter



MODEL 19020 SERIES

Key Features :

- 10 channels in one design
- 10 sets of sync output and measurement
- AC/DC/IR 3 in 1 EST test
- Master/Slave link - 10 units max.
- Programmable V-output and limits
- OSC (Open/Short Check)
- Flashover detection
- 5kVAC & 6kV DC hipot test
- 1MΩ~50GΩ insulation resistance test
- Standard RS232 / Handler interface
- Optional GPIB interface
- Large LCD panel
- Key lock function
- CE Mark



Chroma

SYNCHRONOUS HI-POT TEST

The issue frequently encountered when testing multiple DUTs for Hipot is unable to synchronize the voltage output. When planning for production line or automation, minimized facility and optimized space are often utilized in the plant; therefore, the distance between two DUTs is usually very short. Taking the output voltage 5kVac for example, when the output of Hipot tester is not synchronized, the two DUTs may create a discharge of high voltage difference (up to14kV peak-peak) and cause the fixture to be damaged and erroneous judgment. Chroma 19020 synchronizes the output signal so there is no high voltage difference on the adjacent two ends that not only can extend the life of production equipment but also reduce the occurrence of misjudgment.

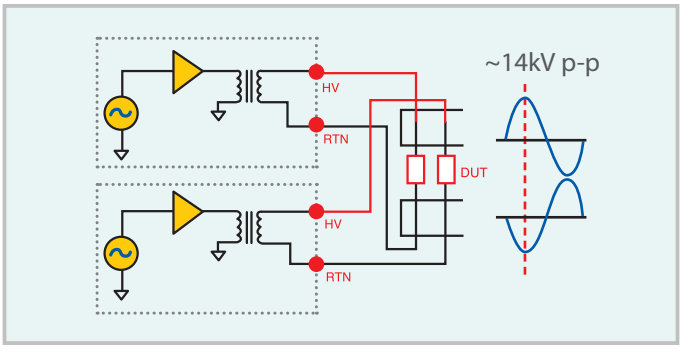


Figure 1 : Unsynchronized Output

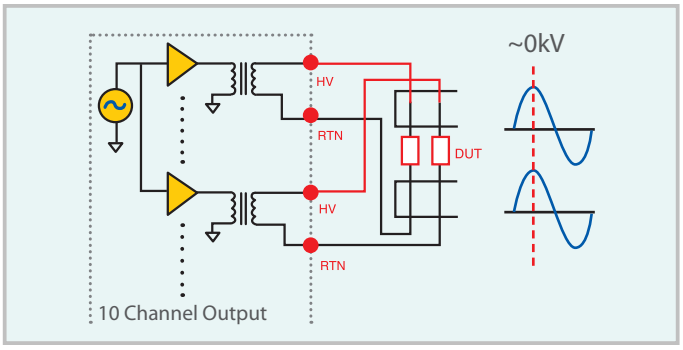


Figure 2 : Synchronized Output

FLASHOVER DETECTION

Same as other Chroma EST Series, 19020 has Flashover detection function. Flashover is the electrical discharge generated by high electric field inside or on the surface of insulation material that makes the DUT to lose its insulation characteristic and form a transient or discontinuous discharge. It can cause a carbonized conductive path or damage the product under test. Flashover cannot be detected by monitoring leakage current only. The change rates of test voltage or leakage current are monitored to detect flashover as its detection is one of the most indispensable test items for electrical safety test.

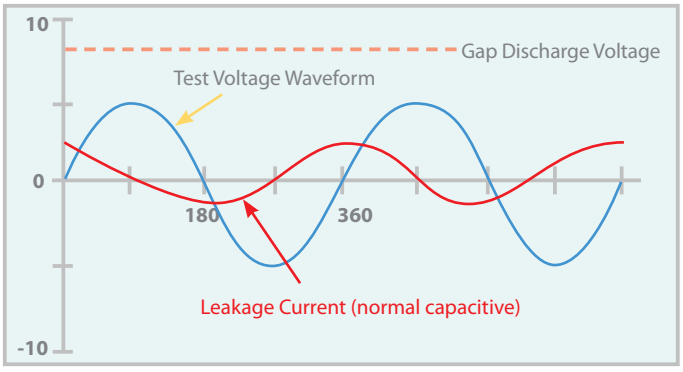


Figure 3 : Normal Leakage Current Waveform

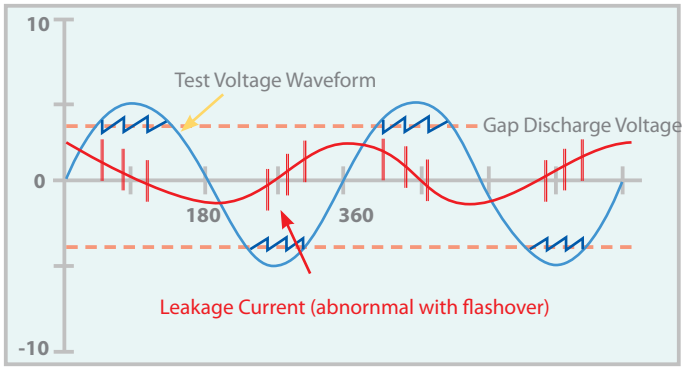


Figure 4 : Leakage Current Waveform when Flashover occurred

OPEN / SHORT CHECK (OSC)

OSC function can check if there is any Open (bad connection) or Short (DUT short circuited) occurred during test. If a DUT is open circuit during test, the unit might be misjudged as a good one. If a DUT has short circuit, OSC function can filter it out to diminish the damage to fixture and save the test cost.

In general, products under Hi-pot test have capacitance (C_x). C_x could be tens of pF to several μF in normal condition. When the circuit connection is interrupted, a small capacitance (Cc in Figure 6) will be formed on the broken interface that is usually lower than 10pF. It makes the entire capacitance of the product lower than normal value. The capacitance of a product may be higher than normal when the product is short-circuited or near short circuit. Thus the high/low limit of capacitance variation can be used to identify the short circuit problem.

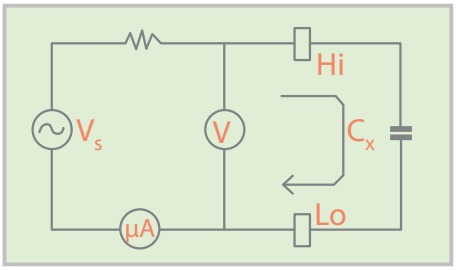


Figure 5 : Normal Connection

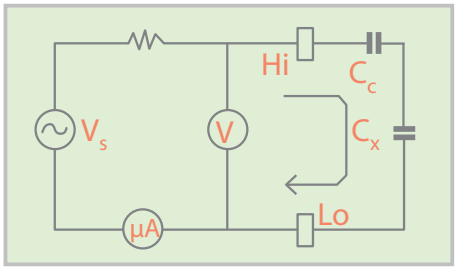


Figure 6 : Connection Open

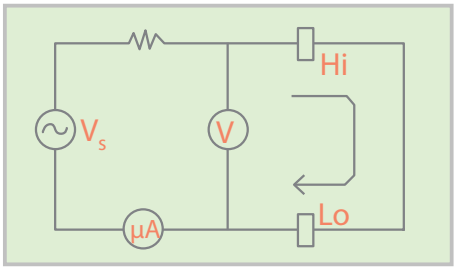


Figure 7 : Connection Short

APPLICATION

Chroma 19020 can be applied to test various electrical parts and products. The multi-channel Hipot tester can test multiple DUTs at once. The applications include:

- Automation of power cord and related cable material
- Automation of capacitor and resistance
- Insulation test of switch and connector
- One time test for transformer with multiple pins or multiple units
- Production planning for charger and adapter

With 190201 3-CH scanner, 19020 can finish 3 Hipot tests at once. Taking a two winding transformer as an example, the following three Hipot tests can be done at one time within a DUT loading time.

1. Primary to Secondary Hipot test.
2. Primary to Core Hipot test
3. Secondary to Core Hipot test.

This application can be applied to transformer, power adapter, common mode choke and so forth.

For different test solutions, Chroma has accessories and fixtures available for use. Please contact local service for further information.

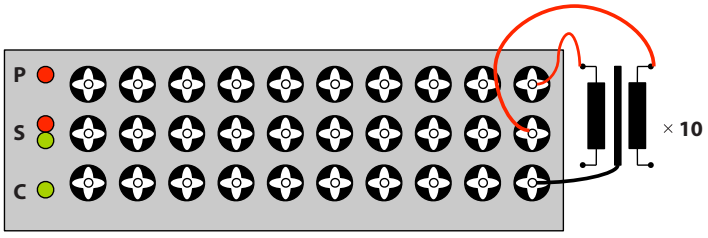
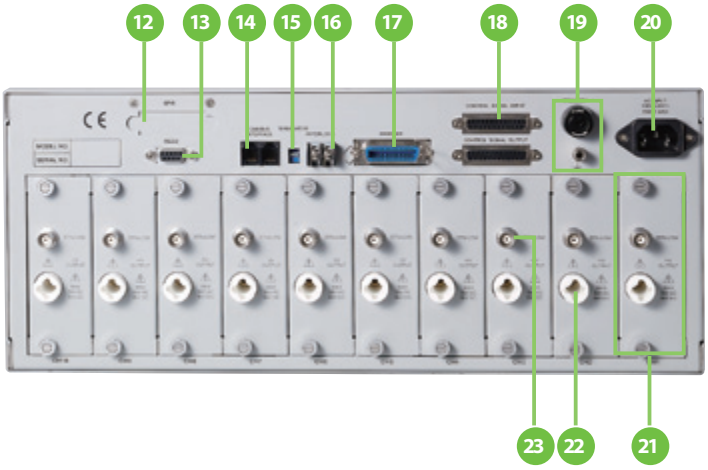


Figure 8 : A190201 with 3 way scanning

PANEL DESCRIPTION



1. Power Switch
2. LCD Display
3. Function Keys
4. Cursor and Enter Keys
5. PASS/FAIL LED Indicator
6. Danger LED indicator
7. Test Key
8. Main Index
9. System Key
10. STOP Key
11. START Key
12. GPIB Interface (optional)
13. RS232 Interface
14. Internal Communication Interface
15. Master/Slave selector
16. Interlock
17. Handler Interface
18. Internal Control Interface
19. Fuse and Earth Terminal
20. AC Input
21. HV Output Module
22. High Voltage Terminal
23. Return/Low Terminal

SPECIFICATIONS

Model	19020	19020-4	19021	19022	19022-4
Mode	**AC/DC/IR**	**AC/DC/IR**	**AC**	**DC/IR**	**DC/IR**
Channel	**10**	**4**	**10**	**10**	**4**
Withstanding Voltage Test					
Output Voltage	AC:0.05kV-5kV ; DC:0.05kV-6kV		AC:0.05kV-6kV	DC:0.05kV-8kV	
Load Regulation	2% of setting + 0.1% of full scale				
Voltage Resolution	2V				
Voltage Accuracy	2% of setting + 0.1% of full scale				
Cutoff Current	AC : 0.01 ~ 10mA, DC : 0.001 ~ 5mA				
Current Resolution	AC : 1 μA, DC : 0.1 μA				
Current Accuracy	1% of setting +0.5% of full scale				
Output Frequency	50Hz / 60Hz				
Flashover Detection	AC : 1mA ~ 15mA, DC : 1mA ~ 5mA , step 0.1mA				
Test Time	0.03 ~ 999.9 sec, continue				
Ramp Time	0.1 ~ 999.9 sec, off				
Fall Time	0.1 ~ 999.9 sec, off				
Dwell Time	0.1 ~ 999.9 sec, off				
Waveform	Sine wave				
Insulation Resistance Test(19020&19022 series only)					
Output Voltage	DC : 0.05 ~ 1kV				
Voltage Resolution	2V				
Voltage Accuracy	2% of setting + 0.1% of full range				
IR Range	1MΩ ~ 50GΩ				
Resistance Accuracy	≥ 500V		1MΩ ~ 1GΩ : ± 3% of reading + 0.1% of full range 1GΩ ~ 10GΩ : ± 7% of reading + 0.2% of full range 10GΩ ~ 50GΩ : ± 10% of reading + 1% of full range		
	≤ 500V		1MΩ ~ 1GΩ : ± 3% of reading + (0.2*500/Vs)% of full scale		
Test Time	0.3 ~ 999.9 sec, continue				
Memory Storage					
Save/Recall	30 instrument setups with up to 10 test steps can be stored into and recalled from the internal memory				
Secure Protection Function					
Fast Output Cut-off	0.4ms after NG happen				
Panel Operation Lock	Present password				
Interlock	YES				
GO/NG Judgment Window					
Indication, Alarm	GO : Short sound, Green LED, NG : Long sound, Red LED				
Data Hold	Least tests data memories				
Memory Storage	30 instrument setups with up to 10 test steps				
Interface					
RS232 & Handler (Standard), GPIB (Optional)					
CANBUS & data control interface are used for Max. 10 units of master & slaves connection					
General					
Operation Environment	18 to 28°C (64 to 82°F), 70% RH. Maximum relative humidity 80% for temperature up to 31°C (88°F) Decreasing linearly to 50% relative humidity at 40°C(104°F)				
Power Consumption	Standby : < 250W ; With rated load : <1000W				
Power Requirements	AC 100V~240V, 47~66 Hz				
Weight	Approx.40 kg				

All specifications are subject to change without notice. Please visit our website for the most up to date specifications.

ORDERING INFORMATION

19020: Multi-Channel Hipot Tester
19020-4: Multi-Channel Hipot Tester (4CH)
19021: Multi-Channel Hipot Tester (AC)
19022: Multi-Channel Hipot Tester (DC/IR)
19022-4: Multi-Channel Hipot Tester (DC/IR/4CH)
A190508: GPIB Interface
A190200: 19" Rack Mounting Kit for 19020 Series
A190201: 3-CH Scanner
*HV cable is optional for customized requirement.

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