MODEL 19035

KEY FEATURES

- Support 16CH scan box
- High Speed Contact Check (HSCC)
- SUB-STEP function
- Open / Short Check (OSC)
- GFI human protection
- Flashover detection
- Key lock function
- RS232 Interface (standard*1)
- GPIB & HANDLER (optional)
- CE mark

FUNCTIONS

- 5kVAC & 6kVDC Hipot test
- 1MΩ~50GΩ /5kV IR test
- 10mΩ~100kΩ DCR test
- 8 channel scanner

WOUND COMPONENT EST SCANNER MODEL 19035

The quality verification tests for wound components consist mainly of AC/DC Hipot tests and Insulation Resistance (IR) tests. The Chroma 19035 Wound Component EST Scanner perform safety tests for motor, transformer, and heater related wound products. Reliable quality control and efficient product control are obtained when implementing this scanner for quality verification by wound component manufacturers.

Chroma's 19035 supports 5kVac/6kVdc high voltage output to conform with withstand voltage test requirements for wound components, and has a maximum output current up to 30mA. The Insulation Resistance (IR) test measurement ranges from 1MΩ to 50GΩ, and voltage output can be up to 5kV; while the DCR test can measure the resistance parameter of wound components and test the circuit connection (contact check) before the withstand voltage test.

The 19035 also has powerful functions for Flashover detection and Open/Short Check (OSC), as well as programmable voltage and time parameters for various characteristics of DUTs for increased testing reliability and product quality.

The 19035 is a comprehensive safety tester designed for motor, transformer, and heat related wound component tests. Most wound components have multiple windings, such as 3-phase motors and dual winding transformers. With 8-channel scanning ability the 19035 can measure multiple test points in one test instead of switching test points manually. This reduces test time and labor cost immensely.

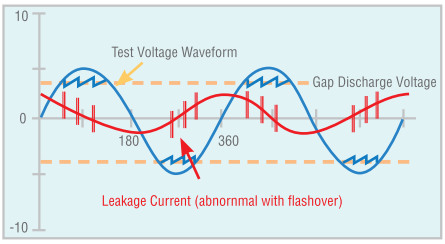
The built in OSC and DCR functions verify poor contact or short circuits that occur during test, and solves the contact problems with wound components improving test quality and prolonging test equipment lifespans.

Heater Transformer Motor

Chroma

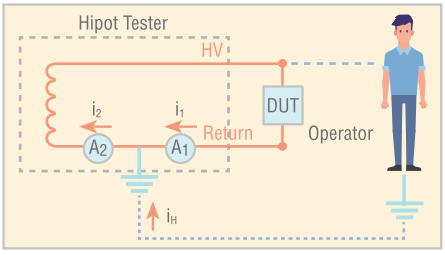
Flashover Detection

The 19035 has the same flashover detection as other Chroma EST testers. Flashover is the electrical discharge generated by high electrical fields inside or on the surface of insulation materials that cause the DUT to lose its insulation characteristics and form a transient or discontinuous discharge. It can cause a carbonized conductive path through insulation materials or damage the product under test. Flashover cannot be detected by monitoring leakage current only. The change rates of test voltage and leakage current must be monitored in order to detect flashover, as its detection is one of the most indispensable test items for electrical safety testing.



Ground Fault Interrupt (GFI)

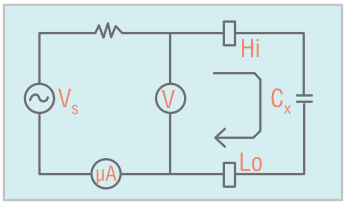
The requirements for test environments indicate that test equipment should be equipped with an auto interrupt device, thus Chroma developed the Ground Fault Interrupt (GFI) function to protect users. When the current difference iH (i_1-i_2) between i_1 and i_2 detected by current meters A_1 and A_2 is too high, the GFI device will immediately cut off the power supply to protect the human body from electrical shock. GFI is not only compliant with safety standards but is also a safeguard for operating personnel.



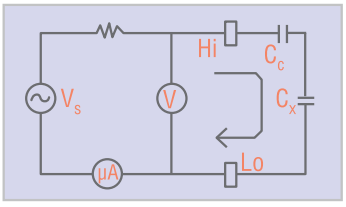
Open / Short Check (OSC)

OSC function check for Open (bad connection) or Short (DUT short circuited) occurring during test. If a DUT has an open circuit during test, the unit might be misjudged for a good one. If a DUT has a short circuit, OSC function can filter it out to diminish the damage to the fixture and save test costs.

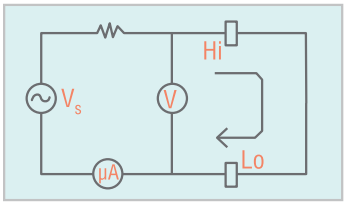
In general, products under Hi-pot test have capacitance (C_x). C_x could be tens of pF to several μF under normal conditions. When the circuit connection is interrupted, a small capacitance will be formed on the broken interface, usually lower than 10pF. This makes the entire capacitance of the product lower than the 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 short circuit problems.



Normal Condition



If Circuit opened :
Cm = Cc * Cx / (Cc + Cx) << Cx



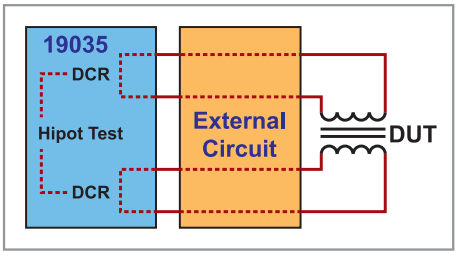
If circuit shorted : Cm >> Cx

High Speed Contact Check (HSCC)

HSCC mode is a new measurement technology for contact checks. It scans the circuit contact with multiple test points in a very short period of time. With this new feature, contact checks can be performed quickly prior to theHipot test.

DCR Measurement 2W/4W

DCR measurement for two-wire/four-wire is one of the standard test items. The two-wire measurement is suitable for major DCR, whereas the four-wire measurement is suitable for minor DCR since it is more accurate.



Temp Compensation

Problems caused by temp differences will usually occur while measuring minor DCR values, when the temp difference and the measured resistance value will be different. With the Temp Compensation function that has been added to the 19035, the DCR is converted to the measured value under standard temp via temp coefficient conversion. Thus, the measured difference generated by temp differences will be reduced.

DCR Balance

Checking DCR balance of motor windings is just as important as checking inductance balance of the windings. When the EMF drive of different windings are not matched the rotational torque force will be unbalanced causing additional shaft wobble, vibration and bearing wear which affects long term life of the motor. The DCR Balance calculates the difference between the max and min DCR of the windings and compares that value to an acceptable programmable level, which in turn gives a PASS/FAIL output result for DCR balance. The DCR Balance Test is an auxiliary test tool for motors which helps establish long-term reliability of motors.

Contact Check

DCR tests not only measure the resistance of a winding, but also check the connections before the Hipot test. Chroma 19035 can perform DCR measurement on windings to check the external contact, and specifically for capacitance lower than 20pF between the test points in a wound component.

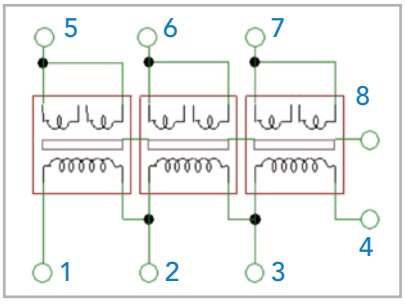
APPLICATIONS

Motor/DC Fan Semi-Finished Products Electrical Testing

Motor, DC fan and other semi-finished products of electrical rotating machinery including stator and rotor require Hipot, DC resistance and layer short tests.

Sub-Step Function for Multi-UUT Testing

Parallel testing is often used as a solution for enhancing the efficiency of withstand voltage tests during production. However, if current high/low limit are not set correctly, defective products may be released, and good products may be misjudged as defective and sent to subsequent stations for unnecessary retesting.

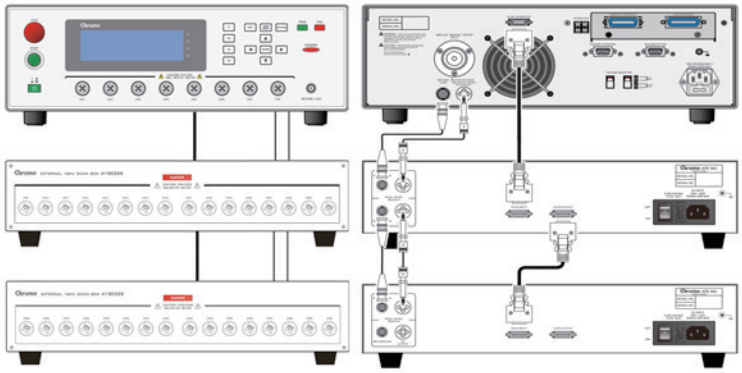


In order to solve the parallel test problem and reduce the number of stations and cost, the 19035 provides a Sub-Step function. The fail condition can be set as a Sub-Step activation condition by editing the program sequence when parallel testing is required for production. This means taht the Sub-Step test will be conducted only when the main test item (parallel) failed and will determine which DUT is faulty. With the implementation of this function, the efficiency of withstand voltage test is improved significantly on the production line.

Example:
STEP 1: AC Hipot / pin1 to pin5, 6, 7
Sub step A: AC Hipot / pin1 to pin5
Sub step B: AC Hipot / pin1 to pin6
Sub step C: AC Hipot / pin1 to pin7

40-Channel Scan for Wound Component Hi-pot Testing

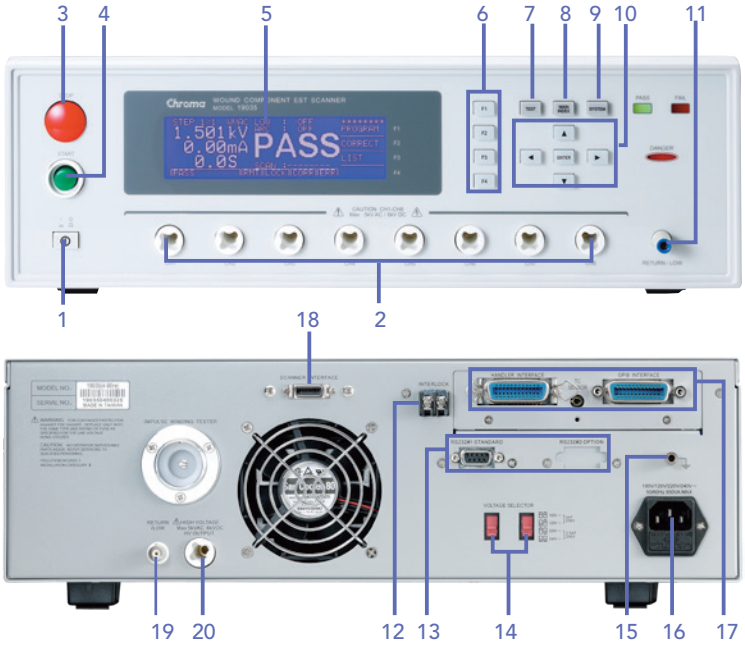
The new, optional A190359 16CH HV External Scanning Box provides 16 test channels. Each channel can be set as H (High Voltage Output), L (Return Low), or Off. With a 19035 and A190359 combination, the efficiency of wound component tests can be improved. With one 19035 and two A190359 units, up to 40 test channels are available. In addition, the contact check and tests of multi-pin components or products can all be done at once.



The tester 19035 with 16CH HV external scanning box A190359 x 2

PANEL DESCRIPTION

19035



1. Power switch
2. Unknown test terminal
3. Stop key
4. Start key
5. LCD panel
6. Function keys
7. Test key
8. Main index key
9. System key
10. Cursor keys and enter key
11. Ground terminal
12. Interlock
13. RS232 interface (standard*1, option*1)
14. Line voltage selector
15. Ground terminal
16. AC line input
17. GPIB/HANDLER/TEMP interface (optional)
18. Scan Interface
19. Return/Low (for scanner)
20. HV output (for scanner)

ORDERING INFORMATION

19035 : Wound Component EST Tester
A190347 : GPIB & Handler Interface with TC Sensor Terminal
A190351 : 8CH-16CH HV box for 19035
A190358 : Handler Indicator
A190359 : 16CH HV External Scanning Box
A190702 : 40KV HV Test Probe

SPECIFICATIONS

Model		19035
Mode		ACV / DCV / IR / DCR -8CH
Channel Programming		H/L/X in 8CHs
Withstanding Voltage Test		
Output Voltage		AC:0.05 ~ 5KV, DC : 0.05 ~ 6kV
Load Regulation		≦(1% of setting + 0.1% of full scale)
Voltage Resolution		2V
Voltage Accuracy		±(1% of setting + 0.1% of full scale)
Cutoff Current		AC : 30mA, DC : 10mA
Current Resolution		AC : 1μA, DC : 0.1 μA
Current Accuracy		±(1% of reading + 0.5% of range)
Output Frequency		50Hz / 60Hz
Test / Ramp / Fall / Dwell Time		0.3 ~ 999 sec., continue / 0.1 ~ 999 sec., off / 0.1 ~ 999 sec., off
Waveform		Sine wave
Insulation Resistance Test		
Output Voltage		DC : 0.05 ~ 5kV
Voltage Resolution		2V
Voltage Accuracy		1% of setting + 0.1% of full range
IR Range		0.1MΩ ~ 50GΩ
Resistance Resolution		0.1MΩ
Resistance Accuracy	≧1000V	1MΩ ~ 1GΩ : ± (3% of reading + 0.1% of full range) 1GΩ ~ 10GΩ : ± (7% of reading + 2% of full range) 10GΩ ~ 50GΩ : ± (10% of reading + 1% of full range)
	500V~1000V	0.1MΩ ~ 1GΩ : ± (3% of reading + 0.1% of full range) 1GΩ ~ 10GΩ : ± (7% of reading + 2% of full range) 10GΩ ~ 50GΩ : ± (10% of reading + 1% of full range)
	< 500V	0.1MΩ ~ 1GΩ : ± 3% of reading + (0.2*500/Vs)% of full scale
Scanner Unit		8 ports, ±phase (4W DCR only 4 ports)
DC Resistance Measurement		
Test Signal		<DC 10V. < DC 140mA
Measurement mode		2 terminals (2W) / 4 terminals(4W) measurement selectable ; Range : 50mΩ~500kΩ
Measurement Accuracy (2W/ 4W)	1Ω (4W only)	-- / ±(0.5% of reading + 0.5% of range)
	10Ω	± (2% of reading + 0.5% of range) / ± (0.5% of reading + 0.05% of range)
	100Ω	± (2% of reading + 0.5% of range) / ± (0.5% of reading + 0.05% of range)
	1kΩ	± (2% of reading + 0.5% of range) / ± (0.5% of reading + 0.05% of range)
	10kΩ	± (2% of reading + 0.5% of range) / ± (0.5% of reading + 0.05% of range)
	100kΩ	± (2% of reading + 0.5% of range) / ± (0.5% of reading + 0.05% of range)
Flashover Detection		
Setting Mode		Programmable setting
Detection Current		AC : 1mA ~ 15mA, DC : 1mA ~ 10mA
Secure Protection Function		
Fast Output Cut-off		0.4ms after NG happen
Ground Fault Interrupt		0.5mA ±0.25mA AC, ON/OFF
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		50 instrument setups with up to 20 test steps
Interface		RS-232*1 (Standard), RS-232*1 or GPIB & Handler & Temperature interface (Optional)
General		
Operation Environment		Temperature: 0°C ~ 45°C, Humidity: 15% to 95% R.H@≦40°C
Power Consumption		500VA
Power Requirements		90~132Vac or 180~264Vac, 47~63Hz
Dimension (H x W x D)		133x430x470mm/5.24x16.93x18.50 inch
Weight		Approx.20 kg/44.09 lbs

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

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