WOUND COMPONENT EST SCANNER MODEL 19035 SERIES

Wound Component Testing Solution

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 Series 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.

The Chroma 19035 Series 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 Series 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.

Applications

The 19035 Series 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.

- Motor, Fan : 19035-M
- Electric Heater Tube : 19035-M
- Transformer : 19035
- Switch, Wire : 19035
- Camera Micro Motor, Coil : 19035-S

Heater Transformer Motor

MODEL 19035
19035-M
19035-S

Functions

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

Key Features

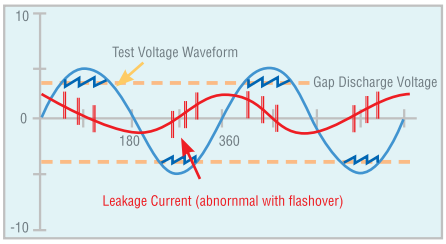
- Support 16CH scan box (19035 only)
- High Speed Contact Check (HSCC)
- SUB-STEP function
- Open / Short Check (OSC)
- GFI human protection
- Flashover detection
- Key lock function
- RS232 Interface (standard*1)
- GPIB & HANDLER (optional)
- CE mark

Chroma

MEASUREMENT TECHNOLOGY

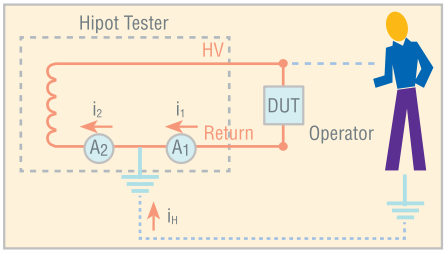
FLASHOVER DETECTION

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)

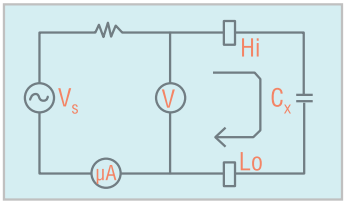
The requirements for test environments indicate that test equipment should be equipped with an auto interrupt device, thus Chroma developed the Ground Fault Interrupt (GFI) function to protect users. When the current difference iH (i_1-i_2) between i_1 and i_2 detected by current meters A_1 and A_2 is 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.



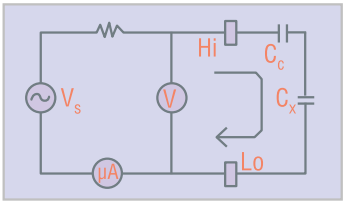
OPEN / SHORT CHECK (OSC)

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.

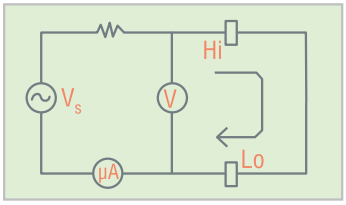


Normal Condition



If Circuit opened :

Cm = Cc * Cx / (Cc + Cx) << Cx



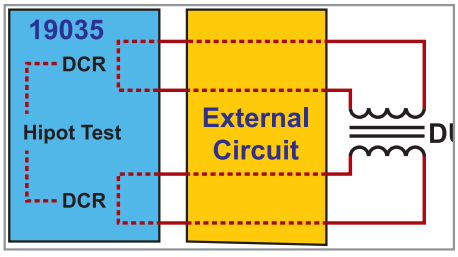
If circuit shorted : Cm >> Cx

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.

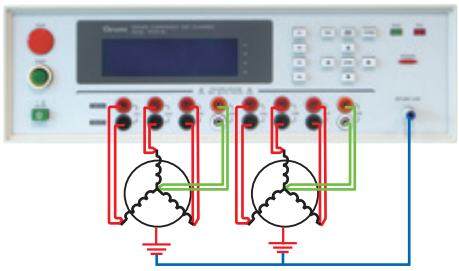
Contact Check

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 for external contact, and specifically for capacitance lower than 20 pF 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.

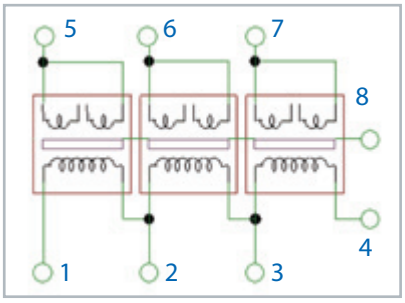


The 19035-M can offer four-wire DCR measurement without computer control. Users can scan test two DUTs at a time via 8 test terminals which have separate Drive and Sense terminals to increase productivity.

CH 1, 2, 3, 5, 6, 7 can be set High/Off
CH 4, 8, can be set Low/Off

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.

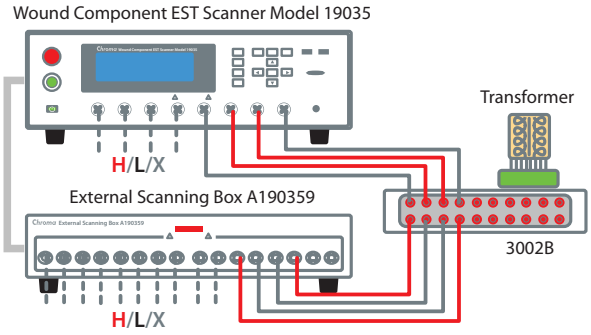


In order to solve the parallel test problem and reduce the number of stations and cost, the 19035 Series provides a Sub-Step function. The fail condition can be set as a Sub-Step activation condition by editing the program sequence when parallel testing is required for production. This means taht the 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

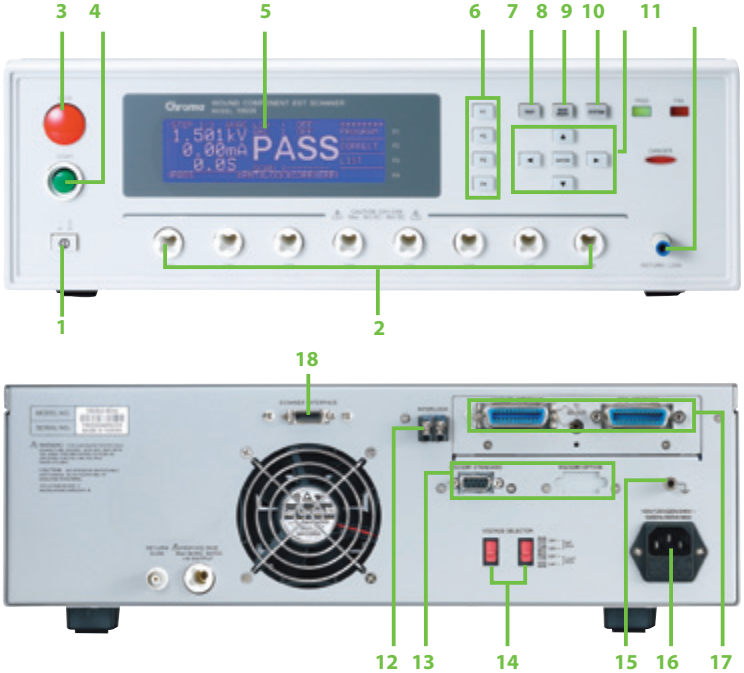
40-CHANNEL SCAN FOR WOUND COMPONENT HIPOT TEST

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.



PANEL DESCRIPTION

19035 / 19035-S



19035-M

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

SPECIFICATIONS

Model		19035	19035-M	19035-S
Mode		ACV / DCV / IR / DCR -8CH	ACV / DCV / IR / DCR -8CH	ACV / DCR -8CH
Channel Programming		H/L/X in 8CHs	H/X in CH 1,2,3,5,6,7 ; L/X in CH 4,8	H/L/X in 8CHs
Withstanding Voltage Test				
Output Voltage		AC:0.05 ~ 5KV, DC : 0.05 ~ 6kV		AC:0.05 ~ 5KV
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 : 1 μA, 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 / 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.

ORDERING INFORMATION

19035 : Wound Component EST Tester
A190347 : GPIB & Handler & Temperature Interface
A190348 : RS232 Interface
A190351 : 8ch-16ch HV box for 19035
A190358 : Handler Indicator
A190359 : 16ch HV External Scanning Box
A190512 : Auto Control TR. Scan Box(3002B)
A190702 : 40KV HV Test Probe

HEADQUARTERS
CHROMA ATE INC.
66 Huaya 1st Road,
Guishan, Taoyuan
33383, Taiwan
T +886-3-327-9999
F +886-3-327-8898
www.chromaate.com
info@chromaate.com

U.S.A.
CHROMA SYSTEMS SOLUTIONS, INC.
19772 Pauling, Foothill Ranch,
CA 92610
T +1-949-600-6400
F +1-949-600-6401
www.chromausa.com
sales@chromausa.com

EUROPE
CHROMA ATE EUROPE B.V.
Morsestraat 32, 6716 AH Ede,
The Netherlands
T +31-318-648282
F +31-318-648288
www.chromaeu.com
sales@chromaeu.com

JAPAN
CHROMA JAPAN CORP.
472 Nippa-cho, Kouhoku-ku,
Yokohama-shi, Kanagawa,
223-0057 Japan
T +81-45-542-1118
F +81-45-542-1080
www.chroma.co.jp
info@chroma.co.jp

CHINA
CHROMA ELECTRONICS (SHENZHEN) CO., LTD.
8F, No.4, Nanyou Tian An
Industrial Estate, Shenzhen,
China PC: 518052
T +86-755-2664-4598
F +86-755-2641-9620

Worldwide Distribution and Service Network