

Wound Component EST Scanner



WOUND COMPONENT EST SCANNER MODEL 19035 SERIES

Wound Component Testing Solution

The quality verification test items for Wound Component consist of AC/DC Hipot tests, Insulation Resistance (IR) test and Impulse Winding test. Chroma integrates above tests into 19035 Wound Component EST Scanner series performing safety tests for motor, transformer, heater related wound products. The wound component manufacturers in quality verification testing not only have reliable quality but also control product quality efficiently.

The 19035 Series support 5kVac/6kVdc high voltage output to conform with withstand test requirement for Wound Component, its maximum output current can up to 30mA. Insulation Resistance (IR) test measurement range is 1MΩ to 50GΩ and voltage output can up to 5kV. DCR can measure basic specification for Wound Component and also check the connection before testing safety withstand.

The 19035 Series also include powerful functions in Flashover detection and Open/Short Check (OSC) as well as programmable voltage, time parameters, etc. for various DUTs features to promote testing reliability and product quality.

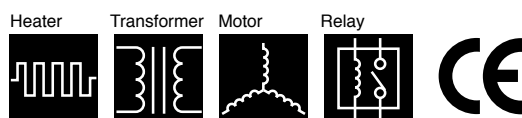
Applications

The 19035 is a comprehensive safety tester designed for motor, transformer, heater related wound component requirements. Most of wound components are equipped with multiple winding such as 3-phase motor, dual winding transformer, etc. Moreover, the wound component needs to use Impulse Winding Tester for high voltage winding to check insulation no good of winding device.

The 19035 design is for connecting DWX Series – Impulse Winding Tester directly and using the 19035 8-Channel scanning to reach multiple points completion in one test instead of switching test point by manual. It saves test time and human cost.

The 19035 provides OSC and DCR functions to verify if bad contact or short circuit happened during test procedure. It solves the Wound Components of motor, transformer, etc occurred contact problems, so that test quality greatly enhanced and the life of test device prolonged.

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



MODEL 19035

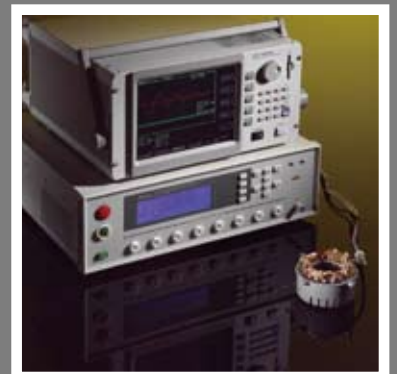
19035-M
19035-ML
19035-L
19035-S

Functions :

- 5KVAC & 6KV DC Hipot Test
- 1MΩ~50GΩ /5kV IR Test
- 10mΩ~100kΩ DCR Test
- DWX Series - Impulse Winding Tester could be connected
- 8 Channel Scanner

Key Features :

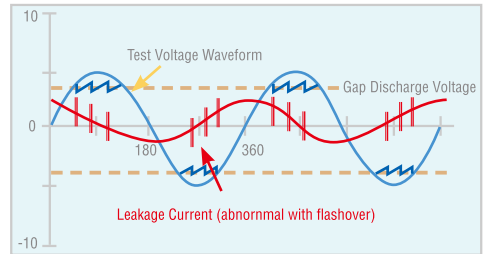
- SUB-STEP Function
- Open / Short Check (OSC)
- GFI Human Protection
- Flashover Detection
- Key Lock Function
- RS232 Interface (standard*1)
- GPIB & HANDLER (optional)
- Friendly Interface
- CE Mark



Chroma

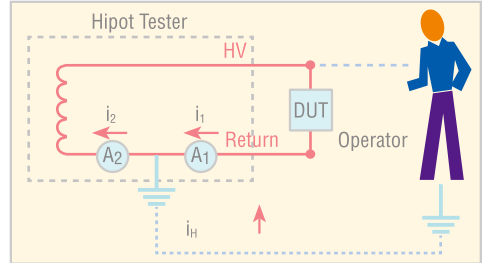
FLASHOVER DETECTION

Chroma 19035 have Flashover detection as other Chroma EST tester. The Flashover is a momentary discharge in/on a isolation material which causes the current in the test circuit and losing the insulating properties of a test specimen. Flashover can't be detected by leakage current of high voltage test. Chroma EST tester find the Flashover out by the rate of leakage current differential.



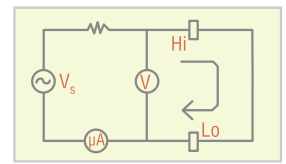
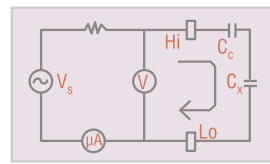
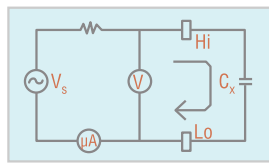
GROUND FAULT INTERRUPT (GFI)

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 accordingly to the safety standard but also more safeguards for test personnel.



OPEN / SHORT CHECK (OSC)

OSC function is used to check the connection is open or short circuit between instrument and DUT (equipment under test) before the Electric Safety Test. If the connect is bad between the instrument and DUT, sometimes like leads or relay oxidation, the judgment is PASS also. In some cases, the DUT was short before testing. Testing continually lead to our instrument broke 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 (C_x) from tens to thousands pF. If the connect opening, a capacitance will appear and then total capacitive load is lower then that in normal condition. If the connect shorting, total capacitive load is higher then that in normal condition. Therefore, we can measure the value of capacitive load to check the contact is good or not.



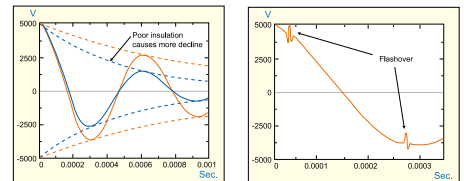
Normal Condition

If Circuit opened : $C_m = C_c + C_x / (C_c + C_x) \ll C_x$

If circuit shorted : $C_m \gg C_x$

IMPULSE WINDING TEST

DWX series have Impulse Winding Test imposed a high voltage immediately on windings. It detected isolation, inductance and parallel capacitance of winding by RLC parallel resonance waveform differential. More Detail information please refer the application and technical notes of Chroma DWX series.



Chroma 19035 was designed to connect DWX series directly with 8 channels scan ports for Impulse Winding Test in one program only. DWX series Impulse Winding Tester have large TFT LCD display for observation of winding insulation failure waveform. Figure as left showed the winding insulation failure detection by rate of area decrease. Figure as right showed the flashover detection by Laplacian.

DCR MEASUREMENT 2W/4W

DCR measurement for two-wire/four-wire is one of the standard test item. The two-wire measurement is suitable for major DCR, whereas the four-wire measurement is suitable for minor DCR since it has higher accuracy.

Temp Compensation

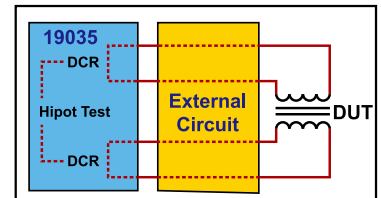
The problem caused by temp difference will be occurred usually as measuring minor DCR value. When the temp difference and the measured resistance value will be different. The Temp Compensation function is added to the 19035, the DCR converted to the measured value under standard temp via temp coefficient conversion. Thus, the measured difference generated by temp difference would be reduced.

DCR Balance

The DCR value is commonly related to inductance balance. When the DCR of three sets of wound motor unbalance will cause the rotation unbalance as well as bad quality after long time use. The DCR balance judgment subtracts the minimum value from maximum value of winding, if the value over setting range i. e. no good product. The DCR Balance function will be the auxiliary tool for motor products in long-term reliability testing.

Contact Check

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



APPLICATION

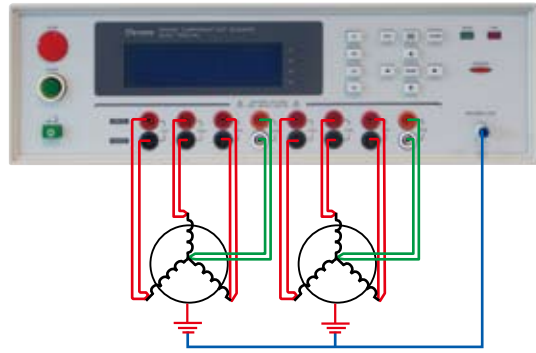
MOTOR/DC FAN SEMI-FINISHED PRODUCTS ELECTRICAL TESTING

The rotating electrical machine semi-finished products of motor, DC fan, etc includes stator and rotor which need to perform electrical scanning tests of withstand voltage, DC resistance and layer short.

The 19035-M is no need computer control and offers DCR four-wire measurement. The users can scan test two DUTs at a time by 8 sets of separable test terminals of separated Drive and Sense terminals to promote productivities.

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

CH 4, 8, can be set Low/Off



SUB-STEP FUNCTION- MULTI-UUT TESTING

Parallel test is often used as a solution to promote the efficiency of withstand voltage tests during the production by manufacturers. However, if it is unable to set the current high/low limit correctly and caused the defect products to be released or the good products to be judged as bad and go to the subsequent stations for test, the stations and cost will be increased.

A sub-step function is provided by 19035 Series to solve the trouble caused by parallel test. The Fail can be set as a sub-step activation condition by editing the program sequence when parallel test is required for production. It means the sub-step test will conduct only when the main test item (parallel) is failed and judge which DUT is bad. With the implementation of this function, the efficiency of withstand voltage test will improve significantly on the production line.

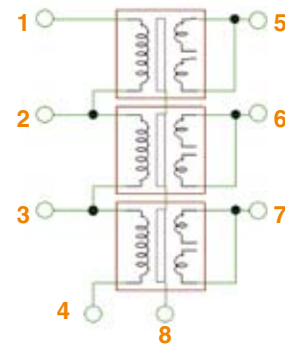
Ex :

STEP 1: AC Hipot / pin1 to pin5,6,7

Sub step A: AC Hipot / pin1 to pin5

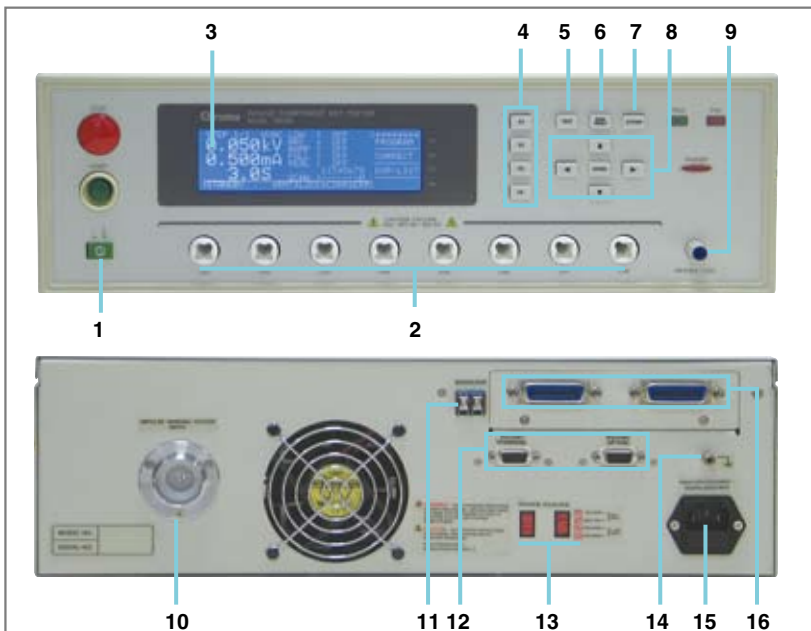
Sub step B: AC Hipot / pin1 to pin6

Sub step C: AC Hipot / pin1 to pin7



PANEL DESCRIPTION

19035, 19035-S



- | | |
|------------------------------|--|
| 1. Power Switch | 10. IWT connector (optional) |
| 2. Unknown Test Terminal | 11. Interlock |
| 3. LCD Display | 12. RS232 Interface (standard*1, option*1) |
| 4. Function Keys | 13. Line Voltage Selector |
| 5. Test Key | 14. Ground terminal |
| 6. Main Index Key | 15. AC Line Input |
| 7. System Key | 16. GPIB and Handler Interface (optional) |
| 8. Cursor Keys and Enter Key | |
| 9. Ground Terminal | |

19035-M / 19035-ML / 19035-L



19035-M



19035-ML



19035-L

SPECIFICATIONS

Model	19035	19035-L	19035-M	19035-ML	19035-S
Mode	ACV / DCV / IR / DCR -8CH / IWT	ACV / DCV / IR / DCR -8CH / IWT	ACV / DCV / IR / DCR -16CH / IWT	ACV / DCV / IR / DCR -16CH / IWT	ACV / DCR -8CH
Impulse Winding Test (Layer Short, IWT)	External option	Internal standard	External option	Internal standard	-
Channel Programming	H/L/X in 8CHs	H/L/X in 8CHs	H/X in CH 1,2,3,5,6,7 L/X in CH 4,8	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				
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. (1% of reading + 5% of total current)				
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	1MΩ ~ 50GΩ				
Resistance Resolution	0.1MΩ				
Resistance Accuracy	≥ 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~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*500V/s)% of full scale			
Scanner Unit	8 ports, ±phase (4W DCR only 4 ports)				
DC Resistance Measurement					
Test Signal	<DC 10V. < DC 100mA				
Measurement mode	2 terminals (2W) / 4 terminals(4W) measurement selectable				
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					
RS232*1 (Standard), RS232*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 198~264Vac, 47~66Hz				
Weight	Approx.20KG				

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	A190351 : 8ch-16ch HV box for 19035
A190345 : High Voltage cable for Impulse Winding Tester Connection.	A190352 : Wound Component Pneumatic SCAN Box
A190346 : RS232 cable for Impulse Winding Tester Connection.	A190354 : Dual Switch Fixture for A190352
A190347 : GPIB & Handler & Temperature Interface	A190702 : 40KV HV Test Probe
A190348 : RS232 Interface	

Developed and Manufactured by :

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