



AUTOMATIC TRANSFORMER TESTER MODEL 13350

Acquired from many years of marketing experiences and cumulative results, Chroma 13350 is the newest generation of Automatic Transformer Tester that not only retains the merits of old 3250 model but also has many new functions including the combination of measurement unit and scan box to reduce measurement error caused by long wire, C.T. test fixture and 80/20 channels scan box support, USB interface for test conditions back-up, LAN communication interface, separate setting of test frequency/voltage/speed, Fail Lock function and Auto Test. It solves the performance and quality problems as well as human errors occurred on production line for the transformer industry today.

For instance: To reduce human errors on production line, the 13350 Fail Lock function is able to lock the defect DUT (Device Under Test) when the test is done to prevent it from flowing out accidentally. In order to cut down the time for placement, the 13350 Auto Test function can conduct test directly without pressing the trigger key. In addition, the 13350 adopts the design of dual CPU to increase the test speed by processing the measurement and display units simultaneously.

The compensation function of 13350 can do OPEN/SHORT for individual channel to solve the errors due to different layout on various fixtures.

13350 provides 20Hz-200kHz test frequency and scan test items to cover low voltage test parameters for various transformers including

Inductance (L), Leakage (Lk), Turn-Ratio, DC Resistance (DCR), Impedance (Z), Stray Capacity (C), Quality Factor (Q), Equivalent Series Resistance (ESR), Pin Short (PS), Winding Phase (PH) and Balance.

Applicable Test Options for Selection

A133502 20 Channels Scan Box

13350 uses split screen that allows the measurement unit to integrate the 20 channels scan box without using any connecting wires to reduce measurement errors. Furthermore, the 20 channels scan box has external standard test function that can perform verification test directly without any act of disassembly.

A133505 80 Channels Scan Box

13350 along with 80 channels scan box can mainly offer three different applications:

- 1) RJ-45 & LAN Filter test solution that can test up to 80 pins one time.
- 2) Transformer automation solution that can place 4 transformers on one carrier for scan test simultaneously.
- 3) Island-type production line planning that provides a time division multiplexing module to increase the equipment utilization rate.

A133506 C.T. (Current Transformer) Test Fixture

When the 13350 works with A133506 C.T. Test Fixture, it can measure the turns, inductance and DC resistance easily and rapidly by putting in the C.T. directly.

MODEL 13350

Key Functions :

- Test frequency 20Hz ~ 200KHz
- Turn Ratio, Phase, L, Q, Lk, ACR, DCR, Cp, Pin short, Balance
- Basic accuracy : 0.1%
- Three different output impedance modes
- Scan unit/box including :
 - 20ch scan test unit
 - 80ch* scan box
 - C.T.* test fixture

Key Features :

- Compensation for individual channel
- *Combined measurement unit and scan box to reduce measurement errors
- *USB storage interface
- *10-100 LAN/ USB-H interface (option)
- *Built-in programmable 100mA bias current (RJ-45)
- *Test frequency, voltage and speed set separately
- *Fail Lock function
- *Auto Test function
- *Equipped with external standard test on 20ch scan test unit
- *Reduce the short-circuit loss in secondary side for leakage (Lk) test (A133502 20ch scan unit)
- *Short-circuit pin selectable for every test item
- *Multiple language: English & Simplified Chinese
- *RS232 interface compatible SCPI commands (option)

* New features compared to Chroma 3250 Series



Chroma



TRANSFORMER SCAN TEST

13350 is a test system specialized in measuring the diversified wound components with comprehensive parameters. It can satisfy the requirements for production line automation test, quality inspection and R&D tests.

Combining 20 Channels Scan Test Unit & Measurement Unit

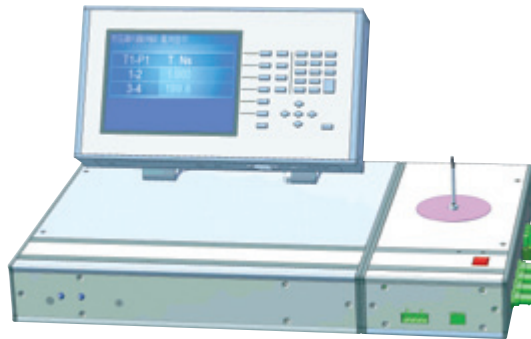
Since error may occur when the long wiring is used to combine the measurement unit and 20 channels scan box. Chroma 13350 splits the display and combines the measurement unit with the 20 channels scan box directly to reduce the measurement error caused by long wiring. Moreover, the 20 channels scan box has additional standalone measurement functions that can perform verification test straightly.



C.T. TEST FIXTURE APPLICATION

Current Transformer (C.T.) Test is widely used in instruments, meters, PV inverters, and smart meters, the measurement of precise turns is required. Also, the Inductance (L) and DC resistance (DCR) are required by some manufacturers as well. The 13350 equipped with A133506 fixture is able to measure the following three types of parameters simply by putting in the C.T. directly, which is a convenient and prompt test tool for user.

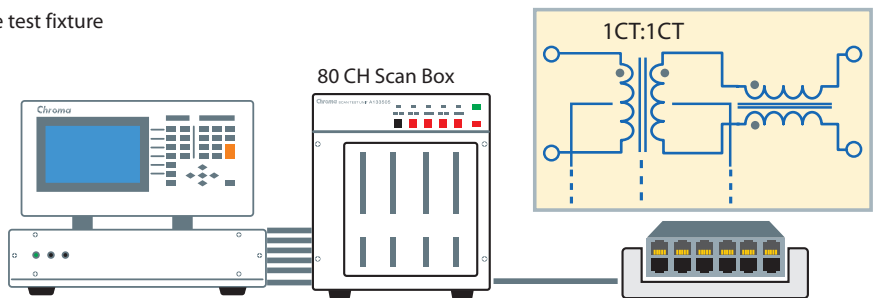
- Turns
- Inductance (L)
- DC Resistance (DCR)



RJ 45 & LAN FILTER TEST SOLUTION

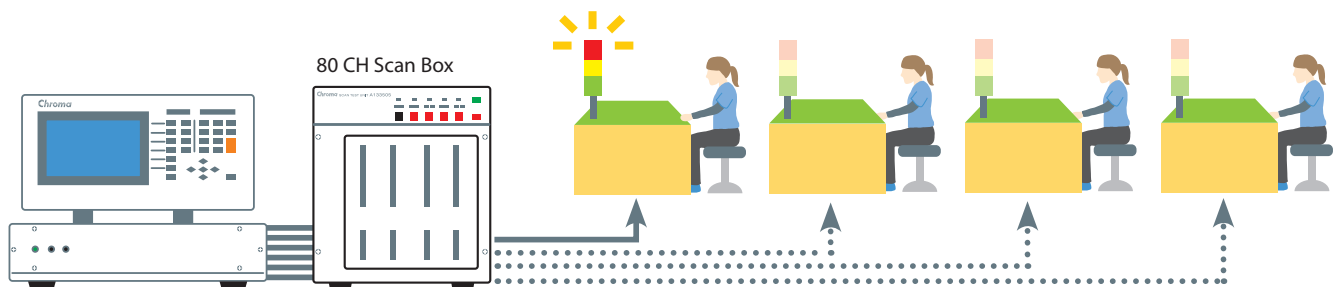
13350 equipped with A133505 80 ch scan box can test up to 80 pins of RJ-45 and LAN Filter to shorten the measurement time and save manpower. As the layout of different fixtures may cause different errors, the independent open/short zeroing function is able to deduct the error of each channel. In addition, programmable 100mA internal dc bias source can be added to cope with the actual use of RJ-45 and LAN Filter.

- ✓ Perform different parameters measurement on one test fixture
Ex : Lx, Turn-Ratio, DCR, Pin short and etc.
- ✓ Test frequency range 20Hz-200KHz (Each test parameter can set different frequency)
- ✓ Provide internal dc bias source up to 100mA
- ✓ Improved test speed (~30%)
- ✓ Provide USB interface for easy storage and accessing test conditions
- ✓ Up to 16 primary coil settings



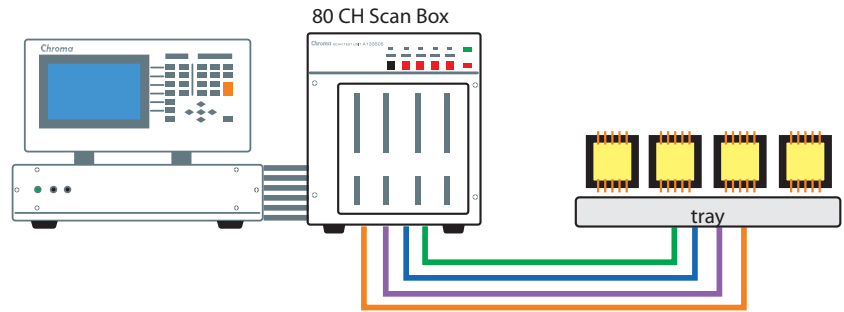
CELL-TYPE PRODUCTION LINE PLANNING

To cater to the special winding from wound components manufactures, the products in small amount but diversified and the grind core GAP before processing, the issues of long production hours and multi tasks on single station are often encountered. The 13350 works with an 80 CH. scan box provides a division multiplexing module to control 4 test workstations separately. The independent electrical characteristics test with highly flexible configuration is suitable for island-type production mode to raise the equipment utilization rate effectively.



TRANSFORMER AUTOMATION SOLUTION

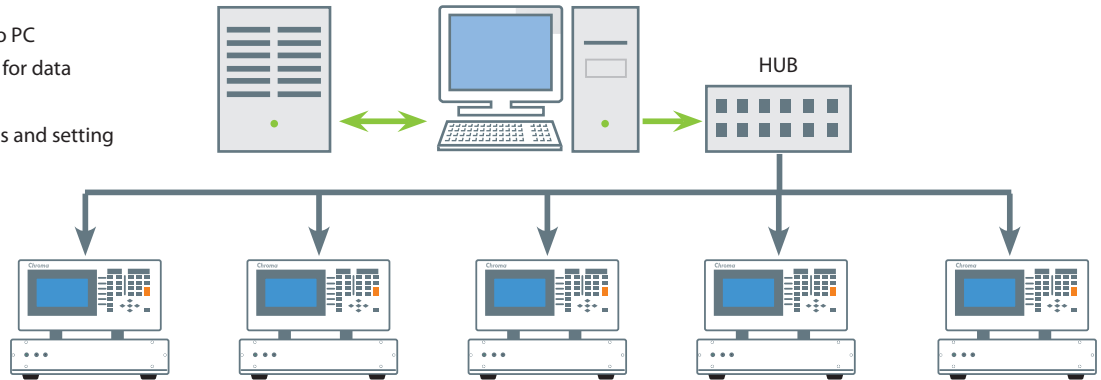
The automation of transformer production line is the most effective way to reduce labor costs and increase production. To optimize the performance of a transformer automated production line, an effective measurement mode can be applied using Chroma 13350 with an 80 CH. scan box. It can place 4 transformers in one carrier for scan test to shorten the measurement time and save manpower.



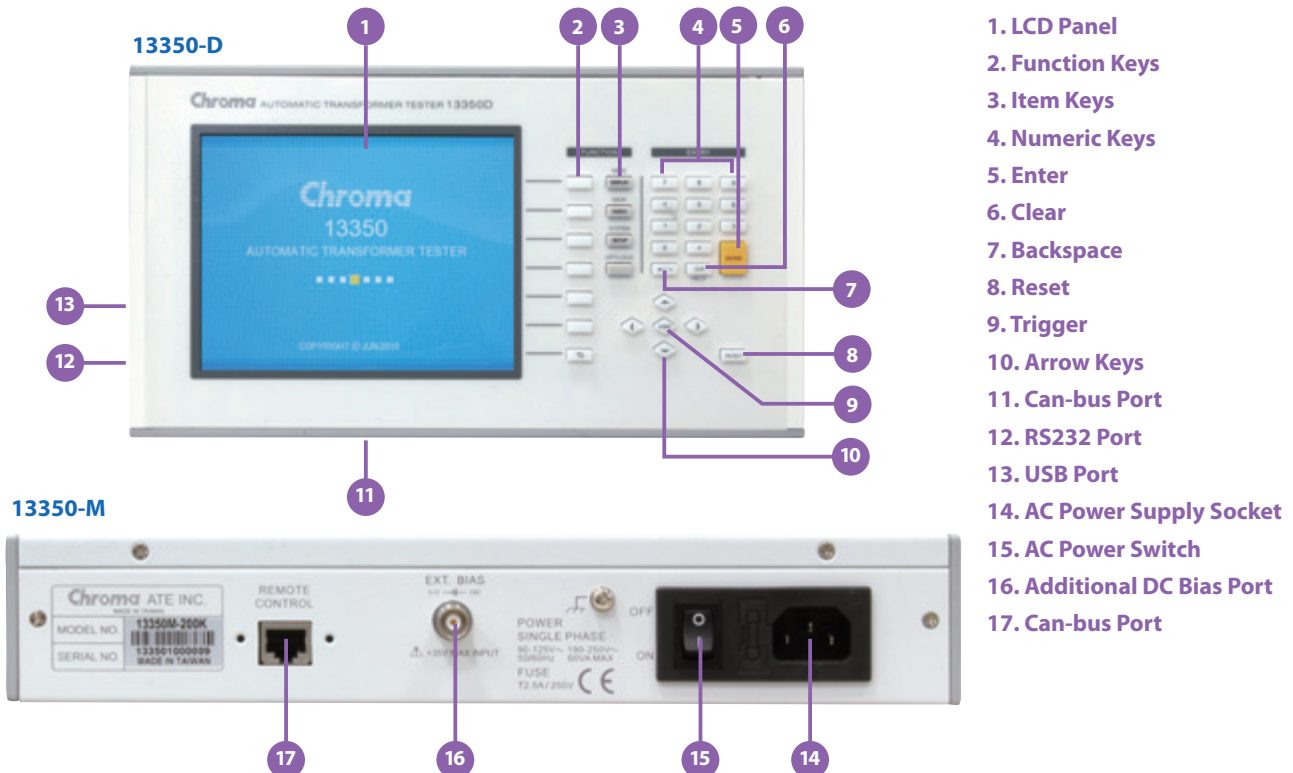
13350 LAN COMMUNICATION INTERFACE

The 13350 LAN communication interface is able to do the following to meet the requirements of prompt, convenient operation and data storage to improve production line management.

- ✓ Upload the tested data to PC
- ✓ Using Shop Flow system for data management
- ✓ Download test conditions and setting multiple 13350



PANEL DESCRIPTION



SPECIFICATIONS

Model	13350	
Main Function	Transformer Scanning Test	
Test Parameter	Transformer Scanning	
Transformer Scanning	Turn Ratio, Phase, Turn, L, Q, Leakage L, Balance, ACR, Cp, DCR, Pin Short	
Test Signals Information		
Test Level	Turn	10mV~10V, $\pm 10\%$ 10mV/step
	Others	10mV~2V, $\pm 10\%$ 10mV/step
Test Frequency	Turn	20Hz~200kHz, $\pm (0.1\% + 0.01\text{Hz})$, Resolution: 0.01Hz
	Others	20Hz~200kHz, $\pm (0.1\% + 0.01\text{Hz})$, Resolution : 0.001Hz (<1kHz)
Output Impedance	Turn	10 Ω , when level $\leq 2\text{V}$ / 50 Ω , when level > 2V
	Others	Constant = OFF : Varies as range resistors ; Constant = 320X : 100 $\Omega \pm 5\%$; Constant = 107X : 25 $\Omega \pm 5\%$ Constant=106X : 100mA $\pm 5\%$ (1V setting); for inductive load less than 10 Ω , 10 $\Omega \pm 10\%$, for impedance $\geq 10\Omega$
Measurement Display Range		
L, LK	0.00001 μH ~9999.99H	
C	0.001pF~999.999mF	
Q, D	0.00001~99999	
Z, X, R	0.0001 Ω ~999.999M Ω	
θ	-90.00°~+90.00°	
DCR	0.01m Ω ~99.999M Ω	
Turn,Ratio	0.01~99999.99 turns (Secondary voltage less than 100 Vrms)	
Ratio (dB)	-39.99dB~+99.99dB (secondary voltage less than 100 Vrms)	
Pin-Short	11 pairs, between pin to pin	
Basic Accuracy		
L, LK, C, Z, X, Y, R, DCR	$\pm 0.1\%$ (1kHz if AC parameter)	
DCR	$\pm 0.5\%$	
θ	$\pm 0.04^\circ$ (1kHz)	
Turn, Ratio (dB)	$\pm 0.5\%$ (1kHz)	
Measurement Speed (Fast)		
L, LK, C, Z, X, Y, R, Q, D, θ	50 meas./sec.	
DCR	12 meas./sec.	
Turn, Ratio (dB)	10meas./sec.	
Judge		
Transformer Scanning	PASS/FAIL judge of all test parameters output from Handler interface, 100 bin sorting for Lk	
Trigger	Internal, Manual, External	
Display	Color 640x480 LCD panel	
Equivalent Circuit Mode	Series, Parallel	
Correction Function	Open/Short Zeroing, Load correction	
Memory	15 instrument setups, expansion is possible via memory card	
General		
Operation Environment	Temperature:10°C~40°C, Humidity: 10%~90% RH	
Power Consumption	60 VA max.	
Power Requirement	90 ~ 132Vac or 180 ~ 264Vac, 47 ~ 63Hz (Auto Switch)	
Dimension (H x W x D)	13350M : 58 x 280 x 300 mm / 2.28 x 11.02 x 11.8 inch ; 13350D : 45 x 140 x 225 mm / 1.77 x 5.51 x 10.03 inch	
Weight	13350M : Approx. 3.5 kg / 7.71 lbs ; 13350D : Approx. 1.3 kg / 2.86 lbs	

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

ORDERING INFORMATION

13350D : Automatic Transformer Tester - Display Unit

13350M-200k : Automatic Transformer Tester - Measurement Unit

A133502 : 20CH Scanning Box

A133505 : 80CH Scanning Box

A133506 : CT Test Unit

A133507 : Connecting Conversion Unit (I/F of 80CH scan box / provide I/O control interface/1320 DC bias cable link /BNC terminals)

A133509 : GPIB Interface

A133510 : LAN & USB-H Interface

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