

Withstand Voltage Insulation Resistance tester TH9101 / TH9101A / TH9101B TH9101C



Hi - Pot tester



HV Scan Controller

Brief Introduction

As a high-performance electrical safety tester with new technology, TH9101 series withstanding voltage tester applies high-efficiency switch power supply and PWM switch amplifying circuit to realize high stability and reliability. Strong functions can be easily and conveniently operated and used. Special grounding mode also ensures security and high accuracy, and perfect protection function makes the test reliable. The tester has output power of 500VA (for TH9101/9101A) to meet requirements of customers and safety standard, and it can perform not only separate test for AC/DC and IR, but continuous test with programming function. When used together with 2 sets of TH9121 multi-channel scanning controller, the tester is capable of automatically checking test points for up to 16 channels. GPIB, RS232, SCANNER interfaces and REMOTE controller meet all the requirements. The instrument can be widely used for safety inspection of device, instrument and component.

Features

- TH9101/TH9101B AC/DC Withstanding Voltage Insulation Resistance Tester
TH9101A/TH9101C AC Withstanding Voltage Insulation Resistance Tester
- 240×64 dot matrix graphic LCD display
- New operation interface, combination-key operation mode, user friendly interface
- Rotary encoder switch applied instead of numerical key input
- Advanced PWM switching power technology
- Perfect protection function
- Test frequency of 500VA provided (for TH9101/TH9101A)
- Starting voltage, voltage rising time, holding time, and voltage falling time of AC withstanding voltage randomly set
Current provided to judge wait time for DC withstanding voltage testing and insulation resistance testing according to loads with different characteristics
- Analog/Digital dual display for voltage
- 20 test conditions saved for each measurement; both each channel's continuous test, multi channels' simultaneous test and different channels' continuous test realized with TH9121 8-channel high-voltage scanner; 20 test files set
- Base clear function for AC withstanding voltage
- Fast/Medium/Slow speed set for AC withstanding voltage current
- Arc detection function
- GND/FLOAT modes respectively to meet requirements of safe and high-accuracy measurement
- Keylock function
- Multi-channel scanning control interface SCANNER, status output interface, TH90005 remoter control box (optional)
- RS-232C, GPIB (optional) communication interface

Specifications

Model	TH9101	TH9101A	TH9101B	TH9101C	
Voltage output					
AC	Output-voltage range	0.5kV—5kV,			
	Voltage resolution	10V			
	Voltage accuracy	$\pm(1.5\%$ of setting +20V) (with no load)			
	Voltage frequency	50Hz, 60Hz			
	Frequency accuracy	$\pm 0.2\%$			
	Max. output current	100mA		40mA	
	Max. output power	500VA (5kV/100mA)		200VA (5kV/40mA)	
	Short-circuit current	>200mA at output voltage > 500V		>100mA at output voltage > 500V	
	Load adjustment rate	<3%			
	Voltage waveform	Sine wave			
	Waveform distortion	<3% (with no load or pure resistive load at output voltage more than 0.5kV)			
	Voltage output mode	PWM switching			
DC	Output voltage range	0.5kV—6kV	-----	0.5kV—6kV	-----
	Voltage accuracy	$\pm(1.5\%$ of setting + 20V) (with no load)	-----	$\pm(1.5\%$ of setting + 20V) (with no load)	-----
	Voltage resolution	10V	-----	10V	-----
	Max. output current	10mA	-----	10mA	-----
	Max. output power	50VA	-----	50VA	-----
	Output short-circuit current	>45mA	-----	>45mA	-----
	Load adjustment rate	<1%	-----	<1%	-----
	Ripple (5kV)	<3% with no load	-----	<3% with no load	-----
	Discharge function	Forced discharge after test	-----	Forced discharge after test	-----
IR	Output voltage range	-25V – -1000V			
	Voltage resolution	1V			
	Voltage accuracy	$\pm(1.5\%$ of setting + 2V)			
	Max. output current	1mA			
	Max. output power	1 VA (-1000V/1mA)			
	Short-circuit current	>1.1mA			
	Load adjustment rate	<1%			
	Ripple (5kV)	<0.5% (1k, with no load)			
Discharge function	Forced discharge after test				
Voltmeter					
Analog voltmeter accuracy		6kV AC/DC F.S $\pm 5\%$ F.S			
Digital	Measurement range	0.00kV – 6.00kV AC/DC			
	Accuracy	$\pm(1.0\%$ of reading + 30V)			
	Display resolution	10V			
Ammeter					
Measurement range	AC	0.00mA – 110mA		0.00mA – 44mA	
	DC	0.00mA – 11mA	-----	0.00mA – 11mA	-----
Current display range		0 μ A – 999 μ A 1.00mA – 9.99mA 10.0mA – 99.9mA			

	100mA – 110mA			
Accuracy	$\pm(3\% \text{ of reading} + 20\mu\text{A})$ (after correction)			
Current measurement time	100ms			
Insulation resistance display				
Analog voltmeter accuracy	6kV AC/DC F.S $\pm 5\% \text{ F.S}$			
Voltage measurement range	-1200V – 0 V			
Voltage measurement accuracy	$\pm(1\% \text{ of reading} + 1\text{V})$			
Voltage display resolution	1V			
Resistance measurement range	0.01M Ω – 9.99G Ω , (current range from 50nA to 1mA)			
Resistance display range	0.01M Ω – 9.99M Ω			
	10.0M Ω – 99.9M Ω			
	100M Ω – 999M Ω			
	1.00G Ω – 9.99G Ω			
Resistance measurement accuracy	$\pm(20\% \text{ of reading})$ (50nA – 100nA)			
	$\pm(10\% \text{ of reading})$ (100nA – 200nA)			
	$\pm(5\% \text{ of reading})$ (200nA – 1 μA)			
	$\pm(2\% \text{ of reading})$ (1 μA – 1mA)			
Current measurement accuracy	$\pm(3\% \text{ of reading} + 20\mu\text{A})$ (after correction)			
Parameter setting				
Starting voltage set	0% – 99% of set voltage (resolution of 1%)			
Voltage rise-time	0.1s – 200s			
Voltage fall-time	0 s – 200s, (only with PASS judgment in AC withstanding voltage testing)			
Voltage wait-time	0.3s – 10s (only for DC withstanding voltage testing, rise time+ test time > wait time)			
Test time setting	0.3s – 999s (at TIMER ON)			
Time accuracy	$\pm (0.02\% \text{ of set value} + 20\text{ms})$			
Comparator				
Judgment mode	Window comparator mode I_{low} ON: at $I_{\text{low}} < I_x < I_{\text{high}}$, PASS; at $I_x < I_{\text{low}}$ or $I_x > I_{\text{high}}$, FAIL (condition: $I_{\text{low}} < I_{\text{high}}$) I_{low} OFF: at $I_x < I_{\text{high}}$, PASS; at $I_x > I_{\text{high}}$, FAIL The same judgment mode for insulation resistance judgment			
Current high-limit setting I_{high}	AC	0.01mA – 110mA		0.01mA – 44mA
	DC	0.01mA – 11mA	-----	0.01mA – 11mA
Current low-limit setting I_{low} (LOWER OFF)	AC	0.01mA – 110mA	0.01mA – 44mA	-----
	DC	0.01mA – 11mA	-----	0.01mA – 11mA
Resistance high-limit setting	0.01M Ω – 9.99G Ω			
Resistance low-limit setting	0.01M Ω – 9.99G Ω			
Judgment output	PASS/FAIL LCD and LED display, beeper alarm			
Measurement function				
Display	240 × 64 dot matrix graphic LCD display			
Voltage measurement hold	The voltage measured at the end of the test is held during the PASS or FAIL interval			
Current measurement hold	The current measured at the end of the test is held during the PASS or FAIL interval			
Base clear function	Insulation resistance flowing among output cables and current of stray capacitance can be cleared (valid only in AC withstanding voltage testing, up to 100 $\mu\text{A/kV}$)			
Low-terminal mode selection	GND: normal mode of the LOW terminal connecting to the chassis (ground). FLOAT: to measure the current flowing to the LOW terminal, not including the current flowing to the chassis (ground).			
Current response speed	High-limit judgment current-detection speed: Fast/Medium/Slow (valid only in AC withstanding voltage testing)			
Alarm volume adjustment	Off, High, Low			
HV indication, protection indication	LED indicator			
Storage and interface				

File program and storage	20 programmable test files, 20 test steps respectively set for AC, DC, insulation resistance in each file
Parameter storage	Parameter settings automatically saved, and automatically loaded next time of turning on the tester
REMOTE control (front panel)	START, STOP, START—ENABLE, HV ON indication
Status output interface	PASS, FAIL
Communication interface	RS232C, REMOTE, SCANNER, GPIB (optional)

General Specifications

General specifications		
Working temperature & humidity	0°C – 40°C, ≤90%RH	
Power supply	99V-121V, 198V-242V, 47.5-63Hz	
Power consumption	TH9101/A	≤ 700VA
	TH9101B/C	≤ 450VA
Dimensions	430mm×140mm×385mm	
Weight	TH9101/A	Approx. 20kg
	TH9101B/C	Approx. 16kg

Ordering Information

TH9101 AC/DC Withstanding Voltage Insulation Resistance Tester
 TH9101A AC Withstanding Voltage Insulation Resistance Tester
 TH9101B AC/DC Withstanding Voltage Insulation Resistance Tester
 TH9101C AC Withstanding Voltage Insulation Resistance Tester

Instrument Accessories

TH90001R withstanding voltage test clip 1
 TH90001B withstanding voltage grounding clip 1
 TH90002 withstanding voltage test lead 1

Options

TH90003 remote control withstanding voltage test lead
 TH90005 remote control box
 TH9121 8-channel high-voltage scanner
 TH90006R scanning high-voltage connection cable
 TH90006B scanning grounding-line connection cable
 TH9100-GPIB interface board
 TH9100-SOFT1 RS232C communication control software
 TH9100-SOFT2 GPIB communication control software