

The logo for Tonghui, featuring the word "Tonghui" in a bold, italicized, orange sans-serif font with a registered trademark symbol (®) to its upper right.

Join hands, benefit the future

Since 1994

The cover of the Tonghui Electronic Catalog for 2019. The top half features a light gray background with a network of thin gray lines and orange dots. The bottom half is white with a vertical orange line on the left side.

TONGHUI ELECTRONIC

Catalog for Measure and Test Products

<http://www.tonghui.com.cn>

2019

- 2002 TH2816 and TH2820 LCR meters won in the international bidding of the project of "World Bank High Education Development and Reform".

2002 Program of TH2818 Automatic Component Analyzer was affirmed to be financed by "Innovation Fund for Small Technology Based Firms" of Ministry of Science and Technology of People's Republic of China.

2002 Tonghui passed ISO9000: 2000 Quality Management System Certificate.

2003 High-performance TH2818XA/XB Automatic Transformer Testing System with absolutely independent intellectual property launched into market.
- 2003 The company purchased land of No.1 Tianshan Road and accessorial buildings, which combined with the original factory to be the new one with land area of 14,000 square meters, construction area of 8,200 square meters.

2003 Tonghui was assessed to be "New & Hi-tech Enterprise" by Jiangsu Science and Technology Department.

2003 Tonghui was admitted to be a formal member of China Electronic Instrument Association.
- 2004 TH2818 Automatic Component Analyzer was honored the second prize of "Changzhou Science and Technology Advancement Prize". TH2818 Automatic Component Analyzer was honored the third prize of "Jiangsu Science and Technology Advancement Prize".

2004 Tonghui was granted the honor of "Top 10 civilian-owned New & Hi-tech Enterprises in Changzhou Hi-tech District".

2004 TH2828 Precision LCR Digital Meter series of 1MHz was developed, which had the best performance and could be comparable with world-level instrument.

2004 TH2828 Precision LCR Digital Meter was assessed to be "Jiangsu Key Scientific and Technological Project".
- 2005 Manufacturing and quality departments moved into Manufacture Building of 4,000 square meters at No. 1 Tianshan Road.

2005 Tonghui developed the first 6 1/2 Multimeter.
- 2006 Granted the title of Credit Trust Enterprise in Changzhou.
- 2007 TDO1000/TDO2000 Digital Storage Oscilloscope and TH5100/9100 series Electronic Safety Testers are successfully developed .
- 2008 The routine test laboratory has been established, now the products will go through complete tests: mechanical test , temperature test, humidity test, security test, power adaptation test , electromagnetic compatibility test and other performance indicators tests. All products will get CMMI Certification.
- 2009 Tonghui Electronic Co., Ltd . was identified as "high-tech enterprise in Jiangsu Province" once again and was authorized to do import and export business.
- 2010 The new SMD production line has already been put into service.
- 2011 Granted as the Engineering Technology R&D Center on Electronic Component Measurement Instrument by Changzhou Bureau of Science and Technology
- 2012 Restructured as a joint-stock company
- 2014 Dongguan Tongxuan Electronic Technology Limited Company and Suzhou Jingshan Science Equipment Limited Company were established. Meanwhile, Tonghui was awarded as "Star Enterprise of CEF" by organizing committee of China Electronics Fair. The grand 20th anniversary ceremony was held.



CHANGZHOU TONGHUI ELECTRONIC CO.,LTD.

[Http://www.tonghui.com.cn](http://www.tonghui.com.cn)

- Changzhou Tonghui Electronic Co., Ltd. was founded in 1994. It is a privately-owned technology-based company of research and development, manufacture and marketing. It has been appraised as the “High-Tech Enterprise in Jiangsu Province”. It is located in the National Development Zone-Changzhou Hi-Tech Industry Development Zone with beautiful environment and convenient traffic. Covering a land area of 12,000 square meter with a construction area of 8,200 square meter, it has more than 120 employees, and 75% of them are technicians.
- For many years, Tonghui has been devoting itself to the research and development of electronic measurement instruments. Bearing the faith of technology first, we are struggling to promote the development of domestic measurement instruments and minimize the distance with the world advanced instruments. Now we have developed the following products: digit multimeter series, electronic component parameter meter series, DC parameter test instrument series, motor and transformer parameter meter series, high/low frequency millivoltmeter series, etc. As the result of years of effort, Tonghui has grown to be a well-known brand in electronic instrument industry.
- Customer's satisfaction is Tonghui's main target. TONGHUI insists to provide users with creative solutions for more efficient measurement and higher product quality. It's also our duty to reduce the measurement cost for customers so that hi-tech instruments can be widely used and enjoyed.
- As a famous provider of electronic measurement instruments, TONGHUI provides its customers with advanced products, as well as offers good service. TONGHUI has established a perfect network of sales and service in order to ensure quick, convenient and thoughtful service for our customers.
- With the fast development and increasing popularity, the business of our company expands to foreign countries and gradually enters the international competition system, which is a foundation for Tonghui to be a famous international enterprise.
- Tonghui is your reliable friend for ever. We are eager to share success with you.



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New Product Introduction

TH2839 Series Impedance Analyzer



DC Power Supply



TH3311 Series Digital Power Meter



TH7100 Series Programmed AC Power Supply



TH9520 Winding Component EST Tester



TH9010 Parallel 8-channel AC/DC Withstanding Voltage & Insulation Resistance Tester



TH9110/A Hipot Tester



TH1963 Digit Multimeter



Component Parameter Test Instruments

A. TH2839 Series Impedance Analyzer

NEW

Features

- High accuracy: Auto-balance bridge technology, 4-terminal pair
- High stability and consistency: Up to 15 test ranges
- High speed: Up to 7.7ms
- High resolution: 7-inch, 800×600
- 201 Points List Sweep Function
- Multi-parameter Graphic Sweep Function
- Varactor diode automatic polarity function
- 10 bins sorting, sorting result with sound and light alarm
- Storage space: Internal: 40 groups of setting files
USB External: 500 groups of setting files, data log files and image files
- Simultaneous testing for L_s - R_{dc}
- High compatibility: Support SCPI commands, compatible with KEYSIGHT E4980A, E4980AL, HP4284A etc.



Standard RS232 USB HOST USB DEVICE HANDLER LAN

option GPIB SCANNER

Dimension(mm): 400mm(W)x132mm(H)x425mm(D)
Weight: 15kg

Applications

- **Passive component:**
Impedance parameter estimation and performance analysis of capacitor, inductor, magnetic core, resistor, piezoelectric devices, transformers, chip components and network components
- **Semiconductor component**
Parasitic parameter test and analysis of LED driver integrated circuit
C-VDC features of varactors
Parasitic parameter analysis of transistors or integrated circuit
- **Other components**
Impedance assessment of printed circuit boards, relays, switches, cables, batteries

- **Dielectric material**
Dielectric constant and loss angle evaluation of plastics, ceramics and other materials
- **Magnetic materials**
Magnetic permeability and loss angle assessment of ferrite, amorphous body and other magnetic materials
- **Semiconductor materials**
Dielectric constant, electrical conductivity and C-V characteristics of semiconductor materials
- **Liquid crystal cell**
Dielectric constant, elastic constant and C-V characteristics of liquid crystal cell

Specifications

Model	TH2839	TH2839A	
Display	7-inch TFT LCD display 800XRGBX600		
AC Test parameters	Cp/Cs、Lp/Ls、Rp/Rs、 Z 、 Y 、R、X、G、B、θ、D、Q、Vac、Iac		
DC Test parameters	Rdc、Vdc、Idc		
Test Frequency	Range	20Hz-10MHz	20Hz — 5MHz
	Highest resolution	1mHz	
Test level	AC voltage	20Hz — 2MHz: 5mV — 2Vrms 2MHz — 10MHz: 5mV — 1Vrms	20Hz — 2MHz: 5mV — 2Vrms 2MHz — 5MHz: 5mV — 1Vrms
	Resolution	100uV	
	AC current	20Hz — 2MHz: 50uA—20mArms 2MHz — 10MHz: 50uA—10mArms	20Hz — 2MHz: 50uA — 20mArms 2MHz — 5MHz: 50uA — 10mArms
	Resolution	1uA	
	DC Voltage	100mV — 2V	
DC bias	Resolution	100uV	
	Voltage	0V — ± 40V	
	Current	0mA — ± 100mA	
	Resolution	1uA	
DC voltage source	Voltage range	-10V — 10V	
	Current range	-45mA — +45mA	
	Output impedance	100Ω	
Test terminal configuration	Four-terminal pair		
Output impedance	100Ω		
Typical measurement time (speed)	Fast: 7.7ms/time Medium: 120ms/time Slow: 230ms/time		

Component Parameter Test Instruments

A. TH2839 Series Impedance Analyzer

Model	TH2839	TH2839A
Highest accuracy	1kHz: 0.05% 1MHz: 0.05% 2MHz: 0.1% 5MHz: 0.5% 10MHz: 1.0%	1kHz: 0.05% 1MHz: 0.05% 2MHz: 0.1% 5MHz: 0.5%
Cable length	0, 1, 2, 4 meters (4 meter cable is optional)	
Graph sweep	Parameters	FREQ, ACV, ACV/I, DCV/I, DC voltage source
	Type	Logarithm, linearity
	Sweep points	51, 101, 201, 401 or 801
Equivalent circuit analysis	Purchase PC software	
Interface	USB HOST, USB DEVICE, LAN, HANDLER, RS232C, SCANNER, Temperature Input sensor Optional: GPIB	
Warm-up time	60 minutes	
Input voltage	Optional 100-120VAC/198-242VAC, 47-63Hz	
Power consumption	80VA	
Dimension(WxHxD)mm ³	400 x 132 x 425	
Weight	15kg	

Standard accessories

Three core power cord

TH26010 Gold-plated short circuit board

TH26047 Test fixture

TH26005C Four-terminal test fixture

Component Parameter Test Instruments

A. TH2838 Series Precision LCR Meter

Features

- High accuracy: Adopt Auto-balance bridge technology, 4-terminal pair
- High stability and consistency: Up to 15 ranges
- High speed: Up to 5.6ms
- High resolution: 7-inch, 800×600
- High power:
 - Signal source: Voltage up to 20Vrms(only TH2838H)
Current up to 100mA(only TH2838H)
 - DC bias: Voltage up to ±40V(only TH2838H)
Current up to 100mA
Up to 120A when controlling 6 sets of TH1778 series DC Bias Current Source by external DC Bias interface
Independent Voltage Source: ±10V programmable output (only TH2838H)
- 201 Points List Sweep Function
- Multi-parameter Graphic Sweep Function
- Arithmetical operation
- 10 bins sorting, sorting result with sound and light alarm
- Huge storage space:
 - Internal: 100 groups of setting files, 10 groups of gif image files
 - External: 100 groups of setting files through USB storage
- Rich interfaces: USB HOST, USB DEVICE, LAN, HANDER, GPIB (Optional), SCANNER(Optional), external DC BIAS control interface
- High compatibility: Support SCPI commands, compatible with KEYSIGHT E4980A, E4980AL, HP4284A etc.

NEW



RS232	USB	LAN	HANDER	DC BIAS
standard	standard	standard	standard	standard

GPIB
option

TH2838 Series

Dimension (mm): 400(W) x 132(H) x 425(D)
Net weight: 15kg

Brief Introduction

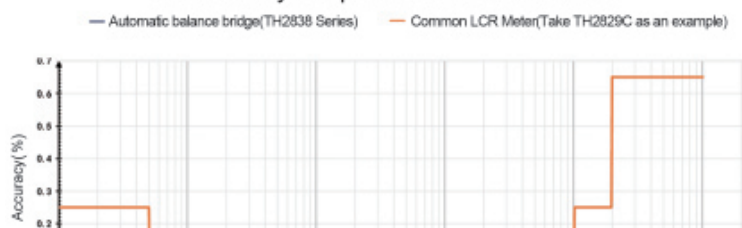
■ TH2838/TH2838H/TH2838A is a new generation impedance tester adopting the most advanced auto balance bridge theory in the world at present. With its 0.05% basic accuracy, speed up to 5.6ms, 20Hz-2MHz frequency range and impedance test range up to 1GΩ, this new impedance tester can meet all test demands of components and materials, especially for testing capacitor with low D and inductor with high Q. Four-terminal pair configuration can eliminate the effect of electromagnetic coupling in test cable, to extend the low limit of low impedance test 10 times than those testers with Five-pair configuration.

TH2838/TH2838H/TH2838A supports 20V AC test signal and 40V DC Bias, new-added improved multi parameter list sweep/graphic analyze will help customers to extend the comprehensive evaluation ability on components.

TH2838/TH2838H/TH2838A is a strong tool for the design, examination, quality control and production test of electronic components. Its excellent performances and functions provide a powerful tool for circuit design and development, as well as material (electronic material and non-electronic material) research and development.

TH2838/TH2838H/TH2838A can realize various tests of commercial standards and military standards, such as IEC and MIL.

The accuracy comparison table of LCR Meter



Brief Introduction

Application

1. Passive component

Impedance parameter estimation and performance analysis of capacitor, inductor, magnetic core, resistor, piezoelectric devices, transformers, chip components and network components

2. Semiconductor component

Parasitic parameter test and analysis of LED driver integrated circuit C-VDC features of varactors Parasitic parameter analysis of transistors or integrated circuit

3. Other components

Impedance assessment of printed circuit boards, relays, switches, cables, batteries

4. Dielectric material

Dielectric constant and loss angle evaluation of plastics, ceramics and other materials

5. Magnetic materials

Magnetic permeability and loss angle assessment of ferrite, amorphous body and other magnetic materials

6. Semiconductor materials

Dielectric constant, electric conductivity and C-V characteristics of semiconductor materials Liquid crystal cell of dielectric constant, elastic constant and C-V characteristics of liquid crystal cell

Component Parameter Test Instruments

A. TH2838 Series Precision LCR Meter

Specifications

Model	TH2838	TH2838H	TH2838A	
Test Signal Source				
Output impedance	100Ω, ±1% @1kHz			
Frequency	Range	20Hz-2MHz	20Hz-1MHz	
	Resolution	20.0000Hz - 99.9999Hz	0.1mHz	
		100.000Hz - 999.999Hz	1mHz	
		1.00000kHz - 9.99999kHz	10mHz	
		10.0000kHz - 99.9999kHz	0.1Hz	
		100.000kHz - 999.999kHz	1Hz	
		1.00000MHz - 2.00000MHz	10Hz	
AC test signal	Rated value(ALC OFF): Set the voltage as the Hcur voltage when the test terminal is open Set the current as the Hcur current when the test terminal is short Constant value(ALC ON): Keep the voltage in DUT is the same as the set value Keep the current in DUT is the same as the set value			
AC signal	Voltage range	5mVrms -- 2Vrms	F≤1MHz 5mVrms-- 20Vrms F >1MHz 5mVrms -- 15Vrms	5mVrms -- 2Vrms
	Resolution	5mVrms -- 0.2Vrms	100μVrms	
		0.2Vrms -- 0.5Vrms	200μVrms	
		0.5Vrms -- 1Vrms	500μVrms	
		1Vrms -- 2Vrms	1mVrms	
		2Vrms -- 5Vrms	2mVrms	
		5Vrms -- 10Vrms	5mVrms	
		10Vrms -- 20Vrms	10mVrms	
	Current range	50μArms -- 20mArms	50μArms --100mArms	50μArms -- 20mArms
	Resolution	50μArms -- 2mArms	1 μArms	
		2mArms -- 5mArms	2 μArms	
		5mArms -- 10mArms	5 μArms	
		10mArms -- 20mArms	10μArms	
20mArms -- 50mArms		20μArms		
50mArms--100mArms		50μArms		
Rdc test	Voltage range	100mV — 2V		
	Resolution	100μV		
	Current range	0mA— 20mA		
	Resolution	1μA		
DC Bias	Voltage range	0V — ± 10V	0V — ± 40V	0V — ± 10V
	Resolution	0V -- 5V	100μV	
		5V -- 10V	1mV	
		10V -- 20V	2mV	
		20V -- 40V	5mV	
	Current range	0mA— ± 100mA		
	Resolution	0 A -- 50mA	1μA	
50mA -- 100mA		10μA		
Voltage source	Voltage range	-----	-10V -- 10V	-----
	Resolution	-----	1mV	-----
	Current range	-----	-45mA -- +45mA	-----
	Output impedance	-----	100Ω	-----

Component Parameter Test Instruments

A. TH2838 Series Precision LCR Meter

Display								
Dimensions /typ		7-inch (diagonal)TFT LCD display						
Proportion		16:9						
Resolution		800×RGB×480						
Test function								
Test parameter		Cp-D,Cp-Q,Cp-G,Cp-Rp Cs-D,Cs-Q,Cs-Rs Lp-D, Lp-Q, Lp-G, Lp-Rp, Lp-Rdc Ls-D, Ls-Q, Ls-Rs, Ls-Rdc, Rdc R-X, Z-θd, Z-θr G-B, Y-θd, Y-θr Vdc-Idc						
Mathematics function		A(X+B)+C, X is test parameter, A, B,C is input parameter						
Equivalent circuit		Series, parallel						
Deviation measurement		Absolute deviation Δ compared with the nominal value Percentage deviation Δ% compared with the nominal value						
Calibration function		OPEN, SHORT, LOAD						
Range selection		AUTO, HOLD						
Range	LCR	100mΩ, 1Ω, 10Ω, 20Ω, 50Ω, 100Ω, 200Ω, 500Ω, 1kΩ, 2kΩ, 5kΩ, 10kΩ, 20kΩ, 50kΩ, 100kΩ, total 15 ranges						
	Rdc	1Ω, 10Ω, 20Ω, 50Ω, 100Ω, 200Ω, 500Ω, 1kΩ, 2kΩ, 5kΩ, 10kΩ, 20kΩ, 50kΩ, 100kΩ, total 15 ranges						
Trigger mode		INT, MAN, EXT, BUS						
Trigger delay		0 s -- 999 s, resolution 100us						
Test terminal configuration		Four-pair						
Test cable length		0m, 1m						
Test average		1-255 times						
Test time (ms)	Speed mode	20Hz	100Hz	1kHz	10kHz	100kHz	1MHz	2MHz
	FAST	330	100	20	7.7	5.7	5.6	5.6
	MED	380	180	110	92	89	88	88
	LONG	480	300	240	230	220	220	220
Test display range		a 1×10^{-18} ; E 1×10^{18}						
Cs, Cp		±1.000000 aF -- 999.9999 EF						
Ls,Lp		±1.000000 aH -- 999.9999 EH						
D		±0.000001 -- 9.999999						
Q		±0.01 -- 99999.99						
R, Rs, Rp, X, Z, Rdc		±1.000000 aΩ -- 999.9999 EΩ						
G,B,Y		±1.000000 aS -- 999.9999 ES						
Vdc		±1.000000 aV -- 999.9999 EV						
Idc		±1.000000 aA -- 999.9999 EA						
θ r		±1.000000 a rad -- 3.141593 rad						
θ d		±0.0001 deg -- 180.0000 deg						
Δ%		±0.0001% -- 999.9999%						
t		-99.99° C -- 1000.00° C						
Turn Ratio (extension pending)		±0.000000 -- 1000.000						
Basic test accuracy		0.05% (the details refer to the instruction)						
List sweep								
Sweep points		Up to 201 points						
Sweep Parameters		Test frequency, AC voltage, AC current, DC BIAS voltage, DC BIAS current						
Trigger mode	SEQ	Once triggered, test at the sweep points. /EOM/INDEX will be output one time.						
	STEP	Once triggered, test at one sweep point. /EOM/INDEX will be output at each point, but the list sweep comparator results only be output at the last /EOM.						

Component Parameter Test Instruments

A. TH2838 Series Precision LCR Meter

List sweep comparator	Set one pair of lower limit and upper limit for each sweep point. Optional: judge through the first sweep parameter / judge through the second sweep parameter / not used in each limit.	
List sweep time tag	In SEQ mode, set the trigger point to 0, by defining the time, the test start time can be recorded at each measurement point.	
Graph sweep analysis		
Sweep points	51, 101, 201, 401 or 801	-----
Sweep trace	Primary or secondary parameters	-----
Display range	AUTO, HOLD	-----
Coordinate scale	Logarithm, linearity	-----
Sweep parameters	Test frequency, ACV, ACI, DCV BIAS/DCI BIAS, DC voltage source	-----
Sweep result display	Maximum value/ minimum value of primary/secondary parameter, primary/secondary value of the setting point	-----
Sweep graph storage	Sweep graphs can be saved to the interior FLASH, external USB storage or uploaded to the upper computer.	-----
Comparator		
Bin sorting	Primary parameter	9 BIN, OUT_OF_BINS, AUX_BIN, LOW_C_REJECT
	Secondary parameter	HIGH, IN, LOW
Bin limit setup	Absolute value, deviation value, percentage deviation value	
Bin count	0 -- 999999	
PASS/FAIL indication	When the primary parameter is one of the 9 BINS and the secondary parameter is IN, the PASS light on the front panel is ON, or FAIL light is ON.	
Test auxiliary function		
Data buffer storage function	201 test results can be read in batches	
Storage/Calling function	100 groups of test setting files in the internal nonvolatile memory 0--99 100 groups of test setting files in the USB storage 0—99	
Keyboard lockout function	Front panel keys can be locked	
USB HOST port	Universal Serial Bus socket, A class; FAT16/FAT32 format. USB flash disk storage or barcode scanning	
USB DEVICE port	Universal Serial Bus socket, small size B class (4 contact position); Correspond to USBTMC-USB488 and USB 2.0 The female joint is used for connecting the external control unit.	
LAN	10/100BaseT Ethernet, 8pins, two selectable speed mode	
HANDLER interface	Be used for bin sorting signal output	
External DC BIAS control	Control TH1778/TH1778S Bias current source, at most 1 set of TH1778+5 sets of TH1778S (120A MAX)	
RS232		
GPIO (option)	24 pin D-Sub port (D-24 class), the female joint is compatible with IEEE488.1, 2 and SCPI.	

Standard Accessories

Three core power cord	TH26011BS	4 terminal pair Kelvin test clip leads
TH26010 Gold-plated short circuit board	TH26005C	Four-terminal test fixture

Options

TH26108C	Four-terminal-pair patch test fixture	TH26008A	SMD component test fixture
TH26007A	Magnetic ring test fixture	TH26009B	SMD Kelvin test tweezers
TH26047	Four-terminal test fixture	TH26048	Four-terminal test fixture
TH26063	Four-terminal test fixture	TH26062A	Four-terminal test fixture
TH2838-GPIB	GPIB Interface board	TH26033	GPIB Control cable

Component Parameter Test Instruments

A. TH2829 Series of Automatic Component Analyzer

Features

- 800×RGB×480 7-inch TFT LCD display
- Basic accuracy: 0.05%
- Test signal frequency of 1MHz, resolution of 1mHz, 5-digit frequency input
- Strongest signal source selection:
10V/100mA programmable AC test level
10V/100mA programmable DC bias supply
10V/50mA standalone DC voltage source
1A interior DC bias current source (optional)
120A external bias source (optional)
- Maximum test speed: 9ms/time
- Simultaneous display of 4 kinds of test parameters
- 201 -point list sweep function
- Continuous curve scanning/graphical analysis function
- Internal storage of 100 sets of LCRZ setting files and 10 sets of GIF image
- GIF image and CSV data files can be saved to USB storage directly
- HANDLER, USB, LAN, RS232C, GPIB (option), DCI interface



TH2829 Series

Brief Introduction

■ By dint of leading impedance measurement technology and rich R&D experience, Tonghui continuously introduces representative impedance measurement product --- TH2829 series automatic component analyzer is another excellent product we have produced. TH2829 series automatic component analyzer possesses a higher test speed, a more comprehensive analysis function and friendly human-computer interactive experience by adopting the latest high-speed processor and a new software system. Well-designed measuring circuit and optimized algorithms further enhance the test stability of low-D capacitance and high-Q inductors. The instrument is provided with 10V AC test level, 10V/100mA bias current and standalone 10V/50mA DC current, making it convenient for applying in the test of all kinds of active/ passive devices. Main/sub parameters display, enhanced display system design, 150-points list sweep and graphical analysis capabilities of multiple parameters meet the most application requirements of customers.

Thanks to the application of a new generation of processors, the instrument has a more powerful data processing capability. The test results can be easily stored in the U disk or uploaded to the upper PC or network through multiple interfaces, promoting test automation and test efficiency.

The test frequency of TH2829 series are 20Hz-300kHz, 20Hz-500kHz and 20Hz-1MHz. The instrument has a test accuracy of 0.05% and highest test speed of 9ms/time. Being equipped with multiple interfaces of HANDLER, USB, LAN, RS232C, DCI, GPIB (option) as well as rich resources, the instrument will bring excellent cost performance experience for customers.

TH2829 series automatic component analyzer is completely appropriate for test requirements of all kinds of industrial and military standards.

Specifications

Display		800×RGB×480 7-inch TFT LCD display	
Frequency of test signal	TH2829A	20Hz—300kHz	
	TH2829C	20Hz—1MHz	
	Minimum resolution	1mHz, 5-digit frequency input	
	Accuracy	0.01%	
AC Level	Voltage range of test signal	5mV—10Vrms	
	Minimum resolution of voltage	100μV, 3-digit input	
	Accuracy	ALC ON	10% x set voltage + 2mV
		ALC OFF	6% x set voltage + 2mV
	Current range of test signal	50μA—100mA	
	Minimum resolution of current	1μA, 3-digit input	
	Accuracy	ALC ON	10% x set current + 20μA
		ALC OFF	6% x set voltage + 20μA
DC bias voltage source	Voltage /Current range	0V— ±10V / 0mA—±100mA	
	Resolution	0.5mV / 5μA	
	Voltage accuracy	1% x set voltage + 5mV	
	ISO ON	Be used for the bias test of inductance and transformer	
AC Source impedance	ISO ON	100Ω	
	ISO OFF	30Ω、50Ω、100Ωselectable	
DCR Source impedance		30Ω、50Ω、100Ωselectable	
DC Independent voltage source	Voltage /current range	0V— ±10V / 0mA—±50mA	
	Resolution	0.5mV / 5μA	
	Voltage accuracy	1% x set voltage + 5mV	
	Output resistance	100Ω	
Test parameters of LCR		Z , Y , C, L, X, B, R, G, D, Q, θ, DCR, Vdc-I dc	
Parameter display of test page		Two sets of main/sub parameters, the second set can be set as ON/OFF; There can be 10 pages of list sweep and 15 points per page at most; Multiple parameters continuous sweep graphical analysis.	

Component Parameter Test Instruments

A. TH2829 Series of Automatic Component Analyzer

Basic accuracy	LCR test parameter	0.05%
	Calibration	Warm-up time ≥ 30 seconds; Environment temperature: $23\pm 5^{\circ}\text{C}$; Signal voltage: 0.3Vrms-1Vrms Zeroing: After OPEN or SHORT; Length of test cable: 0 m
Measurement time (≥ 10 kHz)		Fast: 9 ms / time Medium: 67 ms / time Slow: 187 ms / time Plus the refresh time of display character
Display range of LCR parameter	Z , R, X, DCR	0.00001 Ω — 99.9999M Ω
	Y , G, B	0.00001 μs — 99.9999s
	C	0.00001pF — 9.99999F
	L	0.00001 μH — 99.9999kH
	D	0.00001 — 9.99999
	Q	0.00001 — 99999.9
	$\theta(\text{DEG})$	-179.999 $^{\circ}$ — 179.999 $^{\circ}$
	$\theta(\text{RAD})$	-3.14159 — 3.14159
$\Delta\%$	-999.999% — 999.999%	
Equivalent circuit		Serial, Parallel
Range mode		Auto, Hold
Trigger mode		Internal, Manual, External, Bus
Average times		1-256
Calibration function		Open, short calibration with full frequency or dot frequency, Load
Math operation		Direct reading, ΔABS , $\Delta\%$
Delay time setup		0-999, minimum resolution: 100us
Comparator	10-bin sorting, BIN1-BIN9, NG, AUX	
	Bin counter	
	PASS/FAIL on front panel, LED indication	
List sweep	<ul style="list-style-type: none"> ·201 -point list sweep function ·List sweep of frequency, AC voltage/current, internal/external DC bias voltage/current and independent DC source voltage can be performed on each page. Each sweep point can be sorted separately. 	

Graphical analysis		<ul style="list-style-type: none"> ·Graph scanning and analysis of frequency, AC level and DC bias can be performed. ·Set the sweep start point, end point and each sweep point. ·Display the maximum value, minimum value and read any of the chosen sweep point ·Scanning graphs can be stored into internal or external USB memory.
Internal nonvolatile memory		100 sets of LCRZ setting files memory 201 times test results 10 sets of GIF image, CSV data files
External USB memory		<ul style="list-style-type: none"> ·GIF image, CSV data files ·LCRZ setting files memory ·Test data can be stored via USB memory directly.
Interface	1A bias current source	1A DC bias current source (optional) can be stalled
	I/O interface	HANDLER on rear panel
	SCI	USB、RS232C
	PCI	GPIB(optional)
	NI	LAN
	Memory interface	USB HOST(front panel)
	General Specifications	
Operating temperature and humidity		0 $^{\circ}\text{C}$ —40 $^{\circ}\text{C}$, $\leq 90\%$ RH
Power supply	Voltage	99V—121V, 198V—242V AC
	Frequency	47Hz—63Hz
Consumption		Max. 80 VA
Dimension(W×H×D)		400mm × 132mm × 385mm
Weight		Approx. 13 kg

Standard Accessories

Three core power cord

TH26010 Gold-plated short circuit board

TH26011AS 4 terminal pair Kelvin test clip leads(only TH2829A)

TH26011BS 4 terminal pair Kelvin test clip leads(only TH2829C)

TH26048 Four-terminal test fixture

Component Parameter Test Instruments

A. TH2827 Series of Precision LCR Meter

Features

- 4.3-inch TFT LCD display
- Selectable Chinese and English operation interfaces
- Maximum test frequency of 1MHz, resolution of 10mHz
- Transformer parameter test function
- Maximum test speed: 13ms/time
- Automatic level control (ALC) function for V and I
- Test signal level monitor function for V and I
- Included interior DC bias source
- External DC bias source of large current
- 10-point list sweep function
- Selectable internal resistance of 30Ω, 50Ω and 100Ω
- Built-in comparator:10-bin sorting and bin counter
- Internal file storage and external USB-disk file storage
- Test data can be saved to USB-disk directly
- RS232C, USB, LAN, HANDLER, GPIB, DCI interface



TH2827 Series

Brief Introduction

■ TH2827 series is a new precision LCR meter with various functions and a higher test frequency. With small size and portable appearance, it is convenient for use on the shelves. This instrument has a basic accuracy of 0.05%, maximum test frequency of 1MHz and resolution of 10 mHz. It is easy to operate with a 4.3-inch LCD screen as well as selectable Chinese and English operation interfaces. Integrated transformer test function greatly improve the test efficiency. The instrument is also provided with multiple interfaces which can meet various requirements of the automatic sorting test, data transmission and storage.

Specifications

Display		800×RGB×480 7-inch TFT LCD display	
Frequency of test signal	TH2827A	20Hz—300kHz	
	TH2827B	20Hz—500kHz	
	TH2827C	20Hz—1MHz	
	Minimum resolution	10mHz, 4-digit frequency input	
	Accuracy	0.01%	
AC Level	Voltage range of test signal	5mV—2Vrms	
	Minimum resolution of voltage	100μV, 3-digit input	
	Accuracy	ALC ON	10% x set voltage + 2mV
		ALC OFF	6% x set voltage + 2mV
	Current range of test signal	100μA—20mA	
	Minimum resolution of current	1μA, 3-digit input	
	Accuracy	ALC ON	10% x set current + 20μA
		ALC OFF	6% x set voltage + 20μA
DC bias voltage source	Voltage /Current range	0V— ±5V / 0mA—±50mA	
	Resolution	0.5mV / 5μA	
	Voltage accuracy	1% x set voltage + 5mV	
	ISO ON	Be used for the bias test of inductance and transformer	
AC Source impedance	ISO ON	100Ω	
	ISO OFF	30Ω、50Ω、100Ω selectable	
DCR source impedance		30Ω、50Ω、100Ω selectable	
Test parameters of LCR		Z , Y , C, L, X, B, R, G, D, Q, θ, DCR, Vdc-Idc	
Parameter display of test page		One set of main/sub parameter, 10-point list sweep	
Test parameters of transformer		DCR1(primary, 2-terminal), DCR2(secondary, 2-terminal), M (mutual inductance), N, 1/N, Phase, Lk(leakage inductance), C(primary, secondary capacitance),	

Component Parameter Test Instruments

A. TH2827 Series of Precision LCR Meter

Basic accuracy	LCR test parameter	0.05%
	N	0.1%
	Calibration	Warm-up time ≥ 30 seconds; Environment temperature: $23\pm 5^{\circ}\text{C}$; Signal voltage: 0.3Vrms-1Vrms; Zeroing: After OPEN or SHORT; Length of test cable: 0 m
Measurement time (≥ 10 kHz)		Fast: 13 ms / time Medium: 67 ms / time Slow: 187 ms / time Plus the refresh time of display character
Display range of LCR parameter	Z , R, X, DCR	0.00001 Ω — 99.9999M Ω
	Y , G, B	0.00001 μs — 99.9999s
	C	0.00001pF — 9.99999F
	L	0.00001 μH — 99.9999kH
	D	0.00001 — 9.99999
	Q	0.00001 — 99999.9
	θ (DEG)	-179.999 $^{\circ}$ — 179.999 $^{\circ}$
	θ (RAD)	-3.14159 — 3.14159
	$\Delta\%$	-999.999% — 999.999%
Equivalent circuit	Serial, Parallel	
Range mode	Auto, Hold	
Trigger mode	Internal, Manual, External, Bus	
Average times	1-255	
Calibration function	Open, short calibration with full frequency or dot frequency, Load	
Math operation	Direct reading, ΔABS , $\Delta\%$	
Delay time setup	0-999, minimum resolution: 100us	
Comparator	10-bin sorting, BIN1-BIN9, NG, AUX	
	Bin counter	
	PASS/FAIL on front panel, LED indication	

List sweep	<ul style="list-style-type: none"> ·201 points list sweep ·Frequency, AC voltage/current, internal/external bias voltage/current can be swept. ·Each sweep point can be sorted separately. 	
Internal nonvolatile memory	40 sets of LCRZ setting files	
External USB memory	GIF files LCRZ setting files Test data can be stored via USB memory directly.	
Interface	I/O interface	HANDLER on rear panel
	SCI	USB, RS232C
	PCI	GPIO (optional)
	NI	LAN
	Memory interface	USB HOST (front panel)
General Specifications		
Operating temperature and humidity		0 $^{\circ}\text{C}$ — 40 $^{\circ}\text{C}$, $\leq 90\%$ RH
Power supply	Voltage	99V-121V, 198V-242V AC
	Frequency	47Hz-63Hz
Consumption	Max. 80 VA	
Dimension(W×H×D)	280 mm × 88 mm × 370 mm (with no sheath) 369 mm × 108 mm × 408 mm (with sheath)	
Weight	Approx. 5 kg	

Standard Accessories

Three core power cord

TH26010 Gold-plated short circuit board

TH26011AS 4 terminal pair Kelvin test clip leads(only TH2827A)

TH26011BS 4 terminal pair Kelvin test clip leads(only TH2827B/C)

TH26048 Four-terminal test fixture

TH26038 Four-terminal test fixture

Component Parameter Test Instruments

A. TH2828/TH2828A Precision LCR Meter TH2828S Automatic Component Analyzer

Features

- Auto balancing bridge method with the widest impedance measurement range
- 4-terminal pair configuration to eliminate electromagnetic couple of test leads
- Basic accuracy: 0.05 % (TH2828/TH2828S), 0.1 % (TH2828A)
- Maximum test frequency up to 1 MHz
- AC test signal programmable to 20V (optional)
- Maximum measurement speed up to 30 meas/sec
- 6-digit display resolution
- 22 parameter combinations available
- Output signal Impedance: 30 Ω and 100 Ω selectable
- 10 points list sweep function
- Internal DC bias source $\pm 40V/100mA$ (optional)
- External DC bias 40A (optional two paralleled TH1776)
- Automatic level control function (ALC)
- Test signal level monitor function
- 20 control settings files can be saved in the internal non-volatile memory
- Built-in comparator:10-bins and bin counters
- RS232C, HANDLER, GPIB (option for TH2828A)
- 2m/4m cable length extension
- USB interface for external memory of set data
- 320 \times 240 dot-matrix large graphic LCD display
- Chinese and English language user interface selectable



TH2828/TH2828A/TH2828S

Brief Introduction

■ TH2828/TH2828A/TH2828S is a new generation impedance test instrument with the most advanced technique of auto balancing bridge in the world. It fulfills all the measurement needs for components and materials with its high basic accuracy (0.05%/0.1%), wide frequency range (from 20 Hz to 1MHz) and impedance range (up to 100M Ω). The instrument is especially suitable for low dissipation factor(D) capacitor and high quality factor (Q) inductor measurement. The high power measurement conditions of up to 20V test signal level and 40 A DC bias current and list sweep function make it easy to extend user's capability of component evaluation. Four-terminal pair terminal configuration which eliminates the electromagnetic coupling of test leads, extends the low impedance measurement range ten times down of the normal five-terminal configuration instrument. TH2828/TH2828A/TH2828S is a powerful tool for component design, component inspection, quality control and measurement on production line. It's also a powerful tool for design and research of circuit and materials (electronic material and non-electronic material).

With its excellent performance, TH2828/TH2828A/TH2828S is in conformity with commercial and military standards, for example IEC and MIL standards.

Specifications

Measurement function		
Test Parameters	Z , Y , C, L, X, B, R, G, D, Q, θ , ESR (equivalent series resistance), Rp (equivalent parallel resistance) 22 parameter combinations available	
Equivalent Circuit	Series and Parallel	
Math Function	Deviation and Percent Deviation	
Range	Mode	Auto, Hold, Manual
	Subsection	9 sects: 10 Ω , 30 Ω , 100 Ω , 300 Ω , 1k Ω , 3k Ω , 10k Ω , 30k Ω , 100k Ω
Trigger mode	Internal, Manual, External, BUS	
Measuring Time ($\geq 1kHz$)	Fast : 32ms (25ms@1MHz), Med: 90ms, Slow: 650ms	
Average Time	1—255	
Delay Time	0—60s, with step of 1ms	
Calibration Function	Open/Short frequency pint, full frequency correction, Load correction	
Measurement Terminal	4 terminal pair	
Test Cable Length	Standard: 0m, 1m Option: 2m, 4m	
Display mode	Direct, Δ , $\Delta\%$, bin No, bin counter, list sweep, V/I (voltage/current monitor)	
Display	320 \times 240 dot-matrix graphic LCD display	
Test signal		
Signal Frequency	TH2828	20 Hz – 1MHz 6000 selectable frequencies
	TH2828A	50Hz – 1MHz 44 selectable frequencies : 50Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 800Hz, 1kHz, 1.2kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 8kHz, 10kHz, 12kHz, 15kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 80kHz, 100kHz, 120kHz, 150kHz, 200kHz, 250kHz, 300kHz, 400kHz, 500kHz, 600kHz, 800kHz, 1MHz
	TH2828S	20Hz—1MHz, Resolution: 1mHz
	Accuracy	0.01%
Output Impedance	30 Ω and 100 Ω selectable	

Component Parameter Test Instruments

A. TH2828/TH2828A Precision LCR Meter TH2828S Automatic Component Analyzer

Measurement signal mode	Normal	voltage or current program selectable at the measurement terminals when they are opened or shorted, respectively	
	Constant level	Maintain selected voltage or current value at the DUT independent of component impedance change	
AC measurement level signal	Standard	Normal V Normal I	5mVrms — 2Vrms 50μArms — 20mArms
		Constant level V Constant level I	10mVrms — 1Vrms 100μArms — 10mArms
	Option TH10301	Normal V Normal I	5mVrms — 20Vrms 50μArms — 200mArms
		Constant V Constant I	10mVrms — 10Vrms 100μArms — 100mArms
DC bias	Standard	0V, 1.5V, 2V DC	
	TH10301 option	Range	Resolution
		±(0.000 — 4.000)V DC	1mV
		±(4.002 — 8.000)V DC	2mV
		±(8.005 — 20.000)V DC	5mV
Measurement Display Range			
Z , R, X	0.01mΩ — 99.9999MΩ		
Y , G, B	0.01nS — 99.9999S		
C	0.00001pF — 9.99999F		
L	0.01nH — 99.9999kH		
D	0.00001 — 9.99999		
Q	0.01 — 99999.9		
θ (DEG)	-179.999° — 179.999°		
θ (RAD)	-3.14159 — 3.14159		
Δ%	-999.999% — 999.999%		
List Sweep Function			
A maximum of 10 frequency or test signal level points can be swept. Single or continuous test mode can be performed. When Option 001 is installed, DC bias level points can also be swept.			
Comparator and interface			
Comparator	10-bin sorting and bin counter for measurement parameters IN/OUT judgment for sub parameters		
Bin counter	0—999999		

List sweep comparator	HIGH/IN/OUT decision output for each point in the list sweep table	
Input protection		
Internal circuit protection, when a charged capacitor is connected to the Unknown terminals. The maximum capacitor voltage can be calculated: $V_{max} = 1/\sqrt{C}$ where: $V_{max} \leq 200V$ C is in Farads		
Other Function		
Memory	20 instrument setting files can be stored/loaded from the internal non-volatile memory. 40 additional setting files can also be stored/loaded from USB disk(only TH2828S)	
GPIB, RS232C	All instrument control settings, measured values, comparator limits and list sweep tables can communicate with computer or other instruments through GPIB (optional for TH2828A) or RS232C.	
Options		
TH10301	Power amplifier/DC Bias Increasing AC test signal up to 20 Vrms/0.2 Arms. Extend bias voltage up to ±40V DC	
TH10401	2m/4m Cable Length Operation Extend test cable length capability. Adds 2m and 4m cable length operation.	
TH10202	Handler interface Nine pairs of High/Low limits can be input providing 10-bin sorting for L, C, or Z . The handler interface provides the interface with an automatic component sorting machine. All signals are optically isolated.	
Accuracy(For detail refer to operation manual)		
Test conditions	Warm up Time	≥30 minutes
	Ambient Temperature	23±5°C
	Test Signal Voltage	0.3Vrms — 1Vrms
	Correction	Open, Short
	Test cable length	0 m
Z , Y , C, L, X, B, R, G,	Ae = ±[A+(Ka+Kb+Kc)×100] (% of reading)	
	1. A is basic accuracy factor as in figure 1 and 2	
	2. Ka and Kb is impedance proportional factors Ka is use for impedances below 500Ω Kb is use for impedances below 500Ω	
	3. Kc is calibration interpolation. Direct correction frequencies: Kc=0, All Other frequencies :Kc=0.0003	
	4. D ≤ 0.1, for C, L, B measurement Q ≤ 0.1, for R, G measurement	
D	±[Ae/100] (direct reading of D) Here, A=[A+(Ka+Kb+Kc)×100]	
Q (Qx×De<0.1)	$\pm \left[\frac{Q_x^2 \times D_e}{1 + m(Q_x \times D_e)} \right]$ Here, Qx is measured Q value, De is the D's accuracy	
θ	DEG	±[Ae/100] (direct radian)
	RAD	±[(180/π)×(Ae/100)] (direct angle)

Component Parameter Test Instruments

A. TH2828/TH2828A Precision LCR Meter TH2828S Automatic Component Analyzer

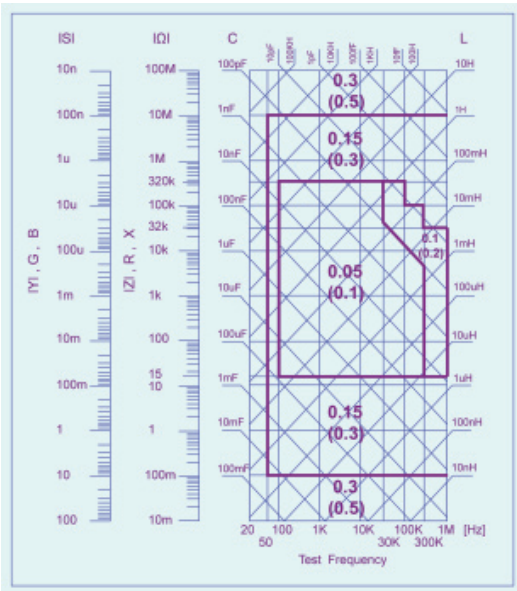


Figure 1: Basic accuracy factor A of TH2828/TH2828S

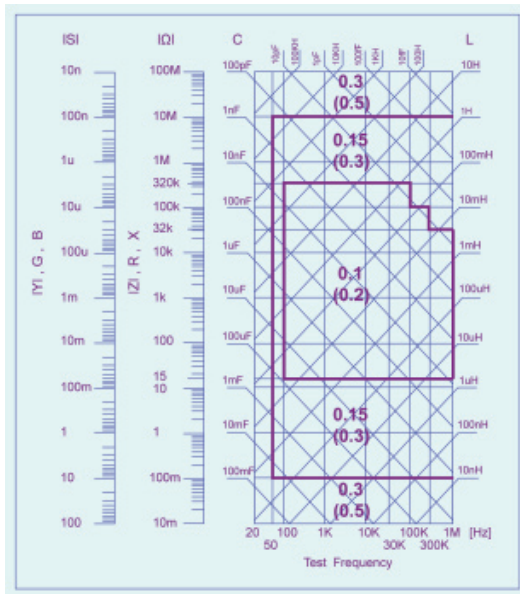


Figure 2: Basic accuracy factor A of TH2828A

Note: 1. Test signal level: 0.3Vrms-1Vrms, Out of this range, refer to user's manual.
2. Upper number: MEDIUM and SLOW integration
3. Lower number: SHORT integration.

General Specifications

Operation Temperature And Humidity		0°C - 40°C, ≤ 90%RH
Power Requirements	Voltage	99V-121V AC, 198V-242V AC
	Frequency	47.5Hz - 63Hz
Power Consumption		≤ 100VA
Dimensions (W×H×D)		430mm×185mm×490mm
Weight		Approx. 15 kg

Ordering Information

TH2828 Precision LCR Meter
TH2828A Wide-frequency LCR Meter
TH2828S Automatic Component Analyzer

Instrument Accessories

TH26005C 4 terminal test fixture
TH26011B 4 terminal pair Kelvin test clip leads
TH26010 Gilded shorting plate
TH10002 GPIB interface board (only TH2828S)
TH26025 USB interface board (only TH2828S)
TH26026 2GB USB disk (only TH2828S)

Options

TH26047 4 terminal test fixture
TH26048 4 terminal test fixture
TH26006 Axial component test module
TH26007A Core inductor test fixture
TH26008A SMD component test fixture
TH26009B SMD Kelvin test tweezers
TH10301 20Vrms/40V DC power amplifier /DC bias board
TH10401 2m/4m cable length operation
TH10002 GPIB interface board
TH10202 Handler/Scanner interface board
TH12019 TH2828 RS232C control software
TH12020 TH2828A RS232C control software

Component Parameter Test Instruments

A. TH2826/TH2826A LCR Meter

Features

- The first LCR meter with LXI standard in China.
- Test frequency:20Hz-5MHz with the resolution of 10mHz
- Test level:10mV-5V with the resolution of 1mV
- Basic accuracy:0.1%
- The highest test speed up to 200 times/s.
- 320×240 dot-matrix large graphic LCD display
- 5-digit display resolution
- 22 parameter combinations available
- 4 signal source output impedance
- 10 points list sweep function
- Built-in DC bias source
- Auto level control (ALC) function of voltage or current
- V,I test signal level monitor function
- Graphic scanning and analyzing function
- 20 groups of setting for storage/load
- Built-in comparator, 10-bins and bin counters
- Multiple communication interfaces
- 2m/4m cable length extension
- Optional Chinese and English language operating interface



TH2826/TH2826A

Brief Introduction

■ TH2826 series is a new generation impedance test instrument and firstly in conformity with LXI standard inland. It fulfills most low-voltage parameter measurement needs for components and materials with its basic accuracy (0.1%), wide frequency range(from 20Hz to 5MHz). The instrument is widely applied in microphone, resonator, inductor, ceramic capacitor, LCD, varactor and transformer .etc to analyze electrical performance and test low-ESR capacitor and high-Q inductor.

With the super high test speed, TH2826 series is especially for frequency response curve analyzing of detector and piezoelectric device on auto production line. Its multiple output impedance mode can be used for different standards of inductor or transformer manufacturers.

With its prominent performance, TH2826 series is in conformity with commercial and military standards, such as IEC and MIL standards.

Specifications

Measurement Parameters	C, L, R,Z,Y,X,B, G, D, Q, θ ,DCR	
Test frequency	TH2826	20Hz–5MHz,with the resolution of 10mHz
	TH2826A	20Hz–2MHz,with the resolution of 10mHz
Test Level	$f \leq 1\text{MHz}$	10mV–5V, $\pm(10\%+10\text{mV})$
	$f > 1\text{MHz}$	10mV–1V, $\pm(20\%+10\text{mV})$
Output impedance	10 Ω , 30 Ω , 50 Ω , 100 Ω	
Basic Accuracy	0.1%	
Display Range	L	0.0001 μH – 9.9999kH
	C	0.0001 pF – 9.9999F
	R,X,Z,DCR	0.0001 Ω – 99.999 M Ω
	Y, B, G	0.0001 nS – 99.999 S
	D	0.0001 – 9.9999
	Q	0.0001 – 99999
	θ	-179.99° – 179.99°
Measuring Speed (meas/sec)	Fast: 200($f > 30\text{kHz}$),100($f > 1\text{kHz}$) Med: 25, Slow: 5	
Calibration function	Open/Shot /load	
Equivalent mode	Serial,Parallel	
Ranging Mode	Auto and Hold	
Display Mode	Direct, ABS, Rel	
Trigger Mode	Internal,Manual,External,BUS	
Internal DC bias source	Voltage mode	-5V – +5V, $\pm(10\%+10\text{mV})$, with the resolution of 1mV
	Current mode (internal resistance is 50 Ω)	-100mA – +100mA, $\pm(10\%+0.2\text{mA})$, with the resolution of 20 μA
Comparator function	10 bins and bin counters	
Display	320×240 dot-matrix LCD display	
Memory	20 groups of control settings can be saved	
Interface	USB DEVICE(USBTMC and USBCDC support)	
	USB HOST(FAT16 and FAT32 support)	
	LAN(LXI class C support)	
	RS232C	
	HANDLER	
	GPIB(option)	

General Specifications

Working Temperature & Humidity		0°C – 40°C, $\leq 90\%RH$
Power supply	Voltage	99V–121V,198V–242V
	Frequency	47.5Hz–63Hz
Power Consumption		$\leq 80\text{VA}$
Dimensions (W×H×D)		400mm×132mm×385mm
Weight		Approx. 10kg

Ordering Information

TH2826/TH2826A LCR Meter

Instrument Accessories

TH26048 4 terminal test fixture
 TH26011B 4 terminal Kelvin test clip leads
 TH26010 Gilded shorting plate

Options

TH26008A SMD component test fixture
 TH26009B SMD test tweezers
 TH10001 GPIB interface

Component Parameter Test Instruments

A. TH283X Series Compact LCR Meter

Features

- Low cost, high performance, small size
- 4.3 inch TFT LCD Display
- Soft power switch
- Selectable Chinese-English operation language
- Max. 200kHz test frequency
- Max. 6 digit reading resolution
- 10mVrms-2.0Vrms programmable signal level, built-in 0 - ± 5V/50mA bias source
- DCR, 50mV-2V programmable test level, resolution 10μΩ
- Ls-Rd / Lp-Rd Function (L, Rd display simultaneously) *
- Highest test speed 13ms/time
- Selectable 30Ω/100Ω signal source impedance
- V/I monitor and auto level adjustment function
- Built-in comparator, 10 bins sorting and count function
- File storage and firmware update through U disk
- RS232, RS485, USB, HANDLER, GPIB interface

* Rd means DCR.



TH283X Series

Rack mount (mm): 215(W) x 88(H) x 335(D)
 Dimension (mm): 235(W) x 105(H) x 360(D)
 Net weight: 3.6 kg

Brief Introduction

■ Adopting the latest technology & high density circuit design and concentrating the essence of LCR test, TH283X series is a new generation compact LCR meter of low cost and high performance. Instead of traditional mechanical power switch, it adopts software control power switch. The basic accuracy of 0.05% and good test stability can compare favourably with those high-end models. Being equipped with 4.3 inch TFT LCD Display and brand new interface system, TH283X series LCR meters possess elegant appearance and easy operation. Also, being provided with various interfaces and good compatibility with SCPI commands, TH283X series LCR meters are convenient for constituting all kinds of test system and satisfy various kinds of demands for inspection, production and scientific research.

Specifications

Model	TH2830	TH2831	TH2832
Basic measurement accuracy (See details in technical specification)	LCRZ	0.05%	0.1%
	DCR	0.1%	0.05%
Calibration condition	Warm up time: ≥ 30 minutes ; Environment temperature: 23±5°C Signal level: 1Vrms ; Corretion: after OPEN, SHORT Testing cable length: 0 m		
Test signal frequency	50Hz-100kHz , 34points 50Hz, 60Hz, 75Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 750Hz, 1kHz, 1.2kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 7.5kHz, 10kHz, 12kHz, 15kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 75kHz, 100kHz	50Hz-200kHz, 37 points 50Hz, 60Hz, 75Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 750Hz, 1kHz, 1.2kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 7.5kHz, 10kHz, 12kHz, 15kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 75kHz, 100kHz, 120kHz, 150kHz, 200kHz	20Hz-200kHz, 15025 points
Signal source output impedance	Selectable 30Ω, 100Ω, ±1% @1kHz		

Component Parameter Test Instruments

A. TH283X Series Compact LCR Meter

AC test signal level	Normal	10mV—2Vrms		
		Resolution: 10mV, Accuracy: 10% x setting voltage+2mV		
	Constant level (ALC ON)	100μA—20mArms		20mV—1Vrms
		Resolution: 0.1mA		Resolution: 10mV Accuracy: 10%
DCR test signal level	1V DC	1V DC	50mV—2V DC	
	-----	-----	Resolution: 0.5mV	
DC bias voltage source	-----	-----	0V— ± 5V	
	-----	-----	Resolution: 0.5mV, Accuracy: 1%	
	-----	-----	0mA—± 50mA	
	-----	-----	Resolution: 0.5μA	
Test parameters	Z , Y , C, L, X, B, R, G, D, Q, θ, DCR			
DCR display range	0.00001 Ω – 99.9999 MΩ			
LCR parameters display range	Z , R, X	0.00001Ω — 99.9999MΩ		
	Y , G, B	0.00001μs — 99.9999s		
	C	0.00001pF — 9.99999F		
	L	0.00001μH — 99.9999kH		
	D	0.00001 — 9.99999		
	Q	0.00001 — 99999.9		
	θ(DEG)	-179.999° — 179.999°		
	θ(RAD)	-3.14159 — 3.14159		
	Δ%	-999.999% — 999.999%		
Display digits	6	5	6	
Measurement time (≥10 kHz)	Fast: 75 meas/sec(13ms), Medium:11 meas/sec(90 ms), Slow: 2.7meas/sec(370 ms)			
Equivalent circuit	Serial, Parallel			
Range mode	Auto, Hold			
Trigger mode	Internal, Manual, External, Bus			
Average time	1–255			
Correction	Open, Short, Load			
Math operation	Direct reading, ΔABS, Δ%			
Trigger delay time setting	0 - 60.000s, 1ms steps			
Step delay time setting	0 - 60.000s, 1ms steps			
List Sweep	·10 points list sweep ·Frequency, AC voltage/current, internal/ external bias voltage/ current can be swept. ·Each sweep point can be sorted separately.			
Comparator function	10 bins, BIN1–BIN9, NG, AUX			
	Bin count function			
	PASS, FAIL LED display on front panel			
Built-in Storage	Internal 100 LCRZ instrument setting files, 201 times test results			
USB Storage	Instrument setting files , measurement result CSV files, printed screen (GIF format)			
Interface	Control interface	HANDLER		
	Communication interface	USB HOST, RS232C, RS485(option), GPIB(option)		
	Storage interface	USB DEVICE (U-disk storage)		

Standard Accessories

Three core power cord
TH26010 Gold-plated short circuit board

TH26011CS 4 terminal pair Kelvin test clip leads
TH26048A Four-terminal test fixture

Component Parameter Test Instruments

A. TH2816A/TH2816B/TH2817A Precision LCR Meter

Features

- 240×64 dot-matrix graphics LCD display
- Friendly user's interface and easy operation
- TH2816A: Over 12,000 frequency points available from 50Hz to 200kHz
- TH2816B: 37 typical frequency points
- TH2817A: 16 typical frequency points available from 50Hz to 100kHz
- Programmable single-voltage level from 10mVrms to 2.0Vrms
- World-level stability and accuracy
- 6 digit readout resolution
- Up to 30meas/sec measurement rate
- Precision LOAD correction function
- Selectable signal source output impedances: 30Ω, 100Ω
- Direct control function for TH1773/TH1775 DC bias source
- List sweep function for up to 4 frequencies, signal levels and DC bias levels
- Direct, Δ ABS and Δ% display modes
- 12 control setting files memory
- Built-in comparator, 10 Bins and bin counters (TH2816A/B)
- Built-in comparator, 4 Bins and bin counters(TH2817A)
- Test signal level monitor function
- Key lock function
- Handler interface
- RS-232C and optional GPIB interfaces



TH2816A/TH2816B/TH2817A

Brief Introduction

■ TH2816A/TH2816B/TH2817A is a new precision LCR meter combined with years of technical experience and newest measurement technology of instrument industry. With powerful measurement functions, high performance and low cost, TH2816A/TH2816B/TH2817A have been one of the world advanced instruments, and it provides users a super value measurement resolution and experience. The meter offers stable 6 digit resolution, wide frequency range (50Hz to 100kHz for TH2817A and 50Hz to 200kHz for TH2816A), programmable signal level (0.01V to 2.0V), up to 30 meas/sec measurement rate, 9 measurement ranges, 30Ω or 100Ω constant output impedance and friendly operation interface. TH2816A/TH2816B/TH2817A can be used for incoming inspection of components, quality control of product line and high accuracy laboratory use. The HANDLER, GPIB, RS232C interfaces make it easy to build an automatic component test system, communicate with the computer and record the test results.

Specifications

Measurement function		
Test parameter	Z , C, L, X, B, R, G, D, Q, θ	
Basic accuracy	TH2816A TH2817A	0.05%
	TH2816B	0.1%
Equivalent circuit	Series and Parallel	
Math function	Deviation and Percent Deviation	
Ranging mode	Auto, Hold	
Trigger mode	Internal, Manual, External and Bus	
Measuring speed	Slow: 1.5meas/sec Med: 10meas/sec Fast: 30meas/sec	
Correction function	Open, Short and Load corrections	
Measurement terminal	5 terminals	
Averaging rate	1—255, TH2816A/TH2817A only	
Delay time	0—60sec, with step of 1ms	
List sweep	List sweep for up to 4 frequencies, signal levels and DC bias levels	

Component Parameter Test Instruments

A. TH2816A/TH2816B/TH2817A Precision LCR Meter

Display Mode	Direct, Δ ABS, $\Delta\%$, V/I(V/I monitor), Bin number and bin counter	
Display	240×64 dot-matrix LCD display, 6-digit resolution	
Test signal		
Signal frequency	TH2816A	50Hz to 200kHz , over 12,000 points
	TH2816B	50Hz to 200kHz , total 37 points
		50Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 800Hz, 1kHz, 1.2kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 8kHz, 10kHz, 12kHz, 15kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 80kHz, 100kHz, 120kHz, 150kHz, 200kHz
TH2817A	from 50Hz to 100kHz: 50Hz, 60Hz, 100Hz, 120Hz, 200Hz, 400Hz, 500Hz, 1kHz, 2kHz, 4kHz, 5kHz, 10kHz, 20kHz, 40kHz, 50kHz, 100kHz , 16 points	
Output impedance	30 Ω , 100 Ω	
Test level	10mVrms to 2.0Vrms, 10mV steps	
Measurement display range		
Z , R,X	0.00001 Ω — 99.9999M Ω	
C	0.00001pF — 999.999mF	
L	0.00001 μ H — 9.99999kH	
G,B	0.00001 μ S — 999.999S	
D	0.00001 — 9.99999	
Q	0.00001 — 99999.9	
θ (DEG)	-179.999° — 179.999°	

θ (RAD)	-3.14159 — 3.14159	
$\Delta\%$	-999.999% — 999.999%	
Comparator, memory & interface		
Comparator Function	TH2816A TH2816B	10 Bins(BIN1 to BIN9 , OUT of bins), and additional AUX bin
	TH2817A	4 bins(BIN1 to BIN3, OUT of bins), and additional AUX bin
Memory	12 control settings memory for store/recall	
Interface	RS-232C, HANDLER, GPIB (Optional)	

Ordering Information

TH2816A Precision LCR Meter
 TH2816B LCR Meter
 TH2817A Precision LCR Meter

Instrument Accessories

TH26005A 4 terminal test fixture
 TH26011A 4 terminal Kelvin test clip leads
 TH26010 Gilded shorting plate

Options

TH26047 4 terminal test fixture
 TH26048 4 terminal test fixture
 TH26006 Axial component test fixture
 TH26007A Core inductor test fixture
 TH26008A SMD component test fixture
 TH26009B SMD Kelvin test tweezers
 TH26033 GPIB interface cable
 TH26034 RS232C interface cable
 TH10001 GPIB interface board
 TH12003 RS232C control software(TH2816A)
 TH12004 RS232C control software(TH2817A)

Component Parameter Test Instruments

A. TH2817B/TH2817C LCR Meter

Features

- Special LCD display
- 10 typical measurement frequencies from 50Hz to 100kHz
- Built-in ± 2 VDC bias voltage source, extendable to -5VDC~+5VDC bias voltage or max. bias current of 50mA(only TH2817C)
- 2 selectable source impedance: 30 Ω /100 Ω , easy to be compatible with other LCR meters
- Measurement speed up to 20 times/second
- Transformer parameter measurement function (only for TH2817C)
- Built-in 5-bin comparator
- Key lock function
- Automatic LCZ function
- 10 sets of measurement parameters saved
- Automatically recalling saved measurement parameters
- HANDLER and RS232C interfaces
- Optional GPIB (IEEE-488) interface



TH2817B/TH2817C

Brief Introduction

■ TH2817B/TH2817C LCR meter is newly-developed component measurement instrument providing high performance at low cost. It is perfect combination of general LCR meter and high-performance LCR meter with high-accuracy. The meter provides measurement speed up to 20times/second, 10 measurement frequencies from 50Hz to 100kHz, 3 common typical test levels, 5-digit resolution, two inner-source resistance selections and strong measurement functions. So it's suitable for measurement of quality control on production line, incoming inspection, component design and evaluation.

High performance at low cost

■ With the base of our years' experience of developing LCR meter, the meter reasonably combines easy operation and strong functions, and improves performance of 100kHz LCR meter. It is ideal instrument for incoming inspection and production line use.

Communication interfaces

■ TH2817B/TH2817C provides HANDLER, RS232C, GPIB interfaces, through which the meter can communicate with computer and build automatic measurement system and product test line.

Convenient parameter saving and loading

■ TH2817B/TH2817C can save 10 sets of measurement parameters, and automatically load saved parameters, which doesn't have the trouble of repeat setting.

Useful transformer measurement function

■ TH2817C has transformer measurement function. Using special transformer test fixture, turns ratio (N, 1/N), mutual inductance (M), primary and secondary inductances (L2A, L2B), primary and secondary DC resistances (DCR, R2) can be measured without changing test cable mode. With adjustable bias voltage from -5V to +5V or DC bias current up to 150mA, the meter can conveniently measure communication transformer and choke with small power.

Specifications

	TH2817B	TH2817C
Measurement function		
Measurement parameter	LCR	Z , R,X,G,B,C, L, Q,D, θ (deg), θ (red)
	Transformer	----- DCR, M, N, 1/N, L2, DCR2
Basic accuracy	0.1%	
Equivalent circuit	Series, parallel	
Mathematical function	Absolute value deviation, $\Delta\%$	
Ranging mode	Auto, Hold, Manual selection	
Trigger mode	Internal, Manual, External, BUS	
Measurement speed	Fast: 20, Med: 8, Slow: 2 (times/second) (≥ 1 kHz)	
Average times	1 - 99	
Calibration function	Open/Short frequency point, full frequency correction	
Measurement terminal	5-terminal	
Display mode	Direct, Δ , $\Delta\%$	
Display	5-digit resolution, special LCD display with backlight	
Measurement signal		
Signal frequency	10 points: 50Hz, 60Hz, 100Hz, 120Hz, 1kHz, 10kHz, 20kHz, 40kHz, 50kHz, 100kHz	
Output impedance	30 Ω , 100 Ω	
Test level	0.1Vrms, 0.3Vrms, 1Vrms	
DC bias source	-----	Fixed ± 2 VDC, 0~ ± 5 VDC adjustable 0~ ± 50 mA DC adjustable
Measurement display range		
Z , R, X	0.0001 Ω - 99.999M Ω	
C	0.001pF - 9999.9 μ F	
L	0.001 μ H - 99.999kH	
D	0.0001 - 9.9999	
Q	0.0001 - 9999.9	
θ (DEG)	-179.99 $^\circ$ - 179.99 $^\circ$	
θ (RAD)	-3.1415 - 3.1415	
$\Delta\%$	-99.999% - 999.99%	
N, 1/N	-----	0.001 - 999.99
DCR	-----	0.1m Ω - 199.99k Ω
M,L2	-----	0.001 μ H - 99.99kH
Comparator and interface		
Comparator	5 bins (3 PASS bins, 1 FAIL bin), 1 AUX bin	
Memory	10 sets of inner instrument settings saved and recalled	
Interface	RS-232C, HANDLER, GPIB (option)	

General Specifications

Operating temperature & Humidity	0 $^\circ$ C - 40 $^\circ$ C, $\leq 90\%$ RH
Power supply	198V - 242V, 47.5Hz - 52.5Hz
Power consumption	≤ 30 VA
Dimensions (W×H×D)	275mm×120mm×425mm
Weight	Approx. 3.8 kg

Ordering Information

TH2817B LCR Meter
TH2817C LCR Meter

Instrument Accessories

TH26005A 4-terminal test fixture
TH26011A 4-terminal Kelvin test cable
TH26010 Gilded shorting plate
TH26038 transformer test fixture (only for TH2817C)

Options

TH26047 4-terminal test fixture
TH26048 4-terminal test fixture
TH26005B 4-terminal test fixture
TH26006 axial component test fixture (used with TH26005A)
TH26007A core test fixture
TH26008A SMD component test fixture
TH26009B SMD test tweezers
TH26029B SMD test tweezers
TH10001 GPIB interface

Component Parameter Test Instruments

A. TH2817CX LCR Meter

Features

- High-efficient balance test function
- 240×64 dot-matrix graphics LCD display
- Friendly user's interface and easy operation
- 10 typical measurement frequencies from 50Hz to 100kHz
- Built-in $\pm 2\text{VDC}$ bias voltage source, extendable to -5VDC ~ $+5\text{VDC}$ bias voltage or maximum 50mA bias current
- 2 selectable source impedances: $30\Omega/100\Omega$, easy to be compatible with other LCR meters
- Measurement speed up to 20meas/sec
- Transformer parameter test function
- Built-in 5-bin comparator
- Key lock function
- Automatic LCR function
- 12 sets of measurement parameters can be saved
- Automatically retrieving saved measurement parameters
- HANDLER and RS232C interfaces
- Optional GPIB (IEEE-488) interface



TH2817CX

Brief Introduction

■ TH2817CX is an extended Meter tester specializing in testing balance components. By simultaneously measuring two components, you can conveniently make comparison tests on balance components, such as integrated divider resistor, balance capacitor and common-mode filter. Moreover, TH2817CX has the function of DCR balance test especially useful for common-mode filter. Meanwhile, the Tester provides measurement speed up to 20meas/sec, 10 measurement frequencies from 50Hz to 100 kHz, 3 commonly used signal levels, 5-digit resolution and two selectable source impedances. Comprehensive communication and control interfaces can meet the measurement requirements of quality control on production line, incoming inspection, component design and evaluation.

Three communication interfaces available

■ TH2817CX provides three communication interfaces--HANDLER, RS232C and GPIB. So it is convenient to communicate with PC and flexible to build automatic test system and test line.

Convenient to store and recall parameters

■ This tester can store 12 sets of measurement parameters and automatically retrieve the last used set of parameters when turned on, so you do not need to set repeatedly.

Practical transformer test function

■ TH2817CX has the function of transformer test. Using special transformer test fixture, you can measure turn ratio (N, 1/N), mutual inductance (M), primary and secondary inductances (L2A, L2B), primary and secondary resistances (DCR, R2) without change test cable. With adjustable bias voltage from -5V to $+5\text{V}$ or DC bias current up to 50mA, the tester can conveniently measure communication transformer and choke with small power.

Balance test function

■ TH2817CX can make comparison tests on balance components with great convenience (such as, integrated divider resistor, balance capacitor and common-mode filter).

Specifications

Measurement function		
Measurement parameter	LCR	$ Z , R, X, C, D, L, Q, \theta$ (deg) , θ (rad)
	Transformer	M, N, 1/N, L2, DCR2,DCR
	Balance test	L, C, R, Z, DCR2
Basic accuracy	0.1%	
Equivalent circuit	Series, parallel	
Mathematical function	Absolute value deviation, $\Delta\%$	
Ranging mode	Auto, Hold, Manual	
Trigger mode	Internal, Manual, External, Bus	
Measurement speed	Fast: 20meas/sec, Medium: 8meas/sec. Slow: 2meas/sec	
Average times	1 to 99	

Component Parameter Test Instruments

A. TH2817CX LCR Meter

Calibration function	single frequency point or sweep frequency Open/Short correction
Measurement terminal	5-terminal
Display mode	direct, Δ , $\Delta\%$
Display	240×64 dot-matrix LCD with 5-digit resolution
Measurement signal	
Signal frequency	10 points: 50Hz, 60Hz, 100Hz, 120Hz, 1kHz, 10kHz, 20kHz, 40kHz, 50kHz, 100kHz
Source impedance	30 Ω , 100 Ω
Test level	0.1Vrms, 0.3Vrms, 1Vrms
DC bias source	Fixed: $\pm 2V$, 0 to $\pm 5V$ adjustable, 0 to $\pm 50mA$ adjustable
Measurement display range	
Z , R, X	0.0001 Ω — 99.999M Ω
C	0.001pF — 99999 μF
L	0.001 μH — 99.999kH
D	0.0001 — 9.9999
Q	0.0001 — 99999
θ (deg)	-179.99° — 179.99°
θ (rad)	-3.1416 — 3.1416
$\Delta\%$	-99.999% — 99.999%
N, 1/N	0.001 — 999.99
DCR	0.01m Ω — 1.9999M Ω
M, L2	0.001 μH — 99.99kH
Comparator and interface	
Comparator	5 bins (3 PASS bins, 1 FAIL bin), 1 AUX bin
Memory	12 sets of inner instrument settings saved and recalled
Interface	RS232C, HANDLER, GPIB (optional)

General Specifications

Working temperature & Humidity	0°C - 40°C, $\leq 90\%RH$
Power supply	198V - 242V, 47.5Hz - 52.5Hz
Power consumption	$\leq 30VA$
Dimensions (W×H×D)	350mm×120mm×400mm
Weight	Approx. 4 kg

Ordering Information

TH2817CX LCR Tester

Instrument Accessories

TH26005A	4-terminal test fixture
TH26011A	4-terminal Kelvin test cable
TH26010	Gilded shorting plate Filter test fixture

Options

TH26001A	4-terminal test fixture
TH26005B	4-terminal test fixture
TH26006	Axial component test fixture (used with TH26005)
TH26007A	Core test fixture
TH26008A	SMD component test fixture
TH26009B	SMD test tweezers
TH26029B	SMD test tweezers
TH26038	Transformer test fixture
TH17B01	GPIB interface board

Component Parameter Test Instruments

A. TH2817B+ LCR Meter

Features

- test frequency 50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points
- 4.3 inch TFT liquid crystal display
- 50Hz-100kHz, 10 typical test frequencies
- 6-digit reading resolution
- Maximum test speed:12.5ms, support low frequency and high speed:TX4+3ms
- Chinese and English optional operation interface
- 10 bins sorting, test sorting is more perfect
- 100 sets of LCRZ instrument setting files, 10 measurements
- Soft power switch
- Support 110V/220V two power supply voltages
- 10-point list scanning, support multi-frequency test sorting
- Ultra-low signal source output offset (<100 μ V), meeting the needs of large inductor, common mode choke inductor test
- Super impact protection
- Power on state lock button;
- Empty fixture judgment
- Data logging function
- Screen capture function
- Interface function, timing, trigger delay, etc. are more complete



TH2817B+(TH2817B Upgraded)

Support SCPI,MODBUS protocol

Rack mount (mm): 215(W) x 88(H) x 335(D)

Dimension (mm): 235(W) x 105(H) x360(D)

Weight: 3.6kg

Standard RS232/RS485(option) USB HOST USB DEVICE HANDLER

Applications

- Passive components:
Evaluation of Impedance Parameters for Capacitors, Inductors, Cores, Resistors, piezoelectric devices, Transformers, Chip Components, and Network Components

Features

- test frequency 50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points
- Dedicated white backlit LCD display
- 50Hz-100kHz, 10 typical test frequencies
- 5-digit reading resolution
- Maximum test speed: 50ms
- User-friendly operation interface, easy to operate
- 5 bins sorting function, sorting result with sound and light alarm
- Storage space: 10 sets of setting files
- Automatic LCZ function



TH2817B

Dimensions: 310mm(W)x108mm(H)x375mm(D)

Weight: 3.6kg

Standard RS232 HANDLER

option GPIB

- Other components:
Impedance evaluation of printed circuit boards, relays, switches, cables, batteries, etc.

Component Parameter Test Instruments

A. TH2817B+ LCR Meter

Specifications

Model	TH2817B+	TH2817B
Basic accuracy	0.1%	
Test frequency	50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points	
Test parameters	L,C,R,Z D,Q,X,θd,θr,Vm,Im,Δ%	L,C,R, Z ,Q,D,X,θ
V/I monitor	Yes	-----
AC test signal level	0.1Vrms,0.3Vrms,1Vrms	
Test terminal configuration	5-terminal	
Test speed (ms/time)	Fast: 19ms;Medium:83ms;Slow: 333ms F≤120Hz Fast :4XT+3ms	Fast: 50ms;Medium:125ms;Slow: 500ms
Zero clearing	Open, Short, Load	Open, Short
List sweep	10-point list sweep Each scan point can be individually sorted, support multi-frequency combined test sorting Scanning test for frequency and AC voltage	-----
Equivalent Circuit	Series, Parallel	
Range mode	AUTO, HOLD	
Trigger mode	Internal, External, Manual, Bus	
Average times	1-255	-----
Arithmetical operation	Direct reading,ΔABS,Δ%	Direct reading,Δ%
Delay	Trigger delay, step delay: 0—60.000s, 1ms step	-----
General function	Series, parallel equivalent mode, calibration: open circuit, short circuit, range selection: automatic, manual, trigger mode: INT, MAN, EXT, BUS, keyboard lock function	
Comparator	10 bins sorting,BIN1-BIN9,NG,AUX; Bin count function PASS, FAIL front panel LED display	5 bins sorting, PASS/FAIL instructions
Memory	Nonvolatile storage	100 sets of LCRZ instrument setting files
	USB Storage	Instrument setting files , measurement result CSV files
Interface	RS232/RS485(option),HANDLER,USB HOST,USB DEVICE	RS232,HANDLER,GPIB(option)

Instrument Accessories

Three core power cord
 TH26048A 4-terminal test fixture
 TH26011CS 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Instrument Accessories

Three core power cord
 TH26005A 4-terminal test fixture
 TH26011AS 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Component Parameter Test Instruments

A. TH2817C+ LCR Meter

Features

- test frequency 50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points
- 4.3 inch TFT liquid crystal display
- 6-digit reading resolution
- Maximum test speed:12.5ms, support low frequency and high speed:TX4+3ms
- Chinese and English optional operation interface
- 10 bins sorting, test sorting is more perfect
- 100 sets of LCRZ instrument setting files, 10 measurements
- Soft power switch
- Support 110V/220V two power supply voltages
- Range configuration 3/10 times stepping configuration to ensure stable and reliable impedance full range test
- Ls-Rdc / Lp-Rdc function
- Ultra-low signal source output offset (<100 μ V), meeting the needs of large inductor, common mode choke inductor test
- Super impact protection
- Power on state lock button;
- Empty fixture judgment
- Data logging function
- Screen capture function
- Interface function, timing, trigger delay, etc. are more complete



TH2817C+(TH2817C/CX Upgraded)

Support SCPI,MODBUS protocol

Rack mount (mm): 215(W) x 88(H) x 335(D)

Dimension (mm): 235(W) x 105(H) x360(D)

Weight: 3.6kg

Standard RS232/RS485(option) USB HOST USB DEVICE HANDLER

Applications

- Passive components:
Evaluation of Impedance Parameters for Capacitors, Inductors, Cores, Resistors, piezoelectric devices, Transformers, Chip Components, and Network Components

Features

- test frequency 50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points
- Dedicated white backlit LCD display
- 5-digit reading resolution
- Maximum test speed: 50ms
- User-friendly operation interface, easy to operate
- 5 bins sorting function, sorting result with sound and light alarm
- Storage space: 12 sets of setting files
- Automatic LCZ function
- Built-in \pm 2VDC bias source, \pm 5VDC bias or up to 50mA bias current can be extended



TH2817C/TH2817CX

Dimensions: 310mm(W)x108mm(H)x375mm(D)

Weight: 3.6kg

Standard RS232 HANDLER

option GPIB

- Other components:
Impedance evaluation of printed circuit boards, relays, switches, cables, batteries, etc.

Component Parameter Test Instruments

A. TH2817C+ LCR Meter

Specifications

Model	TH2817C+	TH2817CX	TH2817C
Basic accuracy	0.1%		
Test frequency	50Hz,60Hz,100Hz,120Hz,1kHz,10kHz,20kHz,40kHz, 50kHz,100kHz, total 10 points		
Test parameters	LCR	L, C, R, Z , D, Q, X, θ d, θ r, Vm, Im, $\Delta\%$	Z , R, X, C, L, Q, D, θ
	Transformer	M, N, 1/N, L1/L2, DCR1/DCR2, C(primary-secondary), P(phase), Lk1/Lk2(leakage inductance)	M, N, 1/N, L2, DCR2, DCR
	Balance test	L, R, Z, DCR	L, C, R, Z, DCR -----
V/I monitor	Yes		-----
Test level	AC	0.1Vrms,0.3Vrms,1Vrms	0.1Vrms,0.3Vrms,1Vrms
	DC	$\pm 1V$	2V -----
DC bias	-----	2V,can be expanded to 5V	-----
Source impedance	10 Ω , 100 Ω optional	30 Ω , 100 Ω	
Test terminal configuration	5-terminal		
Test speed (ms/time)	Fast: 19ms;Medium:83ms;Slow: 333ms	Fast: 50ms;Medium:125ms;Slow: 500ms	
Zero clearing	Open, Short, Load	Open, Short	
List sweep	10-point list sweep	-----	
Equivalent Circuit	Series, Parallel		
Range mode	AUTO, HOLD		
Trigger mode	Internal, External, Manual, Bus		
Average times	1-255	-----	
Arithmetical operation	Direct reading, Δ ABS, $\Delta\%$	Direct reading, $\Delta\%$	
Delay	Trigger delay, step delay: 0—60.000s, 1ms step	-----	
General function	Series, parallel equivalent mode, calibration: open circuit, short circuit, range selection: automatic, manual, trigger mode: INT, MAN, EXT, BUS, keyboard lock function		
Comparator	10 bins sorting,BIN1-BIN9,NG,AUX; Bin count function PASS, FALL front panel LED display	5 bins (3 bins for PASS,1 bin for FAIL, 1 bin for AUX)	
Memory	Nonvolatile storage	100 sets of LCRZ instrument setting files	12 groups of the instrument setting files 10 groups of the instrument setting files
	USB Storage	Instrument setting files , measurement result CSV files	----- -----
Interface	RS232/RS485(option),HANDLER,USB HOST,USB DEVICE	RS232,HANDLER,GPIB(option)	

Instrument Accessories

Three core power cord
 TH26049A test fixture
 TH26048A 4-terminal test fixture
 TH26011CS 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Instrument Accessories

Three core power cord
 TH26049 test fixture
 TH26005A 4-terminal test fixture
 TH26011AS 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Component Parameter Test Instruments

A. TH2810B+ LCR Meter

Features

- 100Hz,120Hz,1kHz,10kHz 4 typical test frequencies
- 4.3 inch TFT liquid crystal display, Chinese and English optional operation interface
- 6-digit reading resolution
- Maximum test speed:12.5ms, support low frequency and high speed:TX4+3ms
- 10 bins sorting, test sorting is more perfect
- 100 sets of LCRZ instrument setting files, 10 measurements
- Soft power switch
- Support 110V/220V two power supply voltages
- 10-point list sweep, support multi-frequency test sorting
- Ultra-low signal source output offset (<100 μ V), meeting the needs of large inductor, common mode choke inductor test
- Super impact protection
- Power on state lock button;
- Empty fixture judgment
- Data logging function
- Screen capture function
- Interface function, timing, trigger delay, etc. are more complete



TH2810B+(TH2810B Upgraded)

Support SCPI,MODBUS protocol

Rack mount (mm): 215(W) x 88(H) x 335(D)

Dimension (mm): 235(W) x 105(H) x360(D)

Weight: 3.6kg

Standard RS232/RS485(option) USB HOST USB DEVICE HANDLER

Applications

- Passive components:
Evaluation of Impedance Parameters for Capacitors, Inductors, Cores, Resistors, piezoelectric devices, Transformers, Chip Components, and Network Components

Features

- 100Hz,120Hz,1kHz,10kHz 4 typical test frequencies
- LED display
- 5-digit reading resolution
- Maximum test speed: 50ms
- 5 bins sorting function, sorting result with sound and light alarm
- One set of settings files



TH2810B

Dimensions: 310mm(W)x108mm(H)x375mm(D)

Weight: 3.6kg

Standard RS232 HANDLER

- Other components:
Impedance evaluation of printed circuit boards, relays, switches, cables, batteries, etc.

Component Parameter Test Instruments

A. TH2810B+ LCR Meter

Specifications

Model	TH2810B+	TH2810B
Basic accuracy	0.1%	
Test frequency	100Hz,120Hz,1kHz,10kHz	
Test parameters	L, C, R, Z , D, Q, X, θ_d , θ_r , Vm, Im, $\Delta\%$	L-Q,C-D,R-Q, Z -Q
V/I monitor	Yes	-----
AC test signal level	0.1Vrms,0.3Vrms,1Vrms	
Signal source internal resistance	10 Ω , 100 Ω	30 Ω , 100 Ω
Test terminal configuration	5-terminal	
Test speed (ms/time)	Fast: 19ms;Medium:83ms;Slow: 333ms F \leq 120Hz Fast :4XT+3ms	Fast: 67ms;Slow: 400ms
Zero clearing	Open, Short, Load	Open, Short
List sweep	<ul style="list-style-type: none"> · 10-point list sweep · Each scan point can be individually sorted, support multi-frequency combined test sorting · Scanning test for frequency and AC voltage 	-----
Equivalent Circuit	Series, Parallel	
Range mode	AUTO, HOLD	
Trigger mode	Internal, External, Manual, Bus	Internal, External, Manual
Average times	1-255	-----
Arithmetical operation	Direct reading, Δ ABS, $\Delta\%$	Direct reading, $\Delta\%$
Delay	Trigger delay, step delay: 0—60.000s, 1ms step	-----
General function	Series, parallel equivalent mode, calibration: open circuit, short circuit, range selection: automatic, manual, trigger mode: INT, MAN, EXT, BUS, keyboard lock function	
Comparator	10 bins sorting,BIN1-BIN9,NG,AUX; Bin count function PASS, FALL front panel LED display	4 bins sorting, Bin P1 beeper; or 2 bins sorting, PASS beeper
Nonvolatile storage	100 sets of LCRZ instrument setting files, 10 test results	-----
External USB storage	Instrument setting file, CSV data file	-----

Instrument Accessories

Three core power cord
 TH26048A 4-terminal test fixture
 TH26011CS 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Instrument Accessories

Three core power cord
 TH26001A 4-terminal test fixture
 TH26004S-1 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate

Component Parameter Test Instruments

A. TH2825A High Speed LCR Meter

Features

- Ultrahigh measurement speed: 15ms (frequency \geq 100Hz)
- 240 \times 64 dot-matrix LCD display
- Humanization operation board
- 10 typical frequencies from 50Hz to 100kHz
- Programmable test level from 10mVrms to 1.0Vrms
- Built-in bias voltage source from -5VDC to +5VDC or max. DC bias current source of 200mA
- Accurate load correction
- 5 selectable source impedance modes
- List sweep function for up to 4 frequencies, signal levels and DC bias levels
- Measurement signal V/I monitor function
- Transformer parameter measurement function
- Built-in 10-bin comparator, sorting and bin counter
- Hi/Go/Low comparison function and beeper alarm
- Key lock function
- Automatic LCZ function
- 10 sets of measurement parameters saved
- Measurement parameters automatically loaded at the time of turning on instrument
- Handler interface compatible with Agilent 4263B
- IEEE-488 control command compatible with Agilent 4263B



TH2825A

Brief Introduction

■ TH2825A high-speed LCR meter is new-generation component parameter measurement instrument. It offers high measurement speed up to 20times/second, 10 frequencies from 40Hz to 100kHz, programmable signal level from 0.01V to 1.0V with step of 10mV, 5-digit resolution, multi source resistance selections, and strong measurement functions. So it is suitable for quality control on production line, incoming inspection, and component design.

High measurement speed

■ This instrument, using the most advanced technology in the field, has the strong measurement function which is compatible with advanced products in the world. It provides incomparable measurement speed up to 20 times/second, which solves the problem of slow measurement speed at low frequency. So it is ideal instrument to perform high-speed measurement for electrolytic capacitor, ceramic capacitor, and transformer.

Multi selectable signal source impedance modes

■ Different LCR meters get different measurement results because of different impedances. TH2825/TH2825A provides 5 selectable impedance modes to meet different needs, to ensure the consistency of measurement results between different meters. Constant-voltage mode suitable for measurement of multilayer ceramic capacitor(MLCC)

Constant-voltage mode suitable for measurement of multilayer ceramic capacitor (MLCC)

■ MLCC is rather sensitive to signal test level. And TH2825/TH2825A can measure large-amount MLCC with constant high-level signal. It is allowed to measure MLCC of 30 μ F at constant 1kHz/1Vrms, and MLCC pf 300 μ F at constant 100Hz/1Vrms.

Powerful transformer measurement function

■ TH2825A has the function of measuring transformer. Using special transformer test fixture, turns ratio (N, 1/N), mutual inductance (M), primary and secondary inductances (LA, LB), primary and secondary DC resistances (DCR2) can be measured without changing test cable mode. With adjustable DC bias current up to 200mA (TH2825/TH2825A both have), the meter can conveniently measure communication transformer and choke with small power.

Interface being compatible with famous meters

■ HANDLER, GPIB interfaces and GPIB interface command are completely compatible with Agilent 4263B, which help build conversion with 4263B.

Specifications

Measurement function		
Parameter	LCR	Z ,R, X, G, B, C, L, Q, D, θ (deg), θ (rad), DCR
	Transformer	DCR2, M, Turns, N,1/N, LA,LB
Basic accuracy	0.1%	
Equivalent circuit	Series, parallel	
Mathematical function	Δ ABS (absolute value deviation), $\Delta\%$ (percent deviation)	
Range mode	Auto, Hold, Manual conversion	
Trigger mode	Internal, Manual, External, BUS	
Measurement time	Fast: 20ms (note 1), medium: 60ms, slow: 295ms	
Average times	1—255	
Calibration function	Open, short, load correction	
Measurement terminal	5-terminal	
List sweep	4 frequencies, level, DC bias list sweep measurement	
Display mode	Direct, Δ ABS, $\Delta\%$, V/I (voltage/current monitor), bin No., and bin counter	

Component Parameter Test Instruments

A. TH2825A High Speed LCR Meter

Display	240×64 dot-matrix LCD display with resolution of 5 digits
Measurement signal	
Signal frequency	Total 10 points: 50Hz,60Hz,100Hz, 120Hz,1kHz,10kHz,20kHz, 40kHz, 50kHz,100kHz
Output impedance	25Ω,100Ω, 25Ω/100Ω,C.V. (constant voltage)
Test level	10mVrms—1.0Vrms, with step of 1mV <200mV,step 1mV ≥200mV,step 10mV
DC bias source	Fixed ±1.75VDC, 0~±5VDC adjustable
	Resistance is 100Ω:±50mA Max Resistance is 25Ω:±200mA Max
Measurement display range	
Z , R, X	0.0001Ω — 99.999MΩ
G, B	0.0001μS — 999.99S
C	0.001pF — 1.9999F
L	0.001μH — 99.99kH
D	0.0001 — 9999
Q	0.0001 — 99999
θ (DEG)	-179.99° — 179.99 °
θ (RAD)	-3.1416 — 3.1416
Δ%	-99.999% — 999.999%
N,1/N	0.001—999.99
DCR	0.1 mΩ—199.99 kΩ
M,L2	0.001 μH—99.99 kH
Comparator and interface	
Files Comparator	10 bins: 8 pass bins, 1 fail bin, 1 AUX bin
Comparator	HIGH/PASS/LOW
Memory	12 sets of instrument settings saved and loaded
Interface	RS-232C, HANDLER, GPIB (option)

Note 1: Fast measurement time includes A/D, calculation, main/sub parameter comparison judgment, and small-character display of measurement parameter. If measurement parameter is displayed in large character, fastest measurement time is added by 5ms.

General Specifications

Operating temperature	0°C – 40°C	
Operating humidity	≤90%RH	
Power supply	Voltage	99V – 242V
	Frequency	47.5Hz – 63Hz
Power consumption	≤ 30VA	
Dimensions (W×H×D)	350mm×120mm×425mm	
Weight	Approx. 4.8 kg	

Ordering Information

TH2825A LCR Meter

Instrument Accessories

TH26005A 4-terminal test fixture
 TH26011A 4-terminal Kelvin test cable
 TH26010 Gilded shorting plate
 TH26038 transformer test fixture

Options

TH26047 4-terminal test fixture
 TH26048 4-terminal test fixture
 TH26005B 4-terminal test fixture
 TH26006 Axial component test fixture (used with TH26005A)
 TH26007A Core test fixture
 TH26008A SMD component test fixture
 TH26009B SMD component test tweezers
 TH26029B SMD component test tweezers
 TH26004-1 4-terminal test fixture
 TH10001 GPIB interface board

Component Parameter Test Instruments

A. TH2810D/TH2811D LCR Meter

Features

- Large character LCD display with backlight
- Easy operation with strong functions
- SMT surface mount technic
- Fast measurement speed (80mS)
- Good Readout stability
- 2 signal source output impedance:30Ω, 100Ω
- 5 Bins comparator and HANDLER interface(TH2810D only)
- RS-232C interface (TH2810D only)
- Optional RS232C operation software(TH2810D only)



TH2810D/TH2811D(Can replace TH2810B / TH2811C / TH2820)

Brief Introduction

■ TH2810D/TH2811D LCR meter is our newly developed successor instrument for low frequency component measurement. TH2810D/TH2811D with its latest measurement technologies, large character LCD display, surface mount technics, easy of use and excellent appearance can be used for quality control on production line, incoming inspection of components and automatic test system. The RS-232C interface can be used to carry out remote control and statistics and analysis of measurement results.

Specifications

	TH2810D	TH2811D
Measurement function		
Test Parameter	L-Q, C-D, R-Q, Z -Q	
Basic Accuracy	0.1%	0.2%
Equivalent circuit	Series, parallel	
Mathematical Functions	Deviation and Percent Deviation	-----
Rang mode	Auto, Hold	
Trigger mode	Internal, Manual and External	Internal
Measurement speed	Fast: 12, Med: 5.1, Slow: 2.5 (meas/sec)	
Correction Function	Open/Short multi-frequency Zeroing	
Measurement Terminals	Five Terminals	
Test Signal		
Test Frequency	100Hz, 120Hz, 1kHz, 10kHz, Accuracy 0.01%	

Output impedance	30Ω , 100Ω	
Signal level	0.1Vrms, 0.3Vrms, 1Vrms	0.3Vrms, 1Vrms
Measurement Display Range		
Z , R	0.1mΩ - 99.99MΩ	
C	100Hz/120Hz	1pF - 99999μ F
	1kHz	0.1pF - 9999.9μ F
	10kHz	0.01pF - 999.99μ F
L	100Hz/120Hz	1μH - 99999H
	1kHz	0.1μH - 9999.9H
	10kHz	0.01μH - 999.99H
D	0.0001 - 9.999	
Q	0.0001 - 9999	
Δ%	-999.99% - 999.99%	
Display		
Display Mode	Direct, Δ%, Δ ABS	Direct
Display	Large character LCD with backlight	
Display digits	Primary and secondary display:5 digits	
Comparator and interface		
Comparator	NG, P1, P2, P3, AUX, 5 bins and alarm selectable	-----
Interface	RS232C, Handler	-----

General Specifications

Operation Temperature & Humidity	0°C - 40°C, ≤90%RH	
Power Requirements	Voltage	99V - 121V, 198V - 242V
	Frequency	47.5Hz - 63Hz
Power Consumption	≤20 VA	
Dimensions (W×H×D)	270mm×130mm×300mm	
Weight	Approx. 3.7kg	

Ordering Information

TH2810D LCR Meter

TH2811D LCR Meter

Instrument Accessories

TH26001A	4 terminal test fixture
TH26004-1	4 terminal Kelvin test clip leads
TH26010	Gilded shorting plate

Options

TH26005A	4 terminal test fixture
TH26006	Axial component test module
TH26007A	Core inductor test fixture
TH26008A	SMD component test fixture
TH26009B	SMD Kelvin test tweezers
TH26029B	SMD Kelvin test tweezers
TH26011A	4 terminal Kelvin test clip leads

Component Parameter Test Instruments

A. TH2822 Series Handheld LCR Meter

Features

- Max. Basic accuracy: 0.25%
- Maximum test signal frequency : 100kHz
- Selectable test signal level
- With DCR function
- Enhanced protection capability of input terminal impact
- 40000 counts for primary parameter, D/Q resolution 0.0001
- Typical ultra-low consumption: 25mA
- Innovatively compatible terminal configuration: 5-terminal test slot and 3-terminal rubber jack
- Intellectualized auto LCR function
- AC test speed up to 4 meas/sec (DCR: 3 meas/sec), fast automatic range switch design
- Constant 100Ω output impedance
- Percentage display and 4-tolerance comparator: 1/5/10/20%
- Battery charge in startup & shutdown
- Test terminal protection function
- Data-hold, Max./Min./Average value recording
- Real-time function configuration selection and working condition hold capacity
- Standard configuration Mini – USB communication interface and SCPI command set
- Free FastAccess PC communication software on our website
- Gorgeous dual-color cast shell



TH2822 series

Brief Introduction

■ With its advanced impedance test technology, Tonghui has launched TH2822 series handheld LCR meters. This series currently possess the most powerful functions and outstanding performance in this industry comparable with bench LCR meters. Meanwhile it is the achievement of Tonghui after years of efforts and research in the passive-component testing field.

TH2822 series apply the ultra-low power consumption design and high density SMD assembly techniques and can simultaneously display primary and secondary parameters on a LCD display with backlight. The dual-color shell is gorgeously once shaped; and functions are easy to operate. The test frequency is up to 100 kHz, the readings of primary parameter 40,000 counts and the resolution of dissipation factor 0.0,001. Accurate and convenient measurements of passive-components can be achieved in different occasions for a long time. In order to meet different market demand, multiple signal level and DCR test function are increased on TH2822D/E. The test accuracy can reach 0.1%. With USB interface, TH2822 series can conveniently communicate with a PC and be remotely controlled by a PC. In order to satisfy the increasing test requirements for SMD and balance the different needs for performance and price, two types of 4-terminal Kelvin test tweezers: TH26009C and TH26029C are optional for users' choice.

Component Parameter Test Instruments

A. TH2822 Series Handheld LCR Meter

Specifications

Model	TH2822A	TH2822C	TH2822D	TH2822E
Function				
Test Parameter	Primary parameters: L / C / R / Z Secondary parameters: D / Q / R / θ / ESR		Primary parameters: L / C / R / Z / DCR Secondary parameters: D / Q / R / θ / ESR	
Equivalent Circuit	Series and Parallel			
Parameter and Equivalent Mode	Hold, Auto			
Ranging Mode	Auto			
Measurement Terminals	3-terminal, 5-terminal			
Measuring Speed	4meas/sec, 1.5meas/sec			
DCR Measuring Speed	-----		3meas/sec	
Calibration Function	Open, short			
Comparator Function	1%, 5%, 10%, 20%		1%, 5%, 10%, 20%	
Input fuse	0.1A / 250V			
Interface	Mini-USB (virtual serial port)			
Test signal				
Test Frequency	100Hz, 120Hz, 1kHz, 10kHz,	100Hz, 120Hz, 1kHz, 10kHz, 100kHz	100Hz, 120Hz, 1kHz, 10kHz,	100Hz, 120Hz, 1kHz, 10kHz, 100kHz
Test Level	0.6Vrms		0.3 Vrms, 0.6 Vrms, 1 Vrms	
Output Resistance	100 Ω			
Display				
Display	LCD Primary-Secondary dual display, with backlight (TH2822 not available)			
Reading	Max. Primary parameters: 40,000 digits, secondary parameters D/Q Minimum resolution: 0.0001			
Basic accuracy	0.25%		0.1%	
Measuring Range				
L	0.00 μ H - 1000.0H	0.000 μ H - 1000.0H	0.00 μ H - 1000.0H	0.000 μ H - 1000.0H
C	0.00pF - 20.000mF	0.000pF - 20.000mF	0.00pF - 20.000mF	0.000pF - 20.000mF
Z/R	0.0000 Ω - 10.000M Ω			
DCR	-----	-----	0.0000 Ω - 20.000M Ω	
ESR	0.0000 Ω - 999.9 Ω			
D	0.0000 - 9.999			
Q	0.0000 - 9999			
θ	0.00° - \pm 180.0°			
Power Requirements				
Battery model	TH2822 / A : IEC 6LR61, 9V alkaline battery TH2822C/D/E : LH-200H7C, 8.4V Ni-MH 200mAH rechargeable battery			
AC power adapter	Input: 220V/50Hz, Output: 12V-15V(100 Ω Load)			
Standby Currant	Max.2 μ A	18 μ A	11 μ A	
Battery life	16 hours (typical) , new alkaline battery, with backlight off			
Auto power off	5min, 15min, 30min, 60min, OFF available; Factory Default : 5min			
Low voltage indicator	When battery voltage drops below 6.8V, low voltage indicator turns on.			

Standard Accessories

MINI USB Communication cable
 TH26028 AC power adapter
 TH26004F Two-terminal Test Cable
 TH26010B Gilded shorting plate

TH26027AS 4 terminal Kelvin test cable(not included in TH2822)
 TH26029C SMD Kelvin test cable(not included in TH2822/A)
 8.4V Rechargeable battery(not included in TH2822/A)
 Alkaline battery(only for TH2822/A)

Component Parameter Test Instruments

A. TH2822M Mini LCR Tweezer

Features

- Smart and portable appearance design
- Provide three input impedance to automatically match the measurements
- With DCR, conduction function
- About 12mA ultra low power consumption
- Optional frequency up to 10kHz
- Intelligent automatic LCR selection function
- 1%, 5%, 10%, 20% tolerance comparison mode
- D / Q resolution 0.001
- Data display save function
- The battery can be charged at power on and off
- Real-time function configuration selection and work status saving ability
- Standard Mini-USB communication interface, SCPI command set



Dimension (mm): 181.5(W) x 34(H) x 20(D)
Weight: 0.05kg

TH2822M

Applications

- Impedance parameter evaluation of passive components
- Impedance evaluation of printed circuit boards, relays, switches, batteries, etc.
- Mainly used for some small package SMT components

Specifications

Model	TH2822M
Function	
Display	LCD liquid crystal display
Basic measurement accuracy	0.5%
Frequency	100Hz, 125Hz, 1kHz, 10kHz
AC signal level	0.5 Vrms
Signal source output impedance	100Ω, 1kΩ, 10kΩ
DCR measurement function	YES
Test parameters	Primary parameters: L / C / R / Z / DCR / OS Secondary parameters: D/Q/θ
Test speed	2 times / sec
Equivalent mode	Series , Parallel
Parameters and equivalent mode	Manual, AUTO
Range mode	AUTO
Test terminal configuration	Two-terminal
Tolerance compare mode	1%, 5%, 10%, 20%
Communication interface	Mini-USB (virtual serial port)
Power supply	
Battery model	MLK 403030, 3.7V 200mAH rechargeable battery
Auto Power Off	30sec, 60sec, 120sec

Standard Accessories

MINI USB Communication cable
TH26028A AC power adapter

Component Parameter Test Instruments

A. TH2638 / TH2638A Precision Capacitance Meter

Features

- 4.3 inch TFT LCD display
- Selectable Chinese and English operation interface
- Max. test frequency: 1MHz
- Highest test speed: 2.3ms/time
- Basic test accuracy : $\pm 0.07\%$
- Loss factor: ± 0.0005
- V, I test signal level monitor function
- Low impedance measurement, signal level compensation function
- Built-in 11-bin comparator
- Internal file storage and external U disk file storage
- Test data can be directly saved in U disk
- Screen shot can be saved in U disk
- Compatible with SCPI commands
- RS232C, USB CDC, LAN, HANDLER, GPIB interfaces
- Manipulator interface and scanner interface
- Contact inspection function
- Synchronizing signal source
- Offset function in 1MHz test frequency ($\pm 1, \pm 2\%$)



TH2638/A

Rack mount (mm): 280(W) x 88(H) x 370(D)
 Dimension (mm): 369(W) x 108(H) x 408(D)
 Net weight: 5 kg

Brief Introduction

■ TH2638 series is a new precision capacitance meter with higher test frequency. With small size and portable appearance, it is convenient for use on the shelves. With basic accuracy of $\pm 0.07\%$, loss accuracy of 0.0005, test frequency up to 1MHz, 4.3 inch LCD screen, selectable Chinese-English operation interface, TH2638 series is easy to operate and provide fast and reliable test for ceramic capacitor production. Also, it can test all kinds of capacitors from low value to high value. The results of testing one capacitor for several times are quite stable and accurate, even for lower value capacitors. The tester is compatible with SCPI command set, and configured with manipulator and scanner interface, the scanner interface can scan the open/short/load error calibration in each channel, 256 channels at most. In low frequency, there is signal level compensation function. When the impedance is very small, the internal resistance in signal source and test cable will cause the voltage on terminal of DUT lower than the set range, then this function will adjust the level to the set range.

There is an additional inspection function for failed contact especially for production lines, which can detect the failed contact between DUTs with tester and no extra time is needed to carry out this operation. It keeps the same signal source function as the real test, where there is the real test, the test signal can be generated in DUT, and there is no any test signal when connect and disconnect the DUT, thus it will reduce the damage to the fixture or test point when there is big current in failed contact. When the test frequency is 1MHz, the test frequency can be set Rel (offset value is $\pm 1\%, \pm 2\%$). In array capacitor test, this function can eliminate the noise between adjacent terminals and reduce the difference of test results. There is feed box with tester, so user can set 9 boxes based on the result of C-D/Q/R/Q to find out the pass and fail products and then put into different boxes.

Specifications

Model		TH2638	TH2638A
Test parameters		Cp-D, Cp-Q, Cp-Rp, Cp-G, Cs-D, Cs-Q, Cs-Rs	
Test signal			
Frequency	Permitted frequency	100Hz, 120Hz, 1kHz, 10kHz, 100kHz, 1MHz, 1MHz $\pm 1\%$, 1MHz $\pm 2\%$	100Hz, 120Hz, 1kHz, 10kHz, 100kHz
	Accuracy	$\pm 0.02\%$	
Level	Range	0.1V-1V	
	Resolution	0.01V	
	Accuracy	$\pm 5\%$	
Output mode		Continuous or synchronous	
Signal source delay	Range	0-1s	
	Resolution	0.1ms	
Signal level compensation	100/120Hz	220 μ F, 470 μ F, 1mF range	
	1kHz	22 μ F, 47 μ F, 100 μ F range	

Component Parameter Test Instruments

A. TH2638 / TH2638A Precision Capacitance Meter

Output impedance	100 Hz 120Hz	SLC OFF ($\geq 220\mu\text{F}$ range) 1.5 Ω SLC ON ($\geq 220\mu\text{F}$ range) 0.3 Ω 2.2 μF - 100 μF range 0.3 Ω 10 nF - 1 μF range 10 Ω	
	1kHz	SLC OFF ($\geq 22\mu\text{F}$ range) 1.5 Ω SLC ON ($\geq 22\mu\text{F}$ range) 0.3 Ω 220 nF - 10 μF range 0.3 Ω 100 pF - 100 nF range 10 Ω	
	10kHz/100kHz	10 Ω	
	1MHz	10 Ω	-----
Test speed		5-bin test speed: 1, 2, 4, 6, 8	
Max. Test speed	100/120Hz	11ms	
	1kHz	3ms	
	10k/100kHz	2.3ms	
	1MHz	2.3ms	-----
Test range mode		Auto, Hold	
Test signal frequency range	100Hz/120Hz	10 nF, 22 nF, 47 nF, 100 nF, 220 nF, 470 nF, 1 μF , 2.2 μF , 4.7 μF , 10 μF , 22 μF , 47 μF , 100 μF , 220 μF , 470 μF , 1 mF	
	1k Hz	100 pF, 220 pF, 470 pF, 1 nF, 2.2 nF, 4.7 nF, 10 nF, 22 nF, 47 nF, 100 nF, 220 nF, 470 nF, 1 μF , 2.2 μF , 4.7 μF , 10 μF , 22 μF , 47 μF , 100 μF	
	10k Hz	100 pF, 220 pF, 470 pF, 1 nF, 2.2 nF, 4.7 nF, 10 nF, 22 nF, 47 nF, 100 nF, 220 nF, 470 nF, 1 μF , 2.2 μF , 4.7 μF , 10 μF	
	100k Hz	10 pF, 22 pF, 47 pF, 100 pF, 220 pF, 470 pF, 1 nF, 2.2 nF, 4.7 nF, 10 nF, 22 nF, 47 nF, 100 nF	
	1MHz	1 pF, 2.2 pF, 4.7 pF, 10 pF, 22 pF, 47 pF, 100 pF, 220 pF, 470 pF, 1 nF	-----
Average times		1 - 256	
Trigger mode		Internal, Manual, External, Bus	Internal, Manual, External, Bus (except GPIB)
Trigger delay time	Range	0 - 1s	
	Resolution	0.1ms	
Measurement display range			
Parameters	Cs, Cp	± 1.000000 aF to 999.9999 EF	
	D	± 0.000001 to 9.999999	
	Q	± 0.01 to 99999.99	
	Rs, Rp	± 1.000000 a Ω to 999.9999 E Ω	
	G	± 1.000000 aS to 999.9999 ES	
	$\Delta\%$	± 0.0001 % to 999.9999 %	
Basic measurement accuracy		C:0.07%, D:0.0005	
Display mode		Floating / fixed decimal point display, ΔABS , $\Delta\%$	
List sweep		10 list sweep, sweep item: frequency, voltage	
Comparator function		11 bins: BIN1-BIN9, OUT_OF_BIN, AUX_BIN	
Interface		RS232C, LAN, USB CDC, HANDLER, GPIB, Scanner	RS232C, LAN, USB CDC, HANDLER
Internal storage		40 setting files	
External USB storage		GIF image 40 setting files test data and screen shot can be saved in the USB storage directly	
General Specifications			
Temperature, humidity, height (operating environment)		0 $^{\circ}\text{C}$ - 45 $^{\circ}\text{C}$, 15% - 85% RH ($\leq 40^{\circ}\text{C}$, non-condensing), 0 - 2000m	
Power supply	voltage	90VAC - 264VAC	
	frequency	47Hz - 63Hz	
	power	Max.150VA	
Temperature, humidity, height (Storage environment)		-20 $^{\circ}\text{C}$ - 70 $^{\circ}\text{C}$, 0 - 90% RH ($\leq 65^{\circ}\text{C}$, non-condensing), 0 - 4572m	

Standard Accessories

Three core power cord
TH26010 Gold-plated short circuit board

TH26011BS 4 terminal pair Kelvin test clip leads
TH26005C Four-terminal test fixture

Component Parameter Test Instruments

A. TH2618B Capacitance Meter

Features

- Good testing stability
- Strong protection against electrical shock
- Reasonable function configuration
- Fixed output impedance, suitable for ceramic capacitor
- Keyboard lock function
- RS-232C interfaces
- HANDLER interfaces
- Optional operation software



TH2618B

Brief Introduction

■ TH2618B is a high accuracy capacitance meter with wide measurement range, easy operation and perfect functions. TH2618B provides up to 10 kHz typical measurement frequencies and 4 bins comparator. TH2618B is especially suitable for product line fast measurement. This instrument offers strong protection against electrical shock of charged capacitor which has bothered the users before. The perfect HANDLER interface makes it easy to build an automatic component test system.

Specifications

Measurement function	
Test parameters	C-D, R-D
Basic accuracy	0.1%
Equivalent circuit	Series and Parallel
Ranging Mode	Auto and Hold
Trigger Mode	Internal, Manual and External
Measuring speed(meas/sec)	Fast: 15, Slow: 4.5
Correction Function	Open and Short Zeroing
Measurement Terminals	5 Terminals

Display Mode	Direct, Δ%	
Test Frequency	100Hz, 120Hz, 1kHz, 10kHz	
Output impedance	30 Ω , 100 Ω	
Test level	0.1Vrms, 0.3Vrms, 1Vrms	
Measurement display range		
Display Range	R	0.0001 Ω — 99999 MΩ
	C	0.01 pF — 99999 μ F
	D	0.0001 — 9.999
	Δ%	-9999% — 9999%
Comparator and interface		
Comparator Function	4 bins, P1 alarm Or 2 bins, Pass alarm.	
Interface	RS-232C, Handler	

General Specifications

Operating Temperature and Humidity	0°C-40°C, ≤90%RH	
Power Requirements	Voltage	198V-242V
	Frequency	47.5Hz-52.5Hz
Power consumption	≤ 20 VA	
Dimensions (W×H×D)	350mm×110mm×340mm	
Weight	3.5kg Approx.	

Ordering Information

TH2618B Capacitance Meter

Instrument Accessories

TH26001	4 terminal test fixture
TH26004-1	4 terminal Kelvin test clip leads
TH26010	Gilded shorting plate

Options

TH26047	4-terminal test fixture
TH26048	4-terminal test fixture
TH26005A	4 Terminal test fixture
TH26006	Axial lead component test module (used with TH26005A)
TH26008A	SMD component test fixture
TH26009B	SMD Kelvin test tweezers
TH26011A	4-terminal Kelvin test clip leads
TH12012	RS232C control software

Component Parameter Test Instruments

A. TH2689/TH2689A Capacitor Leakage Current/IR Meter

Features

- Capacitance leakage test function
- Insulation resistance test function
- Aluminum foil pressure and rise time test function
- Precise low current charge function(0.5mA±0.05mA)
- Large current (500mA)improves the charge speed of low voltage large capacitance.
Continuously adjust Test voltage(TH2689 1.0V~800V/ TH2689 1.0V~500V) and real-time monitor the output voltage
- Test range from 0.001uA—20.00mA, 4 digit display
- Open correction(null) to eliminate the remaining base number
- Built-in digit counter
- Comparator function to realize the sorting of PASS/FAIL
- 10 groups of status for save and load
- Standard RS232 interface, Handler interface, optional GPIB interface
- Large LCD (240×64 dot-matrix)display
- Humanized operation interface



TH2689/A

Brief Introduction

- TH2689/TH2689A is a rapid and precise capacitance leakage current insulation resistance tester. The max. test speed of 18 times/second, good performance and the suitable price provide the user an optimal choice.

TH 2689/TH2689A provides max. test voltage: 800v/500v, charge current: 0.5mA—500.0mA(if >100V, the max. power 50W can limit). It is mainly applied in capacitance leakage current, insulation resistance and aluminum electrolysis capacitance anode foil pressure test. Also it can be applied in the confirmation of annihilator, zener diode, neonbulb .etc and leakage current test. Standard Handler interface, stable and rapid test, to reach the sorting effect

Standard RS 232 interface, optional GPIB interface, and general RS232 software are provided to meet the demand of connecting with computer and forming auto test system. The instrument can receive the SCPI command to guarantee the compatibility of communication software.

Specifications

Parameter	LC, IR, Tr, Vf
Range	AUTO, HOLD
Trigger mode	INT/MAN/EXT/BUS
Sorting	High、 Low、 Pass with beeper alarm
Setting storage	10 groups of status can be saved and loaded
Communication interface	RS232 GPIB(optional) SCPI command program supportable

Performance parameter: (condition, working temperature: 0°C—40°C, humidity : 90%RH,warmup time≥20 min)

LC/IR test	
Test voltage	TH2689 : 1.0V — 800V TH2689A: 1.0V — 500V Accuracy : ±(0.5% set value+0.2V)
Charge current	test voltage ≤100V,0.5mA—500mA; test voltage > 100V,0.5mA—Imax, Imax=50W/test voltage Accuracy: ±(3% set value+0.05mA)
Test range	LC: 0.001uA — 20.00mA IR: 0.01kΩ — 99.99GΩ
Basic accuracy	LC: ±(0.3%+0.05uA)
Charge time upper limit	0 — 999s manual
Test time	FAST: 40ms MED : 60ms SLOW: 120ms Test condition: range is locked, trigger mode is EXT and the external trigger voltage displays the closing state
Limit setting	LC: 0 — 999.999mA IR: 0 — 999.999GΩ
Sorting	Pass, Fail
W. V. test	
Vf Rated involucra voltage	TH2689 : 1.0V — 800V TH2689A: 1.0V — 500V
Charge current	0.5mA — Imax Imax = 65W/Vf Accuracy: ± (3% set value+0.05mA)
Charge time upper limit	5s — 600s manual
Pressure time	30s — 600s manual

Ordering Information

TH2689 Capacitor Leakage Current/IR Meter

TH2689A Capacitor Leakage Current/IR Meter

Instrument Accessories

TH26003 2 terminal test fixture

TH26004D 3 terminals test clip leads

Component Parameter Test Instruments

A. TH2775B Inductance Meter

Features

- Improved middle-class inductance meter
- Easy operation and strong functions combination
- Good readout stability
- Up to 15 meas/sec test speed
- Key lock function
- Optional 30Ω and 100Ω signal source output impedances
- RS-232C and HANDLER interface
- Optional operation software



TH2775B

Brief Introduction

■ TH2775B is a general purpose inductance meter with 4 test frequencies, 3 signal voltage levels and strong functions. So it can be used for incoming inspection of components, quality control of product line and laboratory use. HANDLER and RS232C interfaces make it easy to build an automatic component test system, communicate with the computer and record test results.

General Specifications

Operating Temperature and humidity		0°C - 40°C, ≤90%RH
Power	Voltage	198V - 242V
Requirements	Frequency	47.5Hz - 52.5Hz
Power Consumption		≤ 20VA
Dimensions (W×H×D)		350mm×110mm×340mm
Weight		Approx. 3.5kg

Specifications

Test Parameter	L-Q, R-Q,	
Test Frequency	100Hz, 120Hz, 1kHz, 10kHz	
Test level	0.1Vrms, 0.3Vrms, 1Vrms	
Basic Accuracy	0.1%	
Measuring speed	Fast: 15 meas/sec, Slow: 4.5 meas/sec	
Equivalent Circuit	Series and Parallel	
Mathematical function	Δ%	
Ranging Mode	Auto and Hold	
Trigger Mode	Internal, Manual and External	
Correction Function	Open and Short sweep Zeroing	
Measurement Terminals	5 Terminals	
Display Mode	Direct, Δ%	
Output impedance	30 Ω , 100 Ω Selectable	
Display Range	R	0.0001Ω – 99.999MΩ
	L	0.01μH – 99999H
	Q	0.0001 – 9999
	Δ%	-9999% – 9999%
Comparator Function	4 Bins , P1 alarm or 2 Bins, Pass Alarm	
Interface	RS-232C, Handler	

Ordering Information

TH2775B Inductance Meter

Instrument Accessories

TH26001	4 terminal test fixture
TH26011	4 terminal Kelvin test clip leads
TH26010	Gilded shorting plate

Options

TH26005A	4 terminal test fixture
TH26006	Axial component test fixture
TH26007A	Core inductor test fixture
TH26008A	SMD component test fixture
TH26009B	SMD Kelvin test tweezers
TH26004-1	4 terminal Kelvin test clip leads
TH12013	RS232C control software

Component Parameter Test Instruments

A. TH1778A Series DC Bias Current Source

Features

- Provide 0~20A of constant current output for single one
- Support 6 machines at most and reach 120A of constant current output
- Extreme refined current step: when <1A, reach 5mA; when <5A, reach 25mA; when <120A, reach 100mA
- Adopting a new generation AC/DC superposition test theory to adapt test requirements for high precision and high frequency
- Current output mode: single current, step scan
- Adopting new designed friendly graphical operation interface and providing multiple operation practice
- Providing real-time operation mode for all parameters and settings without waiting
- New file management system with easy, prompt and accurate operation
- Providing two kinds of SCPI command modes with good adaptability
- New foot control mode with 5 control modes
- Excellent tailing capability and extendibility, additional slave superposition depending on the demands
- Offering dual-progress bar indication and corresponding small tools
- Selectable Chinese and English interfaces



NEW

TH1778A

TH1778AS

Brief Introduction

- **Friendly interface, easy operation and excellent performance**

The instrument adopts a new generation AC/DC superposition test theory to adapt test requirements for high precision and high frequency. The built-in embedded MCU with high-performance can quickly respond to host and slave machine condition or malfunction and make real time indication, which helps improve the work efficiency. The new designed friendly graphical operation interface, included 5 foot control modes and full touch operation provides convenience and efficiency for users. New file management system with easy, prompt and accurate operation can save a group of real-time setting file and 99 groups of user-defined setting files. It can provide pushed information indication and cache 2 real-time information. Being provided with two modes of SCPI instruction systems, it is convenient to set up production lines or single machine test. Also, it can connects with any device with serial port and which refer to the SCPI instruction system design of this machine.

New Trend of AC/DC Superposition Test By virtue of profound technology and extensive market survey in bias current field, Tonghui introduced the large power DC bias current source—TH1778A. CortexM3 ARM CPU with high-performance, graphical interfaces and full-touch operation make TH1778A series DC Bias Current Source convenient and efficient for you.

TH1778A series is appropriate for AC/DC superposition test of magnetic inductors and test occasion for large current. Also, it can provide magnetizing current for the analysis of magnetic materials. The adopted new software framework is adapt to real-time parameter adjustment and operation.

New Trend of AC/DC Superposition Test

- 1 Master-Slave connection mode is convenient for cutting and extending.
- 2 Graphic interface brings unprecedented operation convenience and rapid response to working condition of the machine.
- 3 Pushed information indication can keep concurrent status information.
- 4 Intelligent file management system makes file management and load not complicated any longer.
- 5 Multi-mode SCPI system makes the formation of production lines not tedious any more.
- 6 Multiple operator modes makes it easier to operate on the basis of personal habits.
- 7 Cabinet type system connection makes it convenient for users to arrange and set up production lines.

Specifications

Model	TH1778A	
Display	Display	480×272 16:9 24-bit truecolor TFT LCD
	Interface	Complete graphic user interface
Operation	Resistor type touch screen + entitative key + foot switch	
Current step	0mA-1.000A	5mA
	1.000A-5.000A	25mA
	5.0A-120.0A	100mA
Supporting test frequency	0Hz-2MHz	
Sweep adjustment time	0mA-1.000A	4ms-3600s
	1.000A-5.000A	10ms-3600s
	5.0A-120.0A	20ms-3600s
Minimum interval of sweep adjustment step	0mA-1.000A	5mA
	1.000A-5.000A	25mA
	5.0A-120.0A	100mA
Range	Host machine (TH1778A)	1.000A/5.000A/20.0A
	Slave machine (TH1778AS)	20.0A
Maximum output voltage	35V (when outputting 1.000A. For different ranges, please refer to the user manual)	
Maximum permitted DCR	$R_{max} = \frac{V_{max}}{I}$ (Ω)(Calculation of R_{max} , please refer to the description in user manual)	
Maximum permitted inductance value	$L_{max} = \frac{V_{max}}{di/dt}$ (mH)(Calculation of L_{max} , please refer to the description in user manual)	
Range mode	Auto	
Control mode for START/STOP	START/STOP entitative key, 4 foot switches, Bus	
Max. current time for continuous loading	Keeping 2-3h, continuous output	
Function	Fault self-inspection; 99 groups of custom profile management; dual-progress bar indication; Chinese and English; soft switching of slave machine; real-time operation; SCPI command set; simple dual-display computer.	
Interface	RS232S, JaverLink	
Work environment	Temperature	0℃-55℃
	Humidity	<90%RH
Power requirement of adapter	Voltage	AC 220V/110V (±10%)
	Frequency	50Hz/60Hz (±5%)
Power	≤60VA	
Dimension (W×H×D) (mm)	Single one: 430×185×473 (mm) (not including equipment cabinet)	
Weight	Single one: 18kg (not including equipment cabinet)	

Component Parameter Test Instruments

A. TH1773 DC Bias Current Source

Features

- MPU control
- 20×2 large character LCD display with backlight
- Frequency bandwidth: 50 Hz – 200 kHz
- 0 to 10A current output, max power output 90 W
- Directly controllable by TH2816A, TH2817A, TH2818, and TH2819A
- Low additional error , wide frequency bandwidth
- Auto or manual current sweep output
- Single, multi and equal interval current output modes
- DC current output with forward or reverse
- 0 to 99s delay time setup
- Long time high current output available
- Optional GPIB and RS232C interface
- User control setting memory
- Strong protective design against damage of LCR meter



TH1773

Brief Introduction

■ TH1773 is a DC Bias Current Source (or DC Magnetization Current Source) used for inductance measurement of inductors and transformer windings with DC bias current. Except for constant current output, low additional error and wide frequency bandwidth are important for bias current inductance measurement. High frequency LCR meter could be used, when the frequency bandwidth is wide enough. MPU controlled auto current balance technology is adopted to realize AC+DC current overlap and constant current output from 0 to ±10A. TH1773 With its low additional error, wide frequency response bandwidth and sweep output function is widely used in DC biased inductance measurement. It also provides a perfect solution for magnetic material analysis.

Specifications

Current Range	-10A – 10A
Current Resolution	200 mA Range: 0.1 mA 2A Range: 0.001A 10A Range: 0.01A
Frequency Bandwidth	50Hz–200kHz
Impedance Range	$\omega L < 2k\Omega$, $L < 8/I$ (H)
Current Accuracy	±1% of reading ±3 counts
Output Voltage Range	0–8 V
Additional error	≤ 1%
Current Output Mode	Single, multi and Equal interval current output
Sweep Mode	Manual, Auto(Return sweep available)
Sweep Points	2-15 points
Delay Time	0 to 99s
Warm-up Time	20 minutes
Working Time	continuous work up to 24 hours
Optional Interface	RS232C (used for LCR meter control)

General Specifications

Operating Temperature and Humidity	0°C–40°C, ≤90%RH	
Power Requirements	Voltage	198V–242V
	Frequency	47.5Hz–52.5Hz
Power Consumption	≤ 200 VA	
Dimensions (W×H×D)	430mm×180mm×460mm	
Weight	Approx. 16.4kg	

Ordering Information

TH1773 DC Bias Current Source

Instrument Accessories

TH26004E-1 Bias current source link cable

TH26013 DC bias test clip leads

TH2881-001 Foot switch

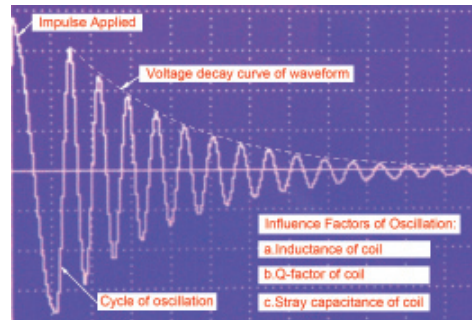
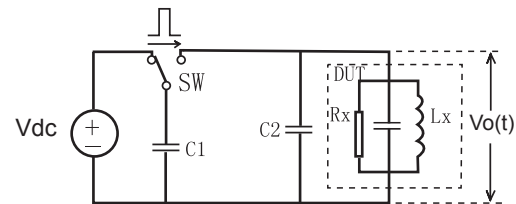
Transformer, Motor and Winding Test Instruments

B. TH2882A Series Impulse Winding Tester

Features

- Low inductance impulse test: down to $10\mu\text{H}$
- Low energy test without damaging the coil
- Fast detection of winding insulation at a speed of 5.5 meas/sec
- 4 kinds of waveform comparison methods
- Up to 40 MSPS sampling rate
- 320×240 dot-matrix graphic LCD display
- Chinese and English operation languages
- Friendly user's interface and easy operation
- Multi-trigger mode programmable
- Voltage, Time and Frequency measuring function
- Direct display of comparison result
- Keyboard lock and password protection function
- Handler, RS-232C, and GPIB(optional) interfaces
- 500 groups of waveforms can be stored in USB disk (optional)
- Multi-channel scan control interface: SCANNER (optional)

When testing, TH2882A compares the standard waveform stored in the instrument with current measuring waveform. TH2882A gives the PASS or FAIL comparison result according to Area, Differential Area, Corona Discharge, Differential Phase etc. With strong function, precision test method, flexible operation and various interfaces, TH2882A can provide test solution for most coil winding products.



The Decay curve of winding voltage



TH2882A Series

Brief Introduction

■ Due to the influence of coil wire material, magnetic material, framework and manufacture technics etc., coil products (such as transformers, motors, etc.) may have defects of low insulation between coil layers, circles and leads. TH2882A series impulse winding tester, adopting high-speed sampling technique, is a new generation analysis test instrument for insulation performance of coil products.

Theory of Impulse Test of Coil-winding

■ The impulse winding tester tests the electrical characteristics of coil winding without damaging the DUT. The prerequisite conditions for quality of a coil can be detected at just a glance. The detection is carried out when the same electric impulse by capacitor discharge is applied to the standard and the DUT. The voltage decay waveform is generated in response to the impulse, related to the Q-factor and inductance of the coil. In this sense, the tester can detect turn & layer short, the differences in the number of turns and the material of the core. If high impulse voltage is applied, the poor insulation will appear as a corona or layer discharge.

Transformer, Motor and Winding Test Instruments

B. TH2882A Series Impulse Winding Tester

Specifications

Output Impulse Voltage	TH2882A-3	300V-3000V, 50V Steps ±5% of set value±15V
	TH2882A-5 TH2882AS-5	500V-5000V, 100V Steps ±5% of set value± 25V
Voltage Control Mode	Normal	Voltage programmable at the measurement terminals when terminals opened
	Constant	Maintaining selected voltage across the winding independent of changes of the winding impedance
Impulse Energy (1K Ω Resistive Load)	TH2882A-3	≤ Max. 90 milli-Joules
	TH2882A-5 TH2882AS-5	≤ Max. 250 milli-Joules
Inductance Range	TH2882A-3	≥ 10 More than 10μH
	TH2882A-5 TH2882AS-5	≥ 20 More than 20μH
Display	Screen Mode	320x240 dots LCD
	Waveform Display Dots	240x200 dots
	Display Information	Setting parameter , Standard & measuring waveform, Measurement & comparison result
Waveform Sampling	Sampling rate	40MSPS/25ns, 20MSPS/50ns, 10MSPS/100ns, 5MSPS/200ns,2.5MSPS/400ns, 1.25MSPS/800ns, 625kSPS/1.6μs, 312kSPS/3.2μs,
	Resolution	8 digits
	Sampling length	960 Bytes
Input impedance	10MΩ (Resistive voltage divider)	
Measuring speed	5.5 times/sec (Waveform display OFF, PASS/FAIL ON)	
	3.3 times/sec (Waveform display ON, PASS/FAIL ON)	
Average Rate	1 to 99 ,Programmable	
Waveform Measurement	Voltage, Time, Frequency	
Trigger Mode	Internal/Manual (Foot)/ External/ BUS	

Comparison Mode	Area size comparison Differential area comparison Corona discharge Differential phase comparison
Area Size Repetition accuracy	±1%
Differential Area Repetition Accuracy	±1%
Detection Output	PASS/FAIL display , Alarm
Alarm Volume	Long high, Long low, Single low, Double low, Off
Memory	60 groups of standard waveform data can be stored in internal non-volatile memory 500 groups in USB flash memory (optional)
Interface	HANDLER(Start, Stop, Pass NG, Busy,EOC,etc.), RS232C, GPIB(optional)

General Specifications

Operating Temperature and Humidity	0°C-40°C, ≤90%RH	
Power Requirements	Voltage	99V - 121V AC,198V - 242V AC
	Frequency	47.5Hz-63Hz
Power Consumption	≤ 40VA	
Dimensions (W×H×D)	395mmx155mmx445mm	
Weight	TH2882A	Approx. 7.6 kg
	TH2882AS	Approx. 8.4 kg

Ordering Information

TH2882A-3 Impulse Winding Tester
TH2882A-5/TH2882AS-5 Impulse Winding Tester

Instrument Accessories

TH2881-001 Foot Switch
TH26035 High-voltage test clip leads

Options

TH10001 GPIB interface board
TH26026 2GB USB disk
TH12021 TH2882 RS232C control software

Transformer, Motor and Winding Test Instruments

B. TH2883S8-5/TH2883S4-5 Impulse Winding Tester



TH2883S8-5/th2883S4-5

Features

- The first provider of impulse winding tester from low voltage of 30V to high voltage of 10kV, single channel to multichannel in this industry (Max.:8 channels)
- First winding tester compatible with LXI standard
- Impulse voltage of 100V~5000V
- Two models of 4-channel and 8-channel for selection
- Each channel can be programmed and controlled as high-terminal, low-terminal and OFF
- 20 test procedures can be added at most
- 65k color 7" TFT wide display screen
- Up to 200Msps waveform sampling rate
- Maximum measuring speed: 6meas/sec
- Storage depth of 6k Bytes
- High bandwidth analog acquisition circuit
- High-fidelity corona extraction algorithm (patent technology)
- Four waveform comparison methods
- Automatic storage of instrument parameters
- Measurements on voltage, time and frequency
- Amplification, stretch and movement of the waveform for accurate display
- Multi-sample average, average processing of 32 standard waveforms
- Destructive testing for your correct choose of voltage
- Use demagnetized impulse to ensure the conformity of tested waveforms
- Login of different user right for easy management
- 20 groups of instrument files can be stored and automatically loaded
- Screen information can be stored in USB disk (COPY key)
- System firmware can be automatically upgraded through USB-disk
- Selectable Chinese and English operation interfaces
- Four selectable display interface effects
- Foot control interface for easy measurements
- Handler interface to realize on-line operation
- RS232C, USB Device and LAN interface to realize remote control

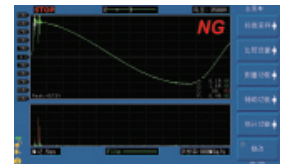
Brief Introduction

■ TH2883 series products are newly developed impulse winding testers by Tonghui. This product line makes Tonghui as the first provider of impulse winding tester from low voltage of 30V to high voltage of 10kV, single channel to multichannel (Max.:8 channels) in this industry. The instrument adopts popular 32 bit CPU and high density SMD technology, 65k color 7-inch TFT wide display screen, bringing ease for your eyes and convenience to your operation. The impulse voltage of 100V~5000V, maximum 8 channel sweep test, maximum 20 test procedures, sampling rate of 200Msps, memory depth of 6k bytes makes your test accurately. The usage of standard sample average, application of demagnetized impulse, high bandwidth analog acquisition circuit, technology of high-fidelity corona extraction as well as the opening of non-destructive test reflect the design philosophy "customer-oriented, share the future technology with you" of Tonghui.

According to the output number of channels, TH2883 series is consist of 2 models: TH2883S8-5 and TH2883S4-5. TH2883S8-5 is the ideal product for measurements of multiphase coils. The 8 channel of TH2883S8-5 can be programmed and configured as voltage high-terminal, voltage low-terminal and OFF. Any combination of the configuration condition of the 8 channels and maximum 20 test procedures can be achieved. Also, it can test the coils successively in 8 channels. TH2883S4-5 is provided with 4 channels. It is especially developed on the basis of the 8 channels of TH2883S8-5 for customers who need less sweep channels. USB Host, RS232C, USB Device and LAN interface are provided in TH2883 series products for your quick save of the waveforms and remote control of the instrument.

Corona extraction function

With high-fidelity corona extraction algorithm (patent technology) and high bandwidth analog acquisition circuit, TH2883 series products can fully recover the corona waveform of high-frequency and makes you know more about the insulating property of products.



TH2883S8-5 is provided with 8 channels from CH1-CH8, TH2883S4-5 is provided with 4 channels from CH1-CH4. These channels are installed on the rear panel for convenient use, as shown in the figure:



Transformer, Motor and Winding Test Instruments

B. TH2883S8-5/TH2883S4-5 Impulse Winding Tester

Specifications

Model	TH2883S8-5	TH2883S4-5
Impulse voltage	100V-5000V 10V steps	
Voltage accuracy	±(5% set value +15V)	
Readback accuracy	±(5% actual value +15V)	
Channels	8	4
Inductance test range	≥10uH	
Impulse energy	Max.: 0.25 Joule	
Test speed	6 times/second (single channel, single step)	
Pulses applied	Max.: 32	
Input Impedance	5MΩ	
Display	800x480 dots, 65k color TFT; Waveform Display Range: 600x256	
Waveform Acquisition	Sampling rate: Max. 200Msps, 8 levels adjustable Resolution: 8 Bits Memory Depth: 6k Bytes Average: 1 to 32	
Comparison Methods	Comparison with Standard Waveform: <ul style="list-style-type: none"> • Area Size Comparison • Differential Area Comparison • Corona Discharge Comparison • Differential Phase Comparison 	
Waveform Measurement	Voltage/Frequency/Time	
Trigger Mode	Manual/External/Bus/Internal	
Detection Output	Pass/Fail display/LED/ Alarm	
Measurement Statistics	Statistics for measurement results	
Memory	20 groups of standard waveform data and instrument setup can be stored in internal non-volatile memory. USB flash memory can be used as external memory.	
Interface	Handler, RS232C, USB Device, USB Host, LAN	
Power supply		
Power supply	220V ±10% 50Hz/60Hz ±5%	
Power consumption	≤200VA	
General conditions		
Working environment	Temperature	0°C - 40°C
	Humidity	≤75% R.H.
Safety and electromagnetic compatibility	IEC61010-1:2001, IEC61326-2-1:2005	

Standard Accessories

Three core power cord

TH2881-001 Foot Switch

TH2883-01 High voltage test cable

TH90003R High voltage test cable x 8 (only for TH2883S8-5)

TH90003R High voltage test cable x 4 (only for TH2883S4-5)

Transformer, Motor and Winding Test Instruments

B. TH2883 Series Impulse Winding Tester



TH2883 Series

Features

- The first provider of impulse winding tester from low voltage of 30V to high voltage of 10kV, single channel to multichannel in this industry (Max.:8 channels)
- First winding tester compatible with LXI standard
- Impulse voltage of 30V~10kV
- Minimum inductance value of winding that can be tested: 1uH
- 65k color 7" TFT wide display screen
- Up to 200Mpsps waveform sampling rate
- Maximum measuring speed: 6meas/sec
- Storage depth of 6k Bytes
- High bandwidth analog acquisition circuit
- High-fidelity corona extraction algorithm (patent technology)
- Four waveform comparison methods
- Automatic storage of instrument parameters
- Measurements on voltage, time and frequency
- Amplification, stretch and movement of the waveform for accurate display
- Multi-sample average, average processing of 32 standard waveforms
- Destructive testing for your correct choose of voltage
- Use demagnetized impulse to ensure the conformity of tested waveforms
- Login of different user right for easy management
- 20 groups of instrument files can be stored and automatically loaded
- Screen information can be stored in USB disk (COPY key)
- System firmware can be automatically upgraded through USB-disk
- Selectable Chinese and English operation interfaces
- Four selectable display interface effects
- Foot control interface for easy measurements
- Handler interface to realize on-line operation
- RS232C, USB Device and LAN interface to realize remote control

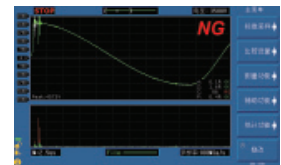
Brief Introduction

■ TH2883 series products are newly developed impulse winding testers by Tonghui. This product line makes Tonghui as the first provider of impulse winding tester from low voltage of 30V to high voltage of 10kV, single channel to multichannel (Max.:8 channels) in this industry. The instrument adopts popular 32 bit CPU and high density SMD technology, 65k color 7-inch TFT wide display screen, bringing ease for your eyes and convenience to your operation. The minimum impulse voltage of 30V, maximum impulse voltage output of 10kV, winding test of 1uH inductance value, sampling rate of 200Mpsps, memory depth of 6k bytes makes your test accurately. The usage of standard sample average, application of demagnetized impulse, high bandwidth analog acquisition circuit, technology of high-fidelity corona extraction as well as the opening of non-destructive test reflect the design philosophy "customer-oriented, share the future technology with you" of Tonghui.

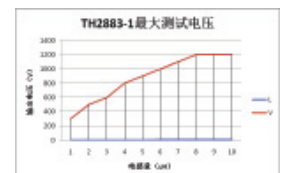
According to the output voltage, TH2883 series is consist of 3 models:TH2883-1, TH2883-5 and TH2883-10. With minimum impulse voltage of 30V and maximum impulse voltage of 1200V, TH2883-1 low inductance impulse winding tester can test windings of 1uH low inductance value. The instrument is the ideal test product for inductance coils used by switching power supply. With impulse voltage of 100V~5000V, TH2883-5 is a standard product for testing all kinds of coils. With maximum impulse output voltage of 10kV, TH2883-10 is appropriate for interturn test of higher insulation and voltage resistance. Standard-equipped USB Host, RS232C, USB Device and LAN interface of TH2883 series product are convenient for your fast storage of graphs and remote control.

Corona extraction function

With high-fidelity corona extraction algorithm (patent technology) and high bandwidth analog acquisition circuit,TH2883 series products can fully recover the corona waveform of high-frequency and makes you know more about the insulating property of products.



The maximum output test voltage of TH2883-1 is related to the load inductance value, as shown in the follow:



Transformer, Motor and Winding Test Instruments

B. TH2883 Series Impulse Winding Tester

Specifications

Model	TH2883-1	TH2883-5	TH2883-10
Impulse voltage	30V-1200V 5V steps	100V-5000V 10V steps	500V-10kV 20V steps
Voltage accuracy	±(5% set value +5V)	±(5% set value +15V)	±(5% set value +25V)
Readback accuracy	±(5% actual value +5V)	±(5% actual value +15V)	±(5% actual value +25V)
Channels	1		
Inductance test range	≥1uH	≥10uH	≥20uH
Impulse energy	Max.: 0.02 Joule	Max.: 0.25 Joule	Max.: 0.5 Joule
Test speed	6 times/second	6 times/second	3 times/second (when 10kV impulse voltage is output)
Pulses applied	Max.: 32		
Input Impedance	5MΩ		
Display	800x480 dots, 65k color TFT; Waveform Display Range: 600x256		
Waveform Acquisition	Sampling rate: Max. 200Msps, 8 levels adjustable Resolution: 8 Bits Memory Depth: 6k Bytes Average: 1 to 32		
Comparison Methods	Comparison with Standard Waveform: <ul style="list-style-type: none"> • Area Size Comparison • Differential Area Comparison • Corona Discharge Comparison • Differential Phase Comparison 		
Waveform Measurement	Voltage/Frequency/Time		
Trigger Mode	Manual/External/Bus/Internal		
Detection Output	OK/NG display/LED/ Alarm		
Measurement Statistics	Statistics for measurement results		
Memory	20 groups of standard waveform data and instrument setup can be stored in internal non-volatile memory. USB flash memory can be used as external memory.		
Interface	Handler, RS232C, USB Device, USB Host, LAN		
Power supply			
Power supply	220V ±10% 50Hz/60Hz ±5%		
Power consumption	≤200VA		
General conditions			
Working environment	Temperature	0℃ - 40℃	
	Humidity	≤75% R.H.	
Safety and electromagnetic compatibility	IEC61010-1:2001, IEC61326-2-1:2005		

Standard Accessories

Three core power cord

TH2881-001 Foot Switch

TH2883-01 High voltage test cable

Transformer, Motor and Winding Test Instruments

B. TH2829X Series Automatic Transformer Test System



TH2829X Series

Features

- 7-inch 16:9 TFT LCD display with a resolution of 800×480
- Simple and elegant appearance
- Easy and flexible panel operation
- Up to 1MHz test frequency, 0.5mHz resolution
- Signal amplitude range: 5mV to 10Vrms, 100μV resolution
- Test speed is up to 75meas/sec.
- Wider impedance test range and better stability for small-signal test
- Built-in 0-100mA/0-10V bias source (standard) or 1A bias source (optional)
- Diode P/N characteristic detection can test all parameters of network transformer.
- Improved high turn ratio and weak coupling transformer test ability
- Improved DCR test ability for low-ohm winding
- One screen is enough to show all test results.
- To display one or two groups of primary and secondary parameters is selectable in LCR test.
- Compatible with TH1901 and TH1805 20-pin transformer scanning fixtures
- Flexible time-labeling system: time of file setting, calibration and deduction can be saved.
- Sort the selected scanning parameters
- Self-test scanning fixture relays and ensure they work well.
- Flexible deviation and deduction modes
- Multiple handling ways for FAIL cases
- Single parameter test cycle can be used to test a separate winding.
- Two separate passwords for administrator and operator can improve test security and reliability.
- Internal memory for up to 200 setting files and external USB memory for more
- Test data and graphs can be saved as CSV, GIF format to USB memory.
- The built-in software provides analysis abilities, such as Cpk, Cp and Ck.
- Bar-code reading function can be used to select a setting file or to manage the type of test products.
- Search functions such as file search, fuzzy search, accurate search, code-bar search are available.
- Parameter setting files are compatible with TH2818X/TH2819X.
- To program setting files through PC
- To upgrade operation softwares of USB HOST and RS232C online
- Multiple interfaces are optional for PC communication.
- To network multiple testers through LAN interface

Brief Introduction

Most switching transformer and network transformer manufacturers have an urgent need for a transformer test system that can achieve more functions, high efficiency and accurate test. On the basis of thorough market research and analysis, advanced impedance test technology and rich experience on the development of TH2818X&TH2819X automatic transformer test system, Tonghui has launched a new series of automatic transformer test system—TH2829X series which combines faster test speed, higher accuracy and efficiency. TH2829X will be a great assistant for your transformer tests.

Transformer, Motor and Winding Test Instruments

B. TH2829X Series Automatic Transformer Test System

Specifications

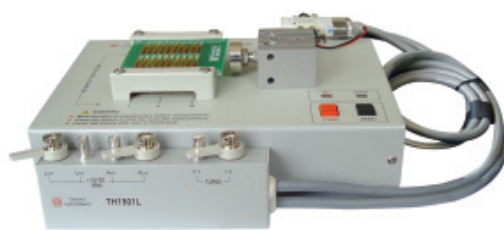
Model	TH2829AX	20-Pin Transformer Scanning Test +LCR Test (Optional) TH2829X provides a 10-hour function-experience for LCR test. The experience version will be automatically turned off after 10 hours of using. If you do need this function, please contact our salesmen or distributors and provide your detailed instrument serial number.																			
	TH2829BX																				
	TH2829CX																				
Basic accuracy (See operation manual)	LCRZ	0.05%																			
	DCR, Turn ratio	0.1%																			
	Calibration	Warm-up time ≥ 30 minutes, Environment temperature: $23\pm 5^{\circ}\text{C}$, Signal voltage: $0.3\text{Vrms} - 1\text{Vrms}$ Zeroing: After OPEN or SHORT Length of test cable: 0 m																			
Frequency of test signal	TH2829AX	Range: 20Hz—200kHz	Min. resolution: 0.5mHz Accuracy: 0.01%																		
	TH2829BX	Range: 20Hz—500kHz																			
	TH2829CX	Range: 20Hz—1MHz																			
Output impedance of signal source		10 Ω , 30 Ω , 50 Ω , 100 Ω (selectable), $\pm 1\%$ @1kHz																			
Level of AC test signal	Normal level	5mV—10Vrms	Min. resolution: 100 μV , accuracy: 10%xset voltage+2mV																		
		50 μA —100mArms	Min. resolution: 1 μA																		
	Constant level	10mV—5Vrms	Min. resolution: 100 μV , accuracy: 10%x set voltage+2mV																		
		100 μA —50mArms	Min. resolution: 1 μA																		
DC bias voltage source	0V— $\pm 10\text{V}$	Min. resolution: 0.5mV, accuracy: 1%x set voltage+5mV																			
	0mA— $\pm 100\text{mA}$	Min. resolution: 0.5 μA																			
DC constant current source (optional) (for diode P/N characteristic test)		0 — $\pm 120\text{mA}$	Min. resolution: 0.5 μA , accuracy: 1%x set voltage+0.2mA Load open voltage: $\leq 5\text{V}$																		
DC bias current source (optional, TH2901)		0 — $\pm 1\text{A}$	Min. resolution: 0.5mA, accuracy: 1%x set voltage+2mA Load open voltage: $\leq 9\text{V}$																		
Transformer test parameters		Turn Ratio, Turns, Phase, L, C, Lk, Q, ACR, DCR, Balance, Pin Short, Diode P/N																			
LCR test parameters		Z , Y , C, L, X, B, R, G, D, Q, θ , DCR, Turn-Ratio, Phase, Lk																			
Display range of DCR		0.00001 Ω — 999.999 M Ω																			
Display range of turn ratio		1:0.001 — 1000:1																			
Display ranges of LCR parameters		<table border="0"> <tr> <td> Z , R, X</td> <td>0.00001Ω — 99.9999MΩ</td> </tr> <tr> <td> Y , G, B</td> <td>0.00001μs — 99.9999s</td> </tr> <tr> <td>C</td> <td>0.00001pF — 9.99999F</td> </tr> <tr> <td>L</td> <td>0.00001μH — 99.9999kH</td> </tr> <tr> <td>D</td> <td>0.00001 — 9.99999</td> </tr> <tr> <td>Q</td> <td>0.00001 — 99999.9</td> </tr> <tr> <td>θ(DEG)</td> <td>-179.999$^{\circ}$ — 179.999$^{\circ}$</td> </tr> <tr> <td>θ(RAD)</td> <td>-3.14159 — 3.14159</td> </tr> <tr> <td>$\Delta\%$</td> <td>-999.999% — 999.999%</td> </tr> </table>		Z , R, X	0.00001 Ω — 99.9999M Ω	Y , G, B	0.00001 μs — 99.9999s	C	0.00001pF — 9.99999F	L	0.00001 μH — 99.9999kH	D	0.00001 — 9.99999	Q	0.00001 — 99999.9	θ (DEG)	-179.999 $^{\circ}$ — 179.999 $^{\circ}$	θ (RAD)	-3.14159 — 3.14159	$\Delta\%$	-999.999% — 999.999%
Z , R, X	0.00001 Ω — 99.9999M Ω																				
Y , G, B	0.00001 μs — 99.9999s																				
C	0.00001pF — 9.99999F																				
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θ (DEG)	-179.999 $^{\circ}$ — 179.999 $^{\circ}$																				
θ (RAD)	-3.14159 — 3.14159																				
$\Delta\%$	-999.999% — 999.999%																				
Diode test	Positive voltage	0 — 9.9999 V																			
	Negative current	0 — 99.999 mA																			
Measurement speed($\geq 10\text{kHz}$)		Fast: 75meas/ sec(13ms), Medium: 11meas/ sec (90ms), Slow: 2.7meas/ sec (370ms)																			
Equivalent circuit		Serial, Parallel																			
Range mode		Auto, Hold																			
Trigger mode		Internal, Manual, External, Bus																			
Average times		1 — 255																			
Calibration function		Open, Short, Load																			
Math operation		Direct reading, ΔABS , $\Delta\%$																			
Delay time		0 — 60.000s, 1ms resolution																			
Comparator	10-bin sorting, BIN1~BIN9, NG, AUX																				
	Bin counter																				
	PASS/FAIL on front panel, LED indication on scanning fixture																				
Memory		200 sets of LCRZ setting files 200 sets of setting files for transformer scanning 10 sets of GIF files																			

Transformer, Motor and Winding Test Instruments

B. TH2829X Series Automatic Transformer Test System

Interface	Control interface	HANDLER (optional) on rear panel SCANNER(compatible with TH1901A/B, TH1805A/B transformer scanning fixtures)
	Communication interface	LAN, GPIB (optional), USB HOST, RS232C
	Memory interface	USB HOST (USB memory or bar-code scanning)
General Specifications		
Operating environment	Temperature	0° C – 40° C,
	Humidity	≤ 90%RH
Power supply	Voltage	99V-121V AC, 198V-242V AC
	Frequency	47Hz – 63Hz
Consumption		Max. 80 VA
Dimension (W×H×D)		430mm×185mm×473mm
Weight		Approx. 13 kg

Specifications for TH1901A/B, TH1805A/B scanning test fixtures



TH1805A/B



TH1901A/B

Output-pin		20-Pin
Soft-pin output		Pin1, Pin20, Pin10, Pin11 are used to test 4 transformer soft-pins
distributed capacitance of scanning output-pin	TH1901A/B	2.0pF—6.0pF
	TH1805A/B	1.0pF—2.5pF
Transformer locking mode	TH1901ATH1805A	Pneumatic
	TH1901BTH1805B	Manual
Control test on panel		START, RESET, PASS/FAIL LED indicators
Input/ output signals on Handler interface (output from scanning fixtures)		Power: +5V,GND Input: START, RESET Pass/Fail signal Output: PASS, FAIL TTL level
Working power output of magnetic valve		+24V
External start mode		Foot switch
TH26016 scanning control interface		30-pin scanning control connecting cable
Working temperature and humidity		0° C-40° C, ≤ 90%RH
Dimensions (W×H×D)	TH1901A/B	270mm×186mm×62mm
	TH1805A/B	270mm× 230mm×62mm
Weight	TH1901A/B	Approx. 3.1kg
	TH1805A/B	Approx. 3.6kg

Ordering Information

TH2829AX/TH2829BX/TH2829CX Automatic Transformer Test System

Instrument Accessories

TH26005B 4-terminal test fixture
 TH26011A 4-terminal Kelvin test clip leads
 TH26004B 2-terminal test clip leads

TH26016 Transformer scanning control cable
 TH1901-001 Foot switch
 TH26010 Gilding short board
 TH1901B Manual transformer scanning fixture

Power Electric Tester

C. TH6201/6202/6203/6212/6213 DC Power Supply

Features

- Fresh and simple system settings with Chinese and English operation interfaces
- High resolution: 24-bit color 4.3-inch TFTLCD, resolution: 480 x 272
- Linear design and double range output
- High precision and high stability, low ripple and low noise
- 1/2 2U super mini size and output and sampling terminal on the front and rear panel
- Powerful programming ability
100 groups of setting state memory saving and calling
10 trigger files, 100 test sequences per file, loop output of programming
- Timing output: time (0.1-99999.9s)
- Use rotary knob and numeric keyboard to set the voltage, current and output time
- Panel function button with backlight display
- Remote measurement function, compensation for line voltage drop
- Output control switch
- Copy screen function
- Over voltage, over current protection
- Intelligent temperature control fan
- Support standard SCPI communication protocol
- Software monitoring via computer
Upgrade instrument firmware via USB flash



TH6202

Rack mount (mm): 215(W) x 88(H) x 396(D)
Dimension (mm): 236(W) x 111(H) x 426(D)
Net weight: 8.1 kg

Standard RS232 USB HOST USB DEVICE

option GPIB

Application

- R & D and design verification common test
- Production line table routine testing and maintenance
- Automated device integration testing
- Solar photovoltaic simulation test
- New power car simulation test
- Teaching laboratory

Specifications

Model	TH6201		TH6202		TH6203		TH6212		TH6213		
	Channel/Range	Range1	Range2	Range1	Range2	Range1	Range2	Range1	Range2	Range1	Range2
Rated output (0°C-40°C)	Voltage	0-20V	0-8V	0-32V	0-15V	0-72V	0-32V	0-32V	0-15V	0-72V	0-32V
	Current	0-5A	0-10A	0-3A	0-6A	0-1.5A	0-3A	0-6A	0-12A	0-3A	0-6A
	Power	100W	80W	96W	90W	108W	96W	192W	180W	216W	192W
Load regulation ± (% Output + Bias)	Voltage	≤0.01% + 4mV		≤0.01% + 3mV		≤0.01% + 3mV		≤0.01% + 6mV		≤0.01% + 5mV	
	Current	≤0.01% + 2mA						≤0.01% + 5mA		≤0.01% + 4mA	
Power regulation ± (% Output + Bias)	Voltage	≤0.01% + 4mV		≤0.01% + 3mV		≤0.01% + 3mV		≤0.01% + 6mV		≤0.01% + 5mV	
	Current	≤0.01% + 2mA						≤0.01% + 5mA		≤0.01% + 4mA	
Programming resolution	Voltage	1mV									
	Current	0.1mA									
Read-back value resolution	Voltage	1mV									
	Current	0.1mA									
Year accuracy (25°C ± 5°C) ± (% Reading + Bias)	Programming	Voltage		≤0.04% + 8mV							
		Current		≤0.1% + 5mA							
	Read-back	Voltage		≤0.04% + 8mV							
		Current		≤0.1% + 5mA							
Ripple and Noise (20Hz-20MHz)	Normal mode voltage	≤3mVp-p/1mVrms		≤4mVp-p/1mVrms		≤3mVp-p/1mVrms		≤4mVp-p/1mVrms			
	Normal mode current	<9mArms		<7mArms		<6mArms		<10mArms		<8mArms	
	Common mode current	<1.5μArms									
Transient response	<50uS (the time required for the output returns within 75mV when the output current changes from full scale to half or from half to full scale)							<50uS (the time required for the output returns within 120mV when the output current changes from full scale to half or from half to full scale)		<50uS (the time required for the output returns within 75mV when the output current changes from full scale to half or from half to full scale)	
Rise time (10% — 90%)	<90ms							<120ms		<180ms	
Fall time (90% — 10%)	<150ms		<200ms		<250ms		<350ms		<250ms		
Series and parallel set value accuracy	Voltage	-----									
	Current	-----									
Timer	0.1 ~ 99999.9 seconds										
Memory	10 groups of trigger output, 100 steps for each group, 100 sets of setting memory										

Power Electric Tester

C. TH6402/6402A/6412/6413 Triple Programmable DC Power Supply

Features

- Fresh and simple system settings with Chinese and English operation interfaces
- High resolution: 24-bit color 4.3-inch TFTLCD, resolution: 480 x 272
- Linear design and triple channel output
- High precision and high stability, low ripple and low noise
- 1/2 2U super mini size and output and sampling terminal on the front and rear panel
- Programmable output of voltage and current
- Timing output: time (0.1-99999.9s)
- Three-channel independent adjustment
- Simultaneously display of voltage, current, power and timing output time for three-channel
- Support series, parallel or synchronous output between channels
- Use rotary knob and numeric keyboard to set the voltage, current and output time
- Remote measurement function, compensation for line voltage drop
- Output control switch
- Fully isolated circuit and support positive and negative reverse connection
- Copy screen function
- Over voltage protection
- Intelligent temperature control fan
- Support standard SCPI communication protocol
- Upgrade instrument firmware via USB flash
- Software monitoring via computer

Application

- R & D and design verification common test
- Production line table routine testing and maintenance
- Automated device integration testing



NEW

TH6402

Rack mount (mm): 215(W) x 88(H) x 457(D)
Dimension (mm): 235(W) x 105(H) x 487(D)
Net weight: 13kg

Standard RS232 USB HOST USB DEVICE (TH6402A only USB HOST)

option GPIB

- Solar photovoltaic simulation test
- New power car simulation test
- Teaching laboratory

Specifications

Model	TH6402A			TH6402			TH6412			TH6413				
Channel/Range	Range1	Range2	Range3	Range1	Range2	Range3	Range1	Range2	Range3	Range1	Range2	Range3		
Rated output (0°C-40°C)	Voltage	0-30V	0-5V	0-30V	0-6V	0-30V	0-6V	0-60V	0-6V	0-60V	0-6V	0-6V		
	Current	0-3A	0-3A	0-3A	0-5A	0-6A	0-5A	0-3A	0-5A	0-3A	0-5A	0-5A		
	Power	90W	15W	90W	30W	180W	30W	180W	30W	180W	30W	30W		
Load regulation ± (% Output + Bias)	Voltage	≤0.01% + 3 mV			≤0.01% + 3 mV									
	Current	≤0.1% + 3 mA			≤0.01% + 3 mA									
Power regulation ± (% Output + Bias)	Voltage	≤0.01% + 3 mV			≤0.01% + 3 mV									
	Current	≤0.1% + 3 mA			≤0.01% + 3 mA									
Programming resolution	Voltage	10mV			1mV									
	Current	1mA			0.1mA									
Read-back value resolution	Voltage	10mV			1mV									
	Current	1mA			0.1mA									
Year accuracy (25°C ± 5°C) ± (% Reading + Bias)	Programming	Voltage	≤0.05% + 20 mV			≤0.03% + 10 mV								
		Current	≤0.2%+5mA			≤0.1%+5mA			≤0.1%+8mA			≤0.1%+5mA		
	Read-back	Voltage	≤0.05% + 20 mV			≤0.03% + 10 mV								
		Current	≤0.2%+5mA			≤0.1%+5mA			≤0.1%+8mA			≤0.1%+5mA		
Ripple and Noise (20Hz-20MHz)	Normal mode voltage	≤1mVrms/ 3mVp-p			≤1mVrms / 4mVp-p									
	Normal mode current	≤3mArms			≤5mArms			≤4mArms			≤5mArms			
	Common mode current	-----												
Series and parallel set value accuracy	Voltage	≤0.02% + 5 mV						≤0.02% + 10mV						
	Current	≤0.1% + 20mA			≤0.1% + 30mA									
Timer	0.1 ~ 99999.9 seconds													
Memory	40 groups of settings files / channels													

Programmable DC Electronic Load

C. TH8101/TH8103/TH8101A/TH8103A/TH8103B Programmable DC Electronic Load

Features

- Bright VFD display
- High resolution: 0.1mV/0.1mA
- Dynamic mode: up to 10KHz
- Four working modes: CV/CC/CR/CW
- CR-LED test function can fully simulates the LED power supply load characteristics
- Battery test mode can automatically records the discharge time and capacity
- OCP and OPP test functions can capture the critical parameters accurately
- List test can make flexible combinations of test mode and time to determine the test results
- Short-circuit function
- Power off memory function
- Remote measurement function
- Use of rotary code switch for easy operation
- Intelligent fan control
- Built-in buzzer warning function
- Memory storage for 100 groups

NEW



Standard RS232 SENSE

Application

- Power
 - Chargers, switching power supply, communication power, LED drivers, cell phone batteries, portable power source
- New energy
 - Solar cells, new power cars, electric bicycles
- Electronic power components
 - Fuse / Connector / Relay / Sensor
- Automated equipment integration testing

Specifications

Model		TH8101	TH8103	TH8101A	TH8103A	TH8103B
Rated value (0°C-40°C)	Input Voltage	150V	150V	500V	500V	120V
	Input Current	30A	30A	15A	15A	120A
	Input Power	150W	300W	150W	300W	300W
Operation Mode	Constant Voltage (CV), Constant Current (CC), Constant Power (CW), Constant Resistance (CR)					
Dynamic mode (CC mode)	Continuous, Pulse, Toggle, List					
Measurement parameters	Voltage, Current, Power					
Protection range	Over power, Over current, Over voltage, Over temperature					
Other functions	Automatic test, remote compensation, battery discharge test, CR-LED test, over power test, over current test					
Memory	100 groups					

Digital Power Meter

C. TH3311 Series Digital Power Meter

Features

- 24-bit color 4.3-inch 480 x 272 color LCD screen, English and Chinese interface
- PLL (phase-locked loop) technology, faster measurement speed
- AC and DC test
- Wide current measurement range
- Input signal waveform display: Voltage and current can be displayed simultaneously or separately
- Higher measurement accuracy and faster data update rate
- Rich display mode:
 - Traditional four-window display
 - Full parameter full screen display
- Higher frequency test range and wider frequency response
- Multiple harmonic analysis display modes: List mode, Histogram
- Data Record Function

Application

- Appliances
 - TV, refrigerator, air conditioner, washing machines, vacuum cleaners, water heaters and other power efficiency testing
- Industry
 - Electric machinery, motor, transformer, charger, power and other power test



Standard RS232 USB HOST USB DEVICE HANDLER

option RS485

Rack mount (mm):215mm(W)x88mm(H)x335mm(D)
Dimension (mm):235mm(W)x105mm(H)x360mm(D)
Net weight: 3.6kg

- Lighting
 - Lighting appliances, LED lamps and other power test
- New energy
 - Photovoltaic modules, electric vehicles, wind power and other power test

Specifications

Model	TH3311	TH3312	TH3321	TH3331	
Display	4.3-inch color TFT display				
Connection mode	Single phase				
Basic features	AC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	DC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Precise	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Micro current	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Wide current	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Harmonic Analysis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Display mode	Power test	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Oscillogram	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Basic accuracy	Harmonic histogram	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Range	0.15% reading + 0.2% range + 1 digit			
Voltage	Resolution	5V-75V/150V/300V/600V			
	Resolution	0.01V			
Current	Range	10mA/30mA/100mA/400mA/1.5A/5A/20A	1mA/3mA/10mA/40mA/150mA/500mA/2A	10mA/30mA/100mA/400mA/1A/3A/10A/40A	
	Minimum resolution	1mA	1uA	1mA	
Power	Range	0.01W-12kW	0.01mW-1.2kW,6-class energy efficiency	0.01W-24kW	
	Minimum resolution	0.01W	0.001mW	0.01W	
Frequency	Range	Fundamental frequency range : DC/45Hz-400Hz, Bandwidth : 21kHz, filter 5kHz Minimum resolution			
	Minimum resolution	0.01Hz			
Power factor	Range	0.001-1.000			
	Minimum resolution	0.001			
Harmonic Analysis	----- ± (5% of reading + 0.3% of range)				
Power integral	Range	0-99999kWh			
	Resolution	0.001Wh			
	Accuracy	± (0.2% of reading + 0.3% of range)			
Power timing	Range	0-9999:59:59			
	Resolution	1s			
	Accuracy	±0.05%			
Measurement speed	3 times / sec DC: 3 times / sec, harmonic function on: 2 times / sec				
Lock function	Data lock				
Range mode	AUTO / MAN				
Input impedance	≥ 1MΩ (all voltage profiles)				
Comparator	limit sound, light alarm				
Output	Relay output				
Communication Interface	RS232C/RS485、USB DEVICE、USB HOST、HANDLER				
Storage	USB waveforms, set files				

AC Power Supply

E. TH7100 Series Programmable AC Power Supply

Features

- 24-bit color 4.3-inch 480 × 272 color LCD screen, Chinese and English interfaces
- Linear output design
- Flexible and convenient operation: numeric keypad, coarse and fine adjustment knob
- Manual / program control mode output function, timing output function, dimming mode output function, surge and notch function
- Front panel output function
- Boot hold function
- Store setting parameters and test results
- Support USB to upgrade the instrument firmware
- Multiple protection modes: set the current protection (HI-A) Overvoltage Protection (OVP), Low Voltage Protection (LVP) Overcurrent protection (OCP), over power protection (OPP) Over temperature protection (OTP)
- Two-gear temperature to control fan speed
- Remote input and output functions:
Remote input: input control of 7 groups of memory
Remote output: PASS, FAIL, PROCESSING, internal output switch
- Memory capacity:
Manual: 50 groups
Program control: 50 groups, 9 steps / group

Application

- Motors and transformers
- Electronic production design
- Lighting
- Aerospace military
- Network communication



TH7110

Dimension(mm): 430(W)×88(H)×600(D)

Weight: 40kg

Standard RS232 USB HOST USB DEVICE REMOTE

Option GPIB

- Audio and video equipment
- Monitoring equipment
- Power specifications simulation of different countries
- Electromagnetic compatibility equipment

Specifications

Model	TH7105	TH7110	TH7120		
Output parameters					
Rated power	500W	1000W	2000W		
Output voltage	0~300V				
Output frequency	45.0Hz~500Hz				
Maximum current (RMS)	0-150V	4.2A	8.4A	16.8A	
	0-300V	2.1A	4.2A	8.4A	
Maximum current (Peak)	0-150V	16.8A	33.6A	67.2A	
	0-300V	8.4A	16.8A	33.6A	
Total harmonic distortion (THD)	at 45.0 ~ 500Hz, ≤ 0.5% (resistive load)				
Common parameters	Phase	1Ø/2W			
	Crest factor	≥4			
	Linearity adjustment rate	0.1%±10%			
	Load regulation	0.5%(resistive load)			
	Response time	<100uS			
Setting parameters					
Voltage	0 ~ 300V	Resolution	0.1V	Accuracy	±0.5%+2 digits
Frequency	45.0Hz ~ 500Hz		<100Hz: 0.1Hz ; ≥100Hz: 1Hz		±0.02%
Initial / final phase angle	0 ~ 359°		1°		±1°(45 ~ 65Hz)
Measurement parameters					
Voltage	0 ~ 300V	Resolution	0.1V	Accuracy	±0.5%+2 digits
Frequency	45.0Hz ~ 500Hz		<100Hz: 0.1Hz ; ≥100Hz: 1Hz		±0.1Hz
Current	0-150V	0.000 ~ 4.200A		0.000 ~ 16.800A	
	0-300V	0.000 ~ 2.100A		0.000 ~ 8.400A	
	Resolution	0.001A			
	Accuracy	±0.5%+5 digits			
Peak current	0-150V	0.00 ~ 16.80A		0.00 ~ 67.20A	
	0-300V	0.00 ~ 8.40A		0.00 ~ 33.60A	
	Resolution	0.01A			
	Accuracy	±5%+2 digits			
Power	Range	0 ~ 500W	0 ~ 1000W	0 ~ 2000W	
	Resolution	0.1W			
	Accuracy	±0.6%+5 digits			
Power factor	0.001-1.000	Resolution	0.001	Accuracy	±2%+2 digits

Cable/Harness Tester

D. TH8601/A Cable/Harness Tester

Features

- 7" TFT LCD truecolor display screen, 16-bit , 800X480 resolution
- Cotex_M3 processor core
- Selectable Chinese and English operation interface
- AC: test frequency of 50Hz-300kHz, accuracy of 0.02%
- DC: test range of 0V-5V and accuracy of 10%
- Maximum 128 pin for sweeping and testing
- Insulation resistance of more than 10G
- Selectable RS232, RS485, GPIB, USB, LAN and Handler interfaces
- USB interface can be used for storage of setup files and test data as well as upgrade of the program



TH8601/A

Brief Introduction

■ TH8601 series four-terminal wire tester is multifunctional and automatic test system of wire comprehensive parameters, which is exclusively used in quality and connection reliability test for various kinds of cables, wiring harness and winding displacement. This system provides programmable constant current & constant voltage source and high-voltage power supply. The test items include continuity, passive element (inductance, resistance, capacitance and diode), AC/DC withstand voltage, insulation resistance and all kinds of high and low voltage parameters. Adopting advanced LCR figure sampling and channel switching technique of high speed and long life, this system significantly improves the test precision, speed and working life. Also, this system adopts high and low voltage isolation technique, so the testing performance of the insulation resistance is greatly advanced.

Various interfaces of RS232, RS485, GPIB, USB, LAN and handler are convenient for users to apply to automatic detect and production line.

Specifications

Parameters	Range	Specific Index	
Test Pin	TH8601	128 Pin	
	TH8601A	64 Pin	
Test signal source	Sine signal source: 50Hz-300kHz, Programmable capacitance component test 1Vrms	frequency: 0.02%, 1Vrms, Voltage 10%	
	Programmable DC signal source:5Vdc MAX	10%	
	Programmable DC current source:1-20mA	10%	
	Programmable DC high voltage source:1mA Max	5V-100V	10%±1 digit
		100Vdc-1000Vdc	5%±1 digit
	Programmable AC high voltage source:10mA Max	50V-100Vac	10%±1 digit
100Vac-750Vac		5%±1 digit	
Channel plate on-off scanning signal source:5Vdc			
Test speed	Transient open and short circuit (128 points) sample standard:10ms	indicates the time of sweeping 64 NET O/S at a time	
	Basic value of testspeed:100ms	Indicates the measurement time of single passive component or the total measurement time of one cable	
Capacitance measurement	Range: 0.1pF-300pF (sample 10pFmin)	10%±3 digit	
	Range: 300pF-1000μF	5%±3 digit	
Resistance measurement	10mohm-1Mohm	5%±1 digit	
Cond. /Interval cond.	10mohm-50ohm	5%±5 digit	
Open and short circuit	1kohm-50kohm	10%±1 digit	
Diode Testing	0-10V	10%±1 digit	
Insulation resistance	1Mohm-100Mohm	5%±5 digit	
	100Mohm-1000Mohm	10%±5 digit	
DC leakage current	1μA-1000μA	5%±2 digit	
AC leakage current	0.01mA-5mA	10%±5 digit	

Safety Tester/Hipot Tester

E. TH9520 Winding Component EST Tester

Features

- High-resolution: 7-inch 800 × 480 dots, TFT-LCD display
- Six-in-one comprehensive analysis, one machine can achieve the comprehensive test needs of coil components
 - High-power AC withstand voltage analysis
 - DC voltage analysis
 - Insulation resistance analysis
 - Turn-to-turn insulation analysis
 - DC low resistance analysis
 - Inductance test analysis
- Eight-channel switching technology that can test eight different components simultaneously
- 500VA power AC withstand voltage design, in line with UL 1004-1 motor test standards
- Insulation resistance test: maximum voltage can reach 5kV
- DC / IR automatic rapid discharge function
- Turn-to-turn insulation test: sampling ADC promoting to 12bit, 200MHz sampling rate
- DC low resistance test: support DC resistance calculation of Δ Y-type motor
- DC low resistance temperature conversion function and optional temperature sensor
- Inductance test analysis of up to 100kHz frequency
- Quick contact check function to realize rapid detection of test fixture
- New-type high voltage test fixture
 - Four-terminal Kelvin test of DC low resistance and inductance
- Test steps up to 32
- Internal file storage and external U disk file saving



NEW

TH9520

Dimension(mm): 430(W)×177(H)×570(D)

Weight: 25kg

Standard RS232 USB HOST USB DEVICE HANDLER LAN

Option GPIB

Application

- Comprehensive analysis test of motors
- Comprehensive analysis test of transformers
- Comprehensive test of inductors
- Comprehensive analysis test of charging pile inductance characteristics
- Comprehensive analysis test of magnetic components

Specifications

Model	TH9520					
Number of channels	8					
Withstand test						
Output voltage	AC	0.050 - 5.000kV, Step 0.001kV, Frequency 50Hz/60Hz $\pm 0.1\%$, sinusoidal waveform				
	DC	0.050 - 6.000kV, Step 0.001kV				
	Accuracy	$\pm (1\% \text{ set value} + 0.1\% \text{ of full scale})$				
Current range	Adjustment rate	$(1\% \text{ output} + 0.1\% \text{ of full scale})$ rated power				
	AC	Voltage $\leq 4.000\text{kV}$: 0.001mA - 120.0mA, Voltage $> 4.000\text{kV}$: 0.001mA - 100.0mA				
	DC	0.1 μ A - 20.00mA				
Output power	Accuracy	$\pm (1\% \text{ of reading} + 0.5\% \text{ of full scale})$, AC Real: $\pm (1\% \text{ of reading} + 5\% \text{ of total current reading} + 5 \text{ digits})$				
		500VA				
ARC	AC	1.0mA - 20.0mA, 0.1mA Step				
	DC	1.0mA - 10.0mA, 0.1mA Step				
Insulation resistance test						
Output voltage	0.050 - 5.000kV, Step 0.001kV Accuracy: $\pm (1\% \text{ of set value} + 0.1\% \text{ of full scale})$					
Resistance test range	0.100M Ω - 99.99G Ω Resolution: 0.1M Ω					
Measurement accuracy	$\geq 500\text{V}$	1.000M Ω - 1.000G Ω , $\pm (3\% \text{ of reading} + 5 \text{ digits})$				
		1.000G Ω - 10.00G Ω , $\pm (7\% \text{ of reading} + 5 \text{ digits})$				
		10.00G Ω - 99.99G Ω , $\pm (10\% \text{ of reading} + 5 \text{ digits})$				
	$< 500\text{V}$	0.100M Ω - 1.000G Ω , $\pm (7\% \text{ of reading} + 5 \text{ digits})$				
	1.000G Ω - 99.99G Ω , for reference only, no accuracy requirements					
Time setting						
Rise time	OFF, 0.1s - 999.9s, Step 0.1s					
Test time	0.1s - 999.9s, Step 0.1s					
Fall time	OFF, 0.1s - 999.9s, Step 0.1s					
Waiting time	OFF, 0.1s - 999.9s, Step 0.1s					
Turn-to-turn insulation test						
Output pulse voltage	0.01kV - 6.000kV, 0.01kV Step, $\pm 5\%$ set value $\pm 15\text{V}$					
Inductance test range	$\geq 10\mu\text{H}$					
Pulse energy	up to 0.36 Joule					
Waveform Sampling	Sampling rate: 12bit, Sampling speed: 200MHz, adjustable 8-level, Memory depth: 12k Byte, Sample average: 1 - 32					
Number of applied pulses	up to 32					
Judgment method	Area comparison, area difference comparison, corona discharge, phase difference comparison					
DC low resistance test / Δ and Y type resistance test						
Test signal	100 m Ω 1A, 1 Ω 0.5A, others $\leq 3\text{V}$					
Test range	0.01m Ω - 1.2M Ω					
Resistance	Range	0.01m Ω - 120.00m Ω	0.1m Ω - 1200.0m Ω	0.001 Ω - 12.000 Ω	0.01 Ω - 120.00k Ω	0.1k Ω - 1200.0k Ω
	Accuracy	$\pm 0.5\%$ of reading + 0.04% of full scale	$\pm 0.3\%$ of reading + 0.03% of full scale	$\pm 0.2\%$ of reading + 0.03% of full scale	$\pm 0.1\%$ of reading + 0.03% of full scale	$\pm 0.2\%$ + 0.03% of full scale)
Inductance test						
Test parameters	Ls, Lp, Rs, Rp, Q					
Measurement accuracy	0.5%					
Test frequency	100Hz, 120Hz, 1kHz, 10kHz, 100kHz					
Test signal level	1.0Vrms, 10% accuracy					

Safety Tester/Hipot Tester

E. TH9010/A Parallel 8-channel/4-channel Hipot Tester

Features

- 7-inch 800×480 dot-matrix, TFT-LCD display
- Chinese and English operation interface and concise interfacet operation design
- 8-channel withstand voltage parallel output and test efficiency increased eight times
- Parallel 8-channels and each channel is non-interfering
- Each channel can be extended by a four-channel scanner
- Support 4 four-channel scanner at most and one instrument can be extended to 128 channels
- Four-channel scanner supports contact check function
- Single output power: AC:5kV/10mA; DC:6kV/5mA
- Insulation resistance test voltage: 0.10kV -1.00kV
- Enhanced security: electric shock protection
- Rapid discharge and arc detection function
- Arbitrarily set voltage rising time and test time in 999.9 seconds; freely set waiting time for insulation resistance
- Key-Lock Function
- Display the PASS/FAIL result of each channel independently and the total result simultaneously
- Store 100 test files and each file can hold at most 20 testing steps

Application

- Automated test system
- Household appliances
- Transformers, motors
- Electrical equipment
- Lighting industry
- New energy vehicles
- Electronic components
- Medical equipment

Specifications

Model	TH9010		TH9010A
Number of units	8 separate channel		4 separate channel
Withstanding voltage test			
Output voltage	AC	0.10kV — 5.00kV	±2%
	DC	0.10kV — 6.00kV	±2%
Current test	AC	0mA — 10.00mA	±(2% readings + 5 digits)
	DC	0uA — 5.00mA	±(2% readings + 5 digits)
Range	Rapid discharge function	Discharge after test ends (DCW)	
Insulation resistance test			
Output voltage	0.10kV — 1.00kV ±2%		
Resistance test range	0.1MΩ — 10.0GΩ		
Resistance test accuracy	0.10MΩ — 999MΩ ±10%		
	1.00GΩ — 10.0GΩ ±20%		
Discharge function	Discharge after test ends		
Arc detection			
Test range	Corresponding current	1mA — 20mA	
General specification			
Voltage rising time	0.1s — 999.9s		
Test time setting (AC/DC)	0.2s — 999.9s		
Voltage fall time	0.1s — 999.9s		
Waiting time (IR)	0.2s — 999.9s		
Time accuracy	±(1%+0.1s)		
Memory	Store 100 test files and each file can hold at most 20 testing steps		
Interface			
Standard	HANDLER, RS232, USB DRV, USB HOST		

NEW



TH9010

Dimension(mm): 430(W)×177(H)×630(D)

Weight: 40kg

Standard RS232 USB HOST USB DEVICE HANDLER

Option GPIB



TH90101 8-unit four-channel scan expander

TH90101A 4-unit four-channel scan expander

Safety Tester/Hipot Tester

E. TH9110/A Hipot Tester

NEW

Features

- High power: AC 5kV / 100mA / 500VA output
- High security: High-voltage floating output design, in line with the safety requirements of EU standards EN50191 (only TH9110) Electric shock protection function
- High resolution: 7 inch 800 × 480 dots, TFT-LCD display
- Brand-new operation interface, Chinese and English menu
- ARC detection function
- Contact check function (OSC)
- Breakdown voltage test function
- One-key screen capture function
- One-key recording function
- Rear panel output function to facilitate automated production line testing
- Storage: 100 files, up to 50 steps per file



TH9110/A

Dimension(mm): 430(W)×132(H)×500(D)

Weight: 21kg

Standard RS232 USB HOST USB DEVICE HANDLER LAN

Option GPIB

Application

- Winding devices
Transformers, generators/motors and other products needing high-power withstand voltage test and analysis, such as different types of motor stator, rotor and other high parasitic capacitance products
- Electronic components
Capacitors, coils, cores, choke coils, filters and so on
- Electrical products
Household appliances, information products, audio-visual equipment, electric heating appliances, lighting equipment
- Non-electrical products
Withstand voltage and insulation resistance test for wire, non-woven fabric, insulation materials and so on
- New energy automobile
- Automated test system
- Medical equipment

Specifications

Model	TH9110	TH9110A
Withstand voltage test		
Output voltage	AC	0.05 - 5kV Load Variance: 1% Accuracy: 1% Resolution: 2V
	DC	0.05 - 6kV Load Variance: 1% Accuracy: 1% Resolution: 2V
Current test range	AC	0.001mA - 120mA(Voltage≤4kV); 0.001mA - 100mA(Voltage>4kV) Accuracy: 1% Resolution: 1μA
	DC	0.0001mA - 25mA Accuracy: 1% Resolution: 0.1 μA
Output power	500VA	
Insulation resistance test		
Output Voltage	DC : 0.05 - 5kV Resolution: 2V Accuracy: 1% of set value + 0.1% full scale	
Resistance test range	1MΩ-50.0GΩ Resolution: 0.1MΩ	
Discharge function	Automatic discharge after the end of the test	
ARC detection	AC	1mA - 20mA
	DC	1mA - 10mA
Contact check function	OSC open and short: 600Hz, 0.1s	
Security features		
High voltage floating output	Leakage current <3 mA	-----
Electric shock protection	0.5mA ±0.25mA	
Other protection	Start protection, panel operation password protection	
Alarm indication	PASS: short tone, green light; FAIL: long tone, red light	
Memory	100 groups, 50 steps per group	
General parameters		
Voltage rise time	0.1s — 999.9s	
Test time setting(AC/DC)	0.3s — 999s	
Voltage fall time	0.1s — 999.9s	
Waiting time (IR)	0.2s — 999.9s	
Time accuracy	±(1%+0.1s)	

Safety Tester/Hipot Tester

E. TH9120A/D Hipot Tester

性能特点

- High voltage: AC 10kV, DC 12kV
- Breakdown voltage test: AC can reach 10kV, DC can reach 12kV; Component voltage stepping (10V) and Normal stepping (divided according to test steps)
- High resolution: 7 inch 800 × 480 dots, TFT-LCD display
- Chinese and English menu operation interface
- ARC detection function
- OSC check function
- One-click screen capture function
- Rear panel output function for automatic test of production line
- Storage: 100 files, up to 50 steps per file
- Pin detection
- Insulation resistance can reach 50G

Application

- High withstand voltage test
- High-voltage optocouplers, high-voltage relays, high-voltage switches and other high-insulation devices
- Electronic components
- Capacitors, coils, cores, chokes, filters, etc.
- Electrical products
- Household appliances, information products, audio-visual equipment, electric heating appliances, lighting equipment

技术参数

Model	TH9120A		TH9120D
Test mode	AC/OSC		DC/IR
Withstand voltage test			
Output voltage	AC	Voltage range	0.05-10.0kV
		Voltage waveform	50/60Hz ±0.1% Sine wave
		Output power	200VA(10.0kV 20mA)
	DC	Voltage range	0.05-12.0kV
Output power		120VA(12.0kV 10mA)	
Load change rate	±(1% set value + 10V) (rated power)		
Voltage resolution	2V		
Voltage accuracy	±(1% set value + 0.1% full scale)		
Current test range	AC	Current range	0.001mA-20mA
		Current resolution	0.001mA
		Current accuracy	0.100mA-2.999mA ±(1% reading + 0.5% full scale) 3.00mA-20.00 mA ±(1.5% reading + 0.5% full scale)
	DC	Current range	0.0001mA-10mA
		Current resolution	0.1uA
		Current accuracy	±(1% reading + 0.5% full scale)
Maximum short circuit current	40mA (AC test only)		
Fast discharge function	Automatic discharge after test (DCW)		
Insulation resistance test			
Output voltage	DC:0.05-5.0kV		
Voltage resolution	2V		
Voltage accuracy	±(1% set value + 0.5% full scale)		
Resistance test range	0.1MΩ– 50.0GΩ		

NEW



Standard RS232 USB HOST USB DEVICE HANDLER LAN

Option GPIB

Dimension(mm):430mm(W)x132mm(H)x500mm(D)
Weight: 21kg

- Non-electrical products
- Withstand voltage and insulation resistance test of wire, non-woven fabric, insulating material, etc.
- New energy vehicles
 - Automatic test system

Safety Tester/Hipot Tester

E. TH9120A/D Hipot Tester

Resistance test accuracy	Voltage \geq 0.5kV	-----	1M Ω –1G Ω \pm (3% reading + 0.1% full scale)
			1G Ω –10G Ω \pm (7% reading + 2% full scale)
			10G Ω –50G Ω \pm (10% reading + 1% full scale)
	Voltage<500V	-----	0.1M Ω –1G Ω \pm (5% reading + 2% full scale)
Arc detection			
Program setting	AC	1.0mA-20.0mA	-----
	DC	-----	1.0mA-10.0mA
OSC open and short detection			
Sampling standard capacitance range		0.001—40nF	-----
Open circuit judgment range		10%—100%	-----
Short circuit judgment range		100%—500%	-----
Time setting			
Test time		0.3—999s, 0 means continuous test	
Rise time		0.1—999s, 0 means OFF	
Fall time		0.1—999s, 0 means OFF	
Waiting time		0.1—999s, 0 means OFF (DC withstand voltage only)	
Safety protection function			
Shock protection		0.5mA \pm 0.25mA Optional: ON or OFF	
Start protection (Interlock)		When the pin is connected with low terminal, high voltage output is allowed.	
Panel operation protection		Key lock, password	
Alarm indication		PASS: short sound, green light; FAIL: long sound, red light	
Storage and interface			
Internal memory		100 files can be stored and 50 steps can be edited in each file	
Standard interface		RS232、USB DEVICE、USB HOST、LAN、HANDLER	
Optional interface		GPIB	
Ambient temperature and humidity			
Parameter comparison temperature		18 $^{\circ}$ C~28 $^{\circ}$ C, Humidity: 30%~70%RH	
Normal working temperature		0 $^{\circ}$ C~45 $^{\circ}$ C, Humidity: 20%~90%RH	
Storage environment temperature		-10 $^{\circ}$ C~55 $^{\circ}$ C, Humidity:< 80%RH	
General specification			
Power supply		100V~240VAC, 47Hz~63Hz	
Power		No load:< 100W Rated power:300W	
Volume		430mm (W) x 132mm (H) x 500mm (D)	
Weight		21kg	

Safety Tester/Hipot Tester

E. TH9200 Series Hipot Tester

Features

- TH9201S:8-channel scanning AC/DC withstanding voltage & insulation tester
TH9201/TH9201B: AC/DC withstanding voltage & insulation tester
TH9201C: DC withstanding voltage tester
- 240×64 Dot-matrix graphic LCD display
- Fast discharge and arc detection function
- Body protection function
- Built-in 8-channel matrix scanner for convenient use
- Set voltage rising time, test time, and voltage dropping time randomly for different load, DC withstanding voltage current judging & waiting time
- 100 test steps being stored per group, totally 50 groups, and the total testing steps are limited at 500
- Current base number correction function
- Brand new operation interface and humanized panel design
- Abundant interfaces Handler, RS-232C, SCAN, GPIB(optional)

Brief Introduction

■ TH9201 series AC/DC withstanding voltage & insulation tester is a kind of Hipot Tester. Due to simple and compact structure, mature technique, brand new structure and operating interface, the operation becomes more convenient, and more practical functions are included as well. TH9201 series can be widely applied in transformer, device, component especially for winding safety inspection.



TH9201S



TH9201/TH9201B/TH9201C

Specifications

Model		TH9201	TH9201S	TH9201B	TH9201C
Withstanding voltage test					
Output voltage	AC	0.05kV—5kV ±(1.0% of reading+5 digit) (50、60Hz optional)			
	DC	0.05kV—6kV ±(1.0% of reading+5 digit)			
	Voltage adjustment rate	≤(1.0% +10V) (rated power)			
Current test range	AC	0.1mA - 30mA	0.1mA - 20mA		
	DC	0.01mA - 10mA	0.01mA - 5mA		
	Test accuracy	±(1.0% of reading+5 digit)			
	Discharge function	Discharge after test ends (DCW)			
Insulation resistance test					
Output voltage		0.05kV - 1kV ±(1.5% of reading+5V)			
Resistance test range		0.1MΩ - 10GΩ, (Current range within 10nA-10mA)			
Resistance test accuracy	500V-1000V	1MΩ - 1GΩ ±(5% of reading +5 digit)	1GΩ - 10GΩ ±(10% of reading +5 digit)		-----
	50V-500V	0.1MΩ - 1GΩ ±(10% of reading +5 digit)			
Discharge function		Discharge after test ends			
Arc detection					
Measurement range	AC	1mA - 15mA			
	DC	1mA - 10mA	1mA - 5mA		-----
General specification					
8-channel matrix scanner		-----	available	-----	
Memory		50groups, 100 steps per group, totally 500 steps			
Voltage rise-time		0.1s - 999s			
Voltage fall-time		0.1s - 999s			
Voltage wait-time		0.1s - 99.9s (only for DC)			
Test time setting		0.3s - 999s			
Interface					
Standard		RS232, USB,HANDLER, REMOTE I/O, SCAN			
Options		GPIB			

Safety Tester/Hipot Tester

E. TH9320-S4/TH9320-S8 Hipot Tester

Features

- Output voltage: AC:5kV/20mA; DC:6kV/10mA
- Test voltage of insulation resistance:0.10kV-1.00kV
Test range of insulation resistance: 1MΩ-1000MΩ
- 480×272 dot-matrix, TFT-LCD display
- Provide 4 channels (-S4), 8 channels (-S8) scan interface
- Rapidly discharging and arc detection
- Randomly set voltage rising time and testing time in 999.9 seconds; Freely set waiting time for insulation resistance
- Hold 20 testing steps; 4 testing modes selectable
- Brand new operation interface and concise interface operation design
- Lock keyboard

Brief Introduction

■ TH9320-S series AC/DC withstanding voltage/insulation resistance tester is an economical and intelligent safety tester with the characteristics of small size, light weight, pleasing appearance and easy operation. TH9320-S series can be widely used in the safety tests of household appliances, transformer, electrical equipments and components.



TH9320-S8



TH9320-S4



Specifications

Model		TH9320-S4	TH9320-S8
Withstanding voltage test			
Output voltage	AC	0.05 —5.00kV ± (2% reading+5digits) , (50Hz、60Hz optional)	
	DC	0.05 —6.00kV ± (2% reading+5digits)	
	Voltage adjustment rate	≤ (1% - 5V) (rated power)	
Current test range	AC	0.000mA – 20.00mA ±(2% reading+2digits)	
	DC	0uA –10.00mA ±(2% reading+2digits)	
	Discharge function	Discharge after test ends (DCW)	
Insulation resistance test			
Output voltage		0.10kV – 1.00kV ±(2%reading+2V)	
Resistance test range		1MΩ– 9999MΩ	
Resistance test accuracy	500V–1000V	1MΩ– 1000MΩ ±(5%reading+2digits) ;1000MΩ–9999MΩ ±(10%reading+2digits)	
	100V–500V	1MΩ– 1000MΩ ±(10%reading+2digits)	
Discharge function		Discharge after test ends	
Arc detection			
Measurement range	AC	1 – 9 levels (factory default 5) (20mA、18mA、16mA、14mA、12mA、10mA、7.7mA、5.5mA、2.8mA respectively)	
	DC	1 – 9 levels	
General specification			
Memory		5 groups	
Voltage rising time		0.1s – 999.9s	
Test time setting (AC/DC)		0.2s – 999.9s	
Waiting time (IR)		0.2s – 999.9s	
Time Accuracy		±(1%+0.1s)	
Dimension (W×H×D)		280mm×89mm×428mm/10kg	
Interface			
Standard		HANDLER, RS232, USBDRV(PC interface), USBHOST(USB port)	
Scan interface		4 channels	8 channels

Safety Tester/Hipot Tester

E. TH9310/TH9320 Series Hipot Tester

Features

- TH9310 series: AC:5kV/10mA; DC:6kV/5mA AC/ DC withstanding voltage/insulation resistance tester
TH9320 series: AC:5kV/20mA; DC:6kV/10mA AC/ DC withstanding voltage/insulation resistance tester
- TH9310/20: AC/ DC withstanding voltage/insulation resistance tester
TH9310A/20A: AC / DC withstanding voltage tester
TH9310B/20B: AC withstanding voltage tester
- 480×272 dot-matrix, TFT-LCD display
- Rapidly discharging and arc detection
- Randomly set voltage rising time and testing time in 999.9 seconds;
Freely set waiting time for insulation resistance
- Hold 5 testing steps; 4 testing modes selectable
- Brand new operation interface and concise interface operation design
- Lock keyboard
- PLC interface

Brief Introduction

■ TH9310/20 series withstanding voltage/insulation resistance tester is an economical and intelligent safety tester with the characteristics of small size, light weight, pleasing appearance and easy operation. TH9310/20 series can be widely used in the safety tests of household appliances, transformer, electrical equipments and components.



TH9310/TH9320

Specifications

Model		TH9310/20	TH9310B
Withstanding voltage test			
Output voltage	AC	0.05 —5.00kV ± (2% reading+5digits) , (50Hz、60Hz optional)	
	DC	0.05 —6.00kV ± (2% reading+5digits)	
	Voltage adjustment rate	≤ (1% - 5V) (rated power)	
Current test range	AC	TH9310: 0.000mA – 10.00mA ±(2% reading+2digits) TH9320: 0.000mA – 20.00mA ±(2% reading+2digits)	
	DC	TH9310: 0uA – 5.00mA ±(2% reading+2digits) TH9320: 0uA –10.00mA ±(2% reading+2digits)	
	Discharge function	Discharge after test ends (DCW)	
Insulation resistance test			
Output voltage		0.10kV – 1.00kV ±(2%reading+2V)	
Resistance test range		1MΩ– 9999MΩ	
Resistance test accuracy	500V–1000V	1MΩ– 1000MΩ ±(5%reading+2digits) 1000MΩ–9999MΩ ±(10%reading+2digits)	
	100V–500V	1MΩ– 1000MΩ ±(10%reading+2digits)	
Discharge function		Discharge after test ends	
Arc detection			
Measurement range	AC	1 – 9 levels (factory default 5) (20mA、18mA、16mA、14mA、12mA、10mA、7.7mA、5.5mA、2.8mA respectively)	
	DC	1 – 9 levels	
General specification			
Memory		5 groups	
Voltage rising time		0.1s – 999.9s	
Test time setting (AC/DC)		0.2s – 999.9s	
Waiting time (IR)		0.2s – 999.9s	
Time Accuracy		±(1%+0.1s)	
Dimension (W×H×D)		280mm×89mm×428mm/10kg	
Interface			
Standard		HANDLER, RS232, USBDRV(PC interface), USBHOST(USB port)	

Digit Multimeter

F. TH2512+ Series DC Low Resistance Tester

Features

- More compact
- The interface is more complete
- Faster speed: 47ms (FAST)
- Clear function: Clear all ranges in AUTO range, and clear the current range when the range is locked

Application

- Components: resistors, inductors, transformers, motors, relays, circuit solder joints, capacitor riveting points
- Material: Thermally sensitive material (fuse, sensor for thermistor), conductive material such as metal foil
- Cables, connectors: multiple strands, connectors, various switches
- New energy: connection bridge for electric vehicle battery pack, battery connection resistance



TH2512+

Standard RS232/RS485(option) USB DEVICE HANDLER

Rack mount (mm): 215(W) x 88(H) x 300(D)

Dimension (mm): 235(W) x 105(H) x 320(D)

Net weight: 2.7 kg

Specifications

Model	TH2512+	TH2512A+	TH2512B+
Basic accuracy	±0.05%+2 digit 0.1%+2 digit(2M range)	±0.05%+2 digit	±0.1%+2 digit
Test range	1uΩ~1.999MΩ	10uΩ~199.9kΩ	1uΩ~19.99kΩ
Test current	1A/100/10/1mA /100/10/1uA	100/10/1mA /100/10uA	1A/100/10/ 1mA/100uA
Range	20/200mΩ/2/20/200Ω/2/20/200kΩ /2MΩ	200mΩ/2/20/200Ω/2/20/200kΩ	20/200mΩ/2/20/ 200Ω/2/20kΩ
Maximum resolution	1uΩ	10uΩ	1uΩ
Test speed	FAST:48ms SLOW:168ms		
Comparator	HIGH, LOW, PASS and BEEP		
Range mode	AUTO , HOLD		
Trigger mode	Internal, External, Manual, BUS		
Zero clearing	Zero clearing for all ranges		

Resistance Tester

F. TH2515 DC Resistance Meter



TH2515

Features

- Maximum accuracy: 0.01%
- Temperature accuracy: 0.1℃
- Minimum resolution: 0.1uΩ (resistance)
- Low-resistance test mode can effectively protect DUT
- Multiple measurement combinations of R, LPR, T
- 24 bits, 4.3-inch and 4-wire touch LCD screen
- LCD resolution: 480×272
- Temperature compensation(TC)
- Temperature conversion(Δt)
- Maximum sampling rate: 100samps/sec
- Offset voltage compensation (OVC)
- Customer self-correction(0 ADJ)
- Simultaneously output compare results of 10 bins (OVER, PASS and BEEP)
- Statistics function: CpK, Cp
- 30 groups of parameter files can be saved and loaded
- Screen information can be stored on U-disk
- Data save function brings convenience for saving measurement result
- Automatically update operation software through USB HOST
- Operation languages: Chinese and English
- Intelligent detection for test state error
- Flexible and convenient file operation system
- Handler interface realizes on-line operation.
- Interfaces such as RS232, USB HOST, USB Device and LAN are available and GPIB is optional.
- Compatible with LXI C standard Specifications

Specifications

Model	TH2515		
Display	24-bit, 400 X 272 and touch TFT LCD screen		
Reading digits	5 ½ digits		
Resistance measurement	0.1μΩ --110MΩ		
Measurement range	Current	Resolution	*Accuracy±(ppm of Rd + ppm of Fs)
20 mΩ	1A	0.1μΩ	2500+10
200mΩ		1μΩ	2500+10
200mΩ	100mA	1μΩ	3500+10
2Ω	100mA	10μΩ	350+10
Model	TH2515		



Brief Introduction

■ On the basis of rich experience in impedance test and wide market research, now Tonghui launches a new touch screen meter---TH2515 DC Resistance meter. TH2515, with elegant appearance, easy operation and excellent performance, is comparable to the most advanced products in the market.

TH2515 adopts 32 bits CPU and high density SMD technology. 24 bits, 4.3-inch and touch LCD screen brings ease for your eyes and convenience to your operation. For the contact influence of the thermoelectricity on DUT, its elimination is achieved. The maximum 0.01% accuracy and minimum 0.1 μΩ resolution shore up its leading role in testing relay contact resistance, interconnecting resistance, conductor resistance, PCB resistance and welding-hole resistance. Temperature compensation and conversion functions make your tests be free from the effect of the environment temperature. The offset voltage compensation has effectively eliminated the electromotive force of the DUT and its contact potential difference. Automation on production lines can be greatly improved by the realization of ultra-high test speed and the signal output of 10 compare results through HANDLER interface.

Providing 1 optional interface---GPIB and 4 standard ones---RS232C, USB HOST, USB Device and LAN, TH2515 is able to make data communication with PC and further realizes remote control.

Resistance Tester

F. TH2515 DC Resistance Meter

20Ω	10mA	100μΩ	250+10
200Ω		1mΩ	100+10
2kΩ	1mA	10mΩ	100+10
20kΩ		100mΩ	100+5
100/200kΩ	100μA	1Ω	100+30
1/2MΩ	10μA	10Ω	200+10
10MΩ	1μA	100Ω	1000+60
100MΩ	100nA	1kΩ	8000+600
Measurement function			
Resistance measurement time	FAST: 7ms; MED: 22ms; SLOW1: 102ms; SLOW2: 402ms Above data is correct when DISPLAY is OFF; When DISPLAY is ON, 20ms should be added.		
Temperature measurement time	100 ± 10ms		
Test terminal	4-terminal		
Average setup	1-255		
Zero clearing	√		
Range switch	AUTO and Manual		
Trigger mode	Internal, Manual, External, BUS		
Power frequency selection	√ (avoid the interference of the power noise)		
Setting data storage	30 groups		
Low voltage measurement	Open voltage≤ 60mV Effective range: 2Ω, 20Ω, 200Ω, 2kΩ		
Thermal electromotive force elimination	√		
Statistics function	AVG, MAX, MIN, OSD(Overall standard deviation), SSD(Sample standard deviation), Process capacity index (Cp, CpK)		
Measurement error detection	√ (Detect the measurement cable has been connected correctly or not.)		
Multipole connector	√(Noise abatement function of high-resistance is optional)		
Beep state	Comparator, Bin compare, Button		
Key lock	√		
Temperature measurement			
Temperature measurement1	-10.0℃--99.9℃ Sensor: PT500		
Temperature measurement2	Analog input: 0V--2V Display: -99.9℃ -- 999.9℃		
Temperature compensation	(Convert the resistance measurement value to that one measured under preset temperature)		
Temperature	(Temperature rising is gained from resistance test values before and after warming)		
Compare Judge			
Comparator	Signal output	HI/IN/LO	
	Beep	Beep mode: OFF, IN, HI/LO	
	Limit setup mode	Absolute value high/low limit, Percentage high/low limit +nominal value	
Sorting	10 bins, absolute value/ percentage		
External trigger delay time	AUTO: dependent on range, low voltage mode ON/OFF, OVC (offset voltage compensation) ON/OFF MANUAL: 0.000--9.999s		
External input trigger	Rising/Falling edge		
Interface			
Interface	USB DEVICE、USB HOST、RS232C、HANDLER、GPIB (OPTION)		
General specification			
Working condition	Temperature:0℃ - 40℃, Humidity:≤ 80%RH		
Storage condition	Temperature:-10℃-50℃, Humidity: ≤90%RH		
Accuracy guarantee condition	Temperature:18℃ - 28℃, Humidity:≤ 80%RH		
Power	Voltage	99V—242V	
	Frequency	47.5Hz—63Hz	
Consumption	30 VA		
Dimension	215mm×87mm×335mm (net size) 235mm×105mm×360mm (with foam sheath)		
Weight	Approx. 3.6kg		

*: the accuracy is guaranteed under certain environmental and test conditions:temperature of 18℃-28℃,humidity is ≤ 80%RH,test speed is SLOW2 and OVC function is ON(see details in Manual).

Standard Accessories

Three core power cord

TH26050S

Four-terminal test cable

PT500 temperature sensor

Resistance Tester

F. TH2516 DC Resistance Meter



Brief Introduction

■ On the basis of rich experience in impedance test and wide market research, now Tonghui launches the new DC impedance measurement instrument with touch and LCD screen ---TH2516 DC Resistance meter. TH2516, with elegant appearance, easy operation and excellent performance, is comparable to the most advanced products in the market.

TH2516 adopts 32 bits CPU and high density SMD technology. 24 bits, 4.3-inch and touch LCD screen brings ease for your eyes and convenience to your operation. The maximum 0.05% accuracy and minimum 1 $\mu\Omega$ resolution shore up its leading role in testing relay contact resistance, interconnecting resistance, conductor resistance, PCB resistance and welding-hole resistance. Temperature compensation and conversion functions make your tests be free from the effect of the environment temperature. The offset voltage compensation has effectively eliminated the electromotive force of the DUT and its contact potential difference. For the contact influence of the thermoelectricity on DUT, its elimination is achieved. Automation on production lines can be greatly improved by the realization of ultra-high test speed and the signal output of 3 compare results through HANDLER interface.

TH2516

Features

- Maximum resistance accuracy: 0.05%
- Temperature accuracy: 0.2°C
- Minimum resolution: 1 $\mu\Omega$
- Low-resistance test mode can effectively protect DUT
- Multiple measurement combinations of R, LPR, T
- 24 bits, 4.3-inch and 4-wire touch LCD screen
- LCD resolution: 480×272
- Temperature compensation(TC)
- Temperature conversion(Δt)
- Maximum sample rate: 50samps/sec
- Offset voltage compensation (OVC)
- Customer self-correction(0 ADJ)
- Simultaneously output compare results of 3 bins (OVER, PASS and BEEP)
- Statistics function: CpK, Cp
- 30 groups of parameter files can be saved and loaded
- Screen information can be stored on U-disk
- Data save function brings convenience for saving measurement result
- Automatically update operation software through USB HOST
- Operation languages: Chinese and English
- Flexible and convenient file operation system
- Handler interface realizes on-line operation
- Achieve data communication with PC and remote control through interfaces such as RS232, USB HOST, USB Device

Specifications

Model	TH2516	TH2516A	TH2516B						
Display	24-bit, 480 X 272 and touch TFT LCD screen								
Reading digits	4½ digits								
Resistance measurement									
Measurement range	1 $\mu\Omega$ –2M Ω	10 $\mu\Omega$ –200k Ω	10 $\mu\Omega$ –20k Ω						
Resistance range	Current	Resolution	Accuracy Rd%+digits	Current	Resolution	*Accuracy Rd%+digits	Current	Resolution	*Accuracy Rd%+digits
20 m Ω	1A	1 $\mu\Omega$	0.100+3	-----	-----	-----	1A	1 $\mu\Omega$	0.100+3
200m Ω	100mA	10 $\mu\Omega$	0.05+2	100mA	10 $\mu\Omega$	0.05+2	100mA	10 $\mu\Omega$	0.1+2
2 Ω		100 $\mu\Omega$			100 $\mu\Omega$			100 $\mu\Omega$	
20 Ω		1m Ω			1m Ω			1m Ω	
200 Ω		10m Ω			10m Ω			10m Ω	
2k Ω	100 μ A	100m Ω	0.05+2	100 μ A	100m Ω	0.05+2	100 μ A	100m Ω	0.1+2
20k Ω		1 Ω			1 Ω			1 Ω	
200k Ω		10 μ A			10 Ω			10 Ω	
2M Ω	1 μ A	100 Ω	0.2+2	-----	-----	-----	-----	-----	-----

Resistance Tester

F. TH2516 DC Resistance Meter

Measurement function			
Resistance measurement time	FAST:10ms; MED:25ms; SLOW1:115ms; SLOW2:455ms Above data is correct when DISPLAY is OFF; when DISPLAY is ON, 20ms should be added.		
Temperature measurement time	100 ± 10ms	-----	
Test terminal	4-terminal		
Average setup	1--255		
Zero clearing	√		
Range switch	Auto, Manual		
Trigger mode	Internal, Manual, External, BUS		
Power frequency selection	√ (avoid the interface of the power noise)		
Setting data storage	30 groups		
Low voltage measurement	Open voltage: ≤ 40mV Effective range: 2Ω, 20Ω, 200Ω, 2kΩ		
Thermal electromotive force elimination	√	-----	
Statistics function	AVG, MAX, MIN, OSD (Overall standard deviation), SSD (Sample standard deviation), Process capacity index (Cp, cpk)		
Beep state	Comparator, Button		
Key lock	√		
Temperature measurement			
Temperature measurement1	-10.0℃--99.9℃ Sensor: PT500	-----	-----
Temperature measurement2	Analog input: 0V--2V Display: -99.9℃-- 999.9℃	-----	-----
Temperature compensation	√ (convert the resistance measurement value to that one measured under preset temperature)	-----	-----
Temperature switch	√(temperature rising is gained from resistance test values before and after warming)	-----	-----
Compare Judge			
Comparator	Signal output	HI/IN/LO	
	Beep	Beep mode: OFF, IN, HI/LO	
	Limit setup mode	Absolute value high/low limit, Percentage high/low limit +nominal value	
Sorting	3 bins, absolute value/percentage		
External trigger delay time	Auto: dependent on range, low voltage mode ON/OFF, OVC (offset voltage compensation) ON/OFF Manual: 0.000--9.999s		
External input trigger	Rising/Failing edge		
Interface			
Interface	USB DEVICE, USB HOST, RS232C, HANDLER		
General specification			
Working condition	Temperature:0℃ - 40℃, Humidity:≤ 80%RH		
Storage condition	Temperature:-10℃ - 50℃, Humidity:≤ 90%RH		
Accuracy guarantee condition	Temperature:18℃ - 28℃, Humidity:≤ 80%RH		
Power	Voltage	99V—121V,198V—242V	
	Frequency	47.5Hz—63Hz	
Consumption	30 VA		
Dimension	215mm×89mm×360mm (net size) 235mm×104mm×360mm (with foam sheath)		
Weight	Approx.3.6kg		

*: the accuracy is guaranteed under certain environmental and test conditions:temperature of 18℃-28℃,humidity is ≤ 80%RH,test speed is SLOW2 (see details in Manual).

Standard Accessories

Three core power cord

TH26050S Four-terminal test cable

PT500 temperature sensor (only for TH2516)

Resistance Tester

F. TH2518 Series Resistance/ Temperature Scanner

Features

- 4.3 inch 24-color touch LCD screen with 480 × 272 resolution
- Chinese and English optional operation interface
- Up to 90-channel resistance/temperature scan tests
- Support 6 units for free insertion and removal, simultaneous measurement between test units
- Maximum test speed can reach 600 times / sec
- Maximum resistance accuracy: 0.05%, minimum resolution: 10uΩ
- Basic temperature accuracy: 0.2 °C
- The adopted test end of the scan test channel is programmable
- Compatible with scanning and stand-alone measurement modes
- Temperature measurement can support PT100, PT500 and analog voltage three temperature sampling methods
- Temperature compensation function (TC)
- One-click screen capture function
- Data logging function
- Automatic upgrade of instrument operating software via USB HOST
- Comparison sort results of channel, board and machine-level can be output
- Handler interface for online operations

Specifications

Model	TH2518	TH2518A
Measuring parameters	DC resistance, temperature	DC resistance
Resistance test range	10μΩ — 200kΩ	
Basic resistance test accuracy	0.05%	
Resistance range	Auto and manual (200mΩ, 2Ω, 20Ω, 200Ω, 2kΩ, 20kΩ, 200kΩ)	
Temperature sensor type	PT500 platinum resistance, PT100 platinum resistance, analog voltage input	-----
Temperature test range	PT100,PT500:-10℃ — 99.9℃, Analog:0V — 2V	-----
Temperature test accuracy	PT100, PT500:0.3%*measured value ±0.5℃, Analog:±1%Rd ± 3mV	-----
Measurement mode	Stand-alone, scanning	
Scanning channels	15 channels/boards, and up to 6 boards and 90 channels can be inserted. The board channel is for scanning test, and it is synchronous test between the test boards.	
Test terminal selection of test channel	Arbitrary configuration between channels (programmable)	
Test current	≤100mA	
Measurement speed	ingle board: 100 times / sec, 40 times / sec, 2 times / sec, 6 boards: 600 times / sec, 240 times / sec, 12 times / sec	
Temperature compensation	√	-----
Display results	Simultaneous display the test results of 16 channels and support page turning	
Short-circuit clear correction	Support full-scale short-circuit clearing for all channels	
Comparators	Comparison boundaries are set separately for each test channel	
Limit mode	ABSDev、ABS、%	
Trigger mode	Auto trigger, manual trigger, bus trigger, Handler trigger, foot switch trigger	
Test terminal	Four-terminal test	
Storage	30 sets of instrument parameters	

Standard accessories

Three-core power line
TH26050S Four-terminal test cable



Standard RS232 USB DEVICE USB HOST HANDLER LAN

Option Foot switch

Dimension(mm):280(W)×88(H)×440(D) Weight:7.5kg

Application

- Components
Resistor, inductor, transformer, motor, relay, circuit solder joint, capacitor riveting point
- Cables, connectors
Strand wire, connectors, switches
- Material
Heat-sensitive materials (fuses, sensor for thermistors), conductive materials such as metal foil
- New energy
Electric vehicle battery pack connecting bridge, battery connection resistor

Resistance Tester

F. TH2523 Battery Tester



TH2523

Features

- Multiple test functions
 - 4-terminal test, the test can't be influenced by impedance of test leads.
 - Contact inspection, to inspect the contact of test leads in testing
 - Deviation deduction (rel) and reference operation, eliminate the influence of base to test result.
- Feature of battery tester
 - Basic impedance accuracy: 0.1%
 - Basic voltage accuracy: 0.1%
 - Min. resolution of impedance: 1 μ Ω
 - Min. resolution of voltage: 100 μ V
 - Max. test speed 50 times/s
 - 1kHz AC constant current source test
- R, V, L, Z, θ test
- 24 bit color 4.3 inch LCD display
- LCD resolution 480 \times 272
- Direct and Δ % display
- V, I test signal level monitor function
- Graphic scanning and analysis
- 10 bin compare, High limit, low limit, pass and alarm function
- Statistics, like CpK, Cp.etc
- 100 groups of file for storage and load
- Information in screen stored in U disk.
- Automatic update through USB HOST
- Chinese-English operation system selectable
- Foot switch trigger function
- Handler interface
- RS232、USB HOST、USB Device、GPIB (optional), for communication with PC and remote control

Brief Introduction

■ As the growth of electronic products, cell phone, home appliances, electric vehicle and bike emerge in an endless stream, all need to work with battery, so the fast inspection on batter will influence the performance of products.

With Tonghui's experience in impedance test and marketing survey, the new battery tester-TH2523 is successfully launched. It can be competitive with other similar products with its outstanding performance, easy operation and new look.

- 1kHz constant current source is adopted to eliminate the potential error of thermoelectric force to DUT.
- Max.300V(TH2523A) test voltage can meet the demand of high voltage battery
- 0.1% basic resistance accuracy, the range of 30m Ω -3000 Ω can cover the test demand of large battery pack to button battery, and as well for large type but low resistance lithium battery
- The fast test speed can up to 20ms/time
- Meet the demand of ACR test for general components.
- TH2523 provides multiple interfaces, which is for PC communication and remote control.

Specifications

Model	TH2523	TH2523A
Display	Displayer	4.3 inch 480x272 24 bit color TFT display
	Displayed digit	R: slow 5 digits, Max. displayed digit 35000; fast, Max. displayed digit 3500 V: slow 5 digit, Max. displayed digit 35000; fast, Max. displayed digit 3500
Parameter	R,V,R-V,Z- θ , Z- θ r, L-Q,L-R,R-X,R-Q	
Basic accuracy	R:0.1%, V:0.05%	
Test signal source	Frequency	1kHz \pm 0.2Hz sine waveform
	Constance current	100mA/10mA/1mA/100 μ A/10 μ A
Display range	R/ Z/ X	1 μ Ω —3.5k Ω
	DC V	100 μ V—65V 100 μ V—350V
	L	0.2nH-1H
	Q	0.001—9999.9
	θ d(deg)	-179.99—179.99
θ d(rad)	-3.1416—3.1416	
Mathematics	Direct, Δ ABS, Δ %	
Range	AC R	30m Ω /300m Ω /3 Ω /30 Ω /300 Ω /3k Ω
	DC V	6V/60V 30V/300V
Max. input voltage	65V	350V
Test speed(time/s)	FAST: 50 times/s MED: 10 times/s SLOW1: 5 times/s SLOW2: 3 times/s	
Comparator	10 bins	
Range mode	Auto, hold	
Trigger mode	Internal, manual, external, bus	
Operation mode	Test leads contact inspection; DUT I/V monitor; REL; short "0"; 1-255 average; delay setting; graphic analysis and scanning; USB storage; Max.100 groups of file save/load; Statistics of Max.30000 of data	
Interface	Handler、RS232、USB DEVICE、GPIB (optional)、USB HOST	
General specification		
Operating environment	Temperature	0 $^{\circ}$ C -40 $^{\circ}$ C
	Humidity	\leq 90%RH
Power supply	Voltage	100V-120V, 198V-242V
	Frequency	47Hz - 63Hz
Power consumption	Max.15AV	
Dimensions(WxHxD)	215mmx87mmx335mm(net) 235mmx105mmx360mm(with sheath)	
Weight	About 3.6k	

Application

- Fast test for button battery and battery pack .etc.
- For cell phone, home appliances, electric vehicle and bike .etc.
- For high voltage battery test
- For early battery R&D test
- Contact resistance test
- Degradation and lifetime - evaluation of battery
- UPS on-line test
- ESR test of super capacitor

Resistance Tester

F. TH2683A/B Insulation Resistance Meter

Features

- Test voltage range: 1-1000V(TH2683A)
1-500V(TH2683B)
- Insulation resistance test range: 100KΩ-10TΩ
- Insulation resistance, leakage current dual display
- 24-bits, 4.3-inch and 4-wire touch LCD screen
- LCD resolution: 480*272
- Zero clearing function
- Contact detection function for capacitive components
- Fast test: 30ms
- Programmable sequence test mode
- 6 ranges, manual or auto range mode
- 4-bin comparison function: 3 bins for PASS, 1 bin for FAIL
- 20 setup files can be stored in the internal memory, support U-disk
- Measurement data can be stored on U-disk
- Automatically upgrade firmware by a disk
- Selectable Chinese and English operation interfaces
- Handler interface realizes on-line operation
- Achieve remote control by RS232C and USB Device interface
- Footswitch trigger function



TH2683A/TH2683B

Brief Introduction

■ With touch, color LCD screen and unique insulation resistance/leakage current dual test function, TH2683A/TH2683B insulation resistance meter is an intelligent measurement instrument that is used for rapid measurements on insulating properties of electronic parts and components (especially the capacitance), dielectric material, equipments, wires, cables, etc.

TH2683A/TH2683B is provided with sorting output and external single pulse signal input interface, making it easy for pipeline operation. The equipped communication interface can achieve the off-site operations of all functions of the instrument through microcomputer. The instrument has a powerful anti-jamming capability, which makes the measurement more reliable.

Specifications

Model	TH2683A	TH2683B
Resistance test		
Test range	100kΩ-10TΩ	
Test accuracy	I>10nA :±2% I≤10nA :±5%	
Current test		
Test range	Range 1: 100uA - 1mA, internal input impedance 10kΩ	
	Range 2: 10uA - 100uA, internal input impedance 10kΩ	
	Range 3: 1uA - 10uA, internal input impedance 10kΩ	
	Range 4: 100nA - 1uA, internal input impedance 10kΩ	
	Range 5: 10nA - 100nA, internal input impedance 1MΩ	
	Range 6: 1nA - 10nA, internal input impedance 1MΩ	
Test accuracy	2%±3pA	
Test voltage		
Range	1V-1000V	1V-500V
Accuracy	Voltage≥10V: 1%±1V Voltage<10V: 10%±0.1V	
Current limit	10mA	
ON/OFF	Manually turn on or off it on front panel, or controlled by built-in timer, or by remote control	
Charge time	0-999s programmable	
Measurement delay	0-999s programmable	
Measurement speed	Fast: single measurement time≤30ms Slow: single measurement time≤60ms	
Comparator function	4 bins: 3 bins for PASS, 1 bin for FAIL	
Range mode	Auto, Hold	
Memory	Internal memory and external USB disk	
Standard interface	RS232C,USB HOST,USB DEVICE,HANDLER	

General Specifications

Operating Temperature And Humidity	0°C - 40°C, ≤90%RH	
Power Requirements	Voltage	90-121 V AC (60Hz) or 198-242V AC (50Hz)
	Frequency	47.5Hz - 52.5Hz
Power Consumption	< 50 VA	
Dimensions (W×H×D)	235mm×104mm×360mm	
Weight	Approx.3.6kg	

Resistance Tester

F. TH2684/TH2684A High Precision IR Tester



TH2684

Features

- 320×240 dot-matrix LCD
- Powerful charging function
- High speed measurement:100meas/sec
- High measurement accuracy:±2% (< 1TΩ)
- Contact detection function for capacitive components
- Measurement range:TH2684 : 10kΩ to 50TΩ
TH2684A: 10kΩ to 100TΩ
- Ultra-low leakage current test: minimum current is 10pA, accuracy: 2% ±2pA
- Measurement voltage:TH2684: 10V – 500V, dual-output
TH2684A:10V–1000V,single-output
- Dual outputs (precharge voltage output and test voltage output) can be set.
- The precharge voltage output can be set to follow the test voltage output and can be finely adjusted on test voltage. Also the precharge voltage can be set to work in independent mode.
- When the test current is less than 10nA, the internal input impedance can be selected between 10kΩ and 1MΩ to ensure rapid and accurate test.
- TH2684 charge current:2mA , 25mA, 200mA selectable
TH2684A charge current:2mA , 25mA , 100mA selectable
- 7 current ranges, manual or auto range mode
- 4-bin comparison function
- Programmable sequence test mode
- R-T and I-T Curve test and display mode
- Auto store setup parameters
- Screen hardcopy to be saved as BMP file to a U disk
- Automatically upgrade firmware by a U disk
- Selectable Chinese and English operation interfaces
- Achieve automatic test system by Handler interface
- Achieve remote control by RS232C and USB Device interface
- Support scanning interface for mass tests



Brief Introduction

■ TH2684/TH2684A High Precision IR Tester is an intelligent measurement instrument that is used for rapid measurements on IR properties of electronic parts and components, dielectric materials, equipments, cables, etc. Large LCD and user friendly menu provide you easier operation.

This instrument is especially designed for capacitor IR test TH2684/TH2684A can achieve rapid measurements through following methods:

1. Selectable internal input impedance: If the current is greater than 10nA, only 10kΩ input impedance can be used; if the current is below 10nA, you can choose 10kΩ or 1MΩ impedance to test.

2. With the built-in dual voltage output, TH2684 can charge large capacitors. By dual voltage output, TH2684 is able to output a precharge voltage up to 500V, 200mA. In voltage follow mode, precharge voltage follow with the test voltage output and can be finely adjusted. Above features ensure the perfect charge of capacitive materials.

3. TH2684A can output a voltage of 1000V, 100mA to fully charge the capacitive material.

In addition, user can program the sequence measurement steps (up to 18 steps) on TH2684/TH2684A. For instance, charge, wait, test, and discharge steps can be programmed. Each step can last up to 100s.

TH2684/TH2684A has a unique contact detection function. For capacitive material such as capacitors and cables, contact detection function can detect the contact of components under test. Moreover, this detection function will not increase any test time.

TH2684 equips with interfaces of RS232, USB DEVICE, SCANNING and Handler. Handler interface provide convenience for automatic test system; SCANNING interface is useful for mass measurement of components. User can use a scanner to speed measurement of components.

Resistance Tester

F. TH2684/TH2684A High Precision IR Tester

Specifications

Model	TH2684	TH2684A
Resistance test		
Range	10 kΩ to 50TΩ	10 kΩ to 100TΩ
Accuracy	Test current > 100pA: 2% Test current ≤ 100 pA: 2% ± Vtest/2pA	
Current test		
range	Range 1 :100uA – 1mA ; Internal Input impedance 10 kΩ	
	Range 2 :10uA – 100uA ; Internal Input impedance 10 kΩ	
	Range 3 :1uA – 10uA ; Internal Input impedance 10 kΩ	
	Range 4 :100nA – 1uA ; Internal Input impedance 10 kΩ	
	Range 5 :10nA – 100nA ; Internal Input impedance 10 kΩ	
	Range 6 :1nA – 10nA ; Internal Input impedance 10 kΩ or 1MΩ (selectable)	
	Range 7 :10pA – 1nA ; Internal Input impedance 10 kΩ or 1MΩ (selectable)	
Accuracy	2% ± 2pA	
Measurement voltage		
Range	10 to 500V, 1V resolution	10 to 1000V,1V resolution
Accuracy	2% of readout, or ± 1V	
Source resistance	200Ω	
Current limit	2,25,or 200mA	2, 25 , or 100mA
Voltage Output	Manually turn on or off on front panel, or controlled by built-in timer, or by remote control.	
Timing	Programmable charge time: 0 to 1000s	
Measurement delay	0 to 1000s programmable	
Discharge resistance	2kΩ	
Discharge time	t = 0.03 x Cx (in μF), when Vtest falls to 1% of the test level.	

Measurement speed	
Trig mode	Single measurement: < 100ms(exclude charge time) Average up to 100 measurements:<100 + (N-1) x 100 ms (exclude charge)
Continuous mode	Direct readout: 100ms – 10000ms depending on average number
Comparator	4 bins:(3 bins for PASS,1 bin for FAIL)
Range mode	Auto, Hold
Average times	1 to100
Memory	20 sets of setup values can be stored.
Standard interface	GPIB, (optional); RS232C; HANDLER interface output; USBDEVICE(USBTMC and USB CDC support); USBHOST; SCANNING

General Specifications

Operating temperature and humidity	10°C - 40°C, ≤90%RH
Power supply	90 to 130 V AC(60Hz) or 198 to 260V AC(50HZ)
Power consumption	TH2684 : 250W TH2684A: 150W
Dimensions (W×H×D)	430mm×400mm×130mm
Weight	TH2684 : 14kg TH2684A: 10kg

Ordering Information

TH2684 High Precision IR Tester

Instrument Accessories

TH26004B 2-terminal test clip leads

Options

TH26002 IR test fixture

Digit Multimeter

H. TH1953/TH1963 Digit Multimeter

Features

- 4.3-inch LCD color display, Chinese and English menu
- 6 1/2 bit 1199999 digits reading (TH1963)
- 5 1/2 digit 119999 digits reading (TH1953)
- Test speed up to 1000 / s
- Small size, front and rear input terminal, easy to shelve
- Histogram, bar graph, trend chart display
- AC low frequency signal can be tested down to 3Hz
- Capacitance test function
- Up to 5V diode test voltage
- Stores data up to 10,000
- Fast Chinese and English help

Application

- Production line workbench
- Maintenance workbench
- Teaching laboratory
- Automated test equipment

Specifications

Model	TH1963		TH1953		
Display	4.3-inch LCD color display				
Display digits	1199999 digits reading		119999 digits reading		
Measurement parameters	DC voltage, AC voltage, DC current, AC current, DC resistance, capacitance, frequency, breakover, diode, temperature				
Display mode	Direct reading, histogram, bar graph, trend chart				
Measurement speed	Up to 1000 times / s				
Math function	Reset function, Min / Max / Average / Standard deviation, dB, dBm				
Common features	Range	Trigger mode	Reading-hold	Limit measurement	
	Auto / Manual	LOCAL: AUTO / SINGLE / EXT REMOTE: IMMEDIATE / BUS / EXT	Yes	HI, Lo and IN (PASS), with sound beep	
Technical Index	Uncertainty: \pm (% of reading + % of range), $T_{CAL}=25^{\circ}C$				
Parameters	Range / Test Range	Frequency	Highest annual accuracy $T_{CAL} \pm 5^{\circ}C$		Highest temperature coefficient/ $^{\circ}C$
			TH1963	TH1953	
DC voltage	100.0000 mV - 1000.000V		0.0035 + 0.0005	0.010 + 0.005	0.0005 + 0.0001
True RMS AC voltage	100.000mV - 750.000V	3 - 5Hz	1.00 + 0.03	1.00 + 0.03	0.100 + 0.003
		5 - 10Hz	0.35 + 0.03	0.38 + 0.03	0.035 + 0.003
		10Hz - 20kHz	0.06 + 0.03	0.10 + 0.03	0.005 + 0.003
		20 - 50kHz	0.12 + 0.05	0.15 + 0.05	0.011 + 0.005
		50 - 100kHz	0.60 + 0.08	0.63 + 0.08	0.060 + 0.008
		100 - 300kHz	4.00 + 0.50	4.00 + 0.50	0.200 + 0.020
DC Resistance	10 Ω -100M Ω , Test current: 10mA - 500nA		0.010 + 0.001	0.030 + 0.004	0.0006 + 0.0001
DC current	100 μ A - 100mA		0.050 + 0.005	0.050 + 0.008	0.0020 + 0.0005
	1A		0.100 + 0.010	0.100 + 0.010	0.0050 + 0.0010
	3A		0.200 + 0.020	0.200 + 0.020	0.0050 + 0.0020
	10A		0.120 + 0.010	0.200 + 0.010	0.0050 + 0.0010
AC current	100 μ A - 1A	3kHz - 5kHz	0.10 + 0.04	0.20 + 0.04	0.015 + 0.006
		5kHz - 10kHz	0.10 + 0.04	0.20 + 0.04	0.030 + 0.006
	3A	3Hz - 5kHz	0.23 + 0.04	0.25 + 0.04	0.015 + 0.006
		5kHz - 10kHz	0.23 + 0.04	0.25 + 0.04	0.030 + 0.006
	10A	3Hz - 5kHz	0.15 + 0.04	0.3 + 0.04	0.015 + 0.006
		5kHz - 10kHz	0.15 + 0.04	0.3 + 0.04	0.030 + 0.006
Frequency	3Hz - 10Hz		0.100		0.0002
	10Hz - 100Hz		0.030		0.0002
	100Hz - 1MHz		0.010		0.0002
	Square wave		0.010		0.0002
Diode	5V, Test current: 1mA		0.010 + 0.030	0.020 + 0.030	0.0010 + 0.0020
Breakover	1k Ω , Test current: 1mA		0.010 + 0.030	0.030 + 0.030	0.0010 + 0.0020
Capacitance	1.0000nF		1.0 + 0.5		0.02
	10.000nF - 1.0000mF		0.5 + 0.1		0.02
	10.000mF		1.0 + 0.5		0.02
Temperature	PT100 (DIN/ IEC 751)		\pm 0.05 $^{\circ}C$		
	5 k Ω Thermistor		\pm 0.10 $^{\circ}C$		



TH1963

Standard RS232 USB HOST USB DEVICE LAN

option GPIB OR HANDLER

Rack mount (mm): 215(W) x 88(H) x 300(D)

Dimension (mm): 235(W) x 105(H) x 320(D)

Net weight: 2.7 kg

Digit Multimeter

H. TH1952 Digit Multimeter

Features

- 120000 count display
- High brightness VFD dual-display
- True-rms AC voltage and current test
- Multiple mathematics operation function DCV/ACV/DCI/ACI /AC+DC/Ω/CAP/Temperature/Frequency/Diode/Continuity and dB/dBm
- Other parameters in current test signal displayed in second display
- Max. ADC sampling rate can be 200 times/s
- DCV test accuracy up to 0.012%, resolution up to 1μV
- Relative mode(REL)to eliminate remaining reading
- Calibration without opening the case
- Limit function(Limit), for fast sorting
- Data statistics function Max/Min, Max. value, Min. value, Average value and number of statistics
- Standard USB interface,provide convenient system communication function
- Standard Handler interface,provide external trigger and sorting signal for production line



TH1952

■ TH1952 5 1/2 digit multimeter is a multi-functional, cost-effective voltage/current/resistance/capacitance meter. It provides Max. 120000 count, Max. sampling rate 200 times/s, 0.012% DCV accuracy ,etc, which is the optimal selection for users.

TH1952 provides high brightness VFD Dual-display, which can display ACV/DCV or DCI, ACV/ACI and frequency .etc to improve the test efficiency and, clearer display.

TH1952 is configured with USB interface, and also communication software is provided for PC communication, data analysis, statistics, building system. TH1952 accepts SCPI command to be compatible with communication software. Also Handler interface is provided to receive the external trigger and output sorting signal for production line.

Test function				
Test parameter	DCV, ACV, DCI, ACI, DCR, CP, FREQ, CONT, DIODE, TEMP			
Mathematics function	%, dB, dBm, REL, mX+b			
Range	Auto, Manual			
Display	High brightness VFD dual-display			
Trigger Mode	INT/BUS/EXIT			
Reading Hold	To find out best stable reading for each data block of the given reading number according to the given accuracy.			
Limitation measurement	To judge HI、IN、LO and display, with ALARM for HI/LO			
Calibration	Auto,Manual			
External Trigger	Handle interface (external trigger and output sorting signal)			
Communication interface	SCPI command support for RS232 and USB interface			
Performance parameter expression of uncertainty: ±(% of reading+% of full scale)				
Reading rate(reading/s)				
Reading rate	Fast		Slow	
	4 1/2	5 1/2	4 1/2	5 1/2
DCV/DCI	80	15	15	4
ACV/ACI	80	15	15	4
Ω	80	15	15	4
DCV				
Range	Min.Resolution		Max.Uncertainty(1 year)	
100mV-1000V	1μV		0.012%+0.008%	
DCI				
Range	Min.Resolution		Max.Uncertainty(1 year)	
1mA-100mA	10nA		0.05%+0.005%	
1A	10μA		0.10%+0.008%	
10A	100μA		0.20%+0.006%	
ACV				
Range	Frequency	Min.Resolution	Max.Uncertainty (1 year)	
100mV-750V	20Hz-50Hz	1μV	1.00%+0.1%	
	50Hz-10kHz		0.20%+0.08%	
	10kHz-30kHz		0.80%+0.08%	
	30kHz-100kHz		3.00%+0.2%	
ACI				
Range	Frequency	Min.Resolution	Max.Uncertainty (1year)	
1mA -10A	20Hz-50Hz	10nA	1.0%+0.08%	
	50Hz-2kHz		0.5%+0.08%	
	2kHz-10kHz		2.0%+0.18%	
Resistance				
Range	Min.Resolution		Max.Uncertainty(1 year)	
100Ω-1MΩ	10μΩ		0.05%+0.008%	
10MΩ	100Ω		0.20%+0.008%	
100MΩ	1kΩ		2.00%+0.005%	
Capacitance				
Range	Min.Resolution		Max.Uncertainty(1 year)	
1nF	1pF		2%+0.8%	
10nF-1000uF	10pF		1.0%+0.5%	
10000uF	1uF		2%+0.5%	
Frequency				
Range	Voltage sensitivity	Min.Resolution	Max.Uncertainty (1year)	
1Hz-1MHz	40mV rms	10μHz	0.005%+0.003%	
Temperature				
Range	Probe type	Min.Resolution	Max.Uncertainty (1year)	
-10℃-100℃	PT500	0.1℃	Probe accuracy±0.2℃	
Uncertainty is not assured if the temperature is out of the range				

Digit Multimeter

H. TH1951/TH1961 Digit Multimeter

Features

- TH1951 5 1/2 digit display(119,999 counts)
TH1961 6 1/2 digit display(1,199,999 counts)
- 12 different measurement capabilities: DCV/ACV, DCI/ACI, Ω 2W/ Ω 4W, Frequency/Period, Diode Test, Continuity, dB/dBm
- High brightness vacuum fluorescent display
- True-rms AC voltage and current measurement, bandwidth up to 100kHz(TH1951)/300kHz(TH1961)
- DCV measurement accuracy up to 0.0035%, resolution up to 0.1uV
- Max. measurement rate: 1000 meas/sec
- Equal accuracy frequency measurement up to 1.1MHz
- Relative mode(REL) to eliminate residual reading
- 2 W, 4W resistance measurement mode selectable
- Built-in mX +b,%, dB, dBm etc. mathematics calculation function
- 512 readings storage and MAX/MIN/AVER/STD statistics
- Up to 30,000 readings storage(without statistics)
- HI/IN/LO comparator function
- USB, BPIB and RS-232 Interfaces provide easy system communication
- Calibration without opening the case
- 10 sets of multimeter setup can be stored and loaded



TH1951/TH1961

The TH1951/TH1961 5 1/2, 6 1/2 digit multimeter can test voltage/current/resistance fast and accurately. Its outstanding performance, such as max.1,200,000 counts, high reading rate1000 meas/sec as well as DC voltage accuracy of 0.0035% provides an ideal cost-effective option for customer.

The concise design of front panel of TH1951/TH1961 makes it easier to locate and select the measurement function. High brightness VFD display allows the user to view clearly. Its 12 different measurement functions, including DCV/ACV, DCI/ACI, Ω 2W/ Ω 4W, Frequency/Period, Diode Test, Continuity, dB/dBm, cover all basic measurement needs.

Many new technologies have been adopted in TH1951/TH1961, such as high speed low noise 26 bits A/D converter which gives the good linear and low noise performances. Fast response servo amplifier, floating power source and low offset buffer amplifier constitute front end of servo so as to remove the traditional attenuation, reduce offset drifting as well as to increase measurement rate. The SMD in the multimeter reduces the system density and volume.

TH1951/TH1961 adopts special input overload protect circuit which can stand 1500V voltage between input and ground. When overloaded, it can recover fast so as to ensure the safety and reliability of the equipment.

Standard GPIB, USB(or RS-232) interface with universal communication software is used with TH1951/TH1961 for easy

communication, data analysis and statistics as well as construction of an automatic measurement system. The system accepts SCPI (standard commands for programmable instrument) command sets. It is compatible in communication software

Test function

Test parameter	DCV, ACV, DCI, ACI, Ω 2W, Ω 4W, FREQ, PERI DIODE, CONT
Mathematics function	mX+b, %, dB, dBm, REL
Range	Auto, Manual
Display	VFD
Trigger Mode	INT/MAN/BUS/EXT
Programmable Time Delay	0 - 6000mS
Reading storage and statistics	2 to 512 readings can be stored, loaded and counted Type of statistics: MAX, MIN, AVER, STD
Reading Hold	To find out best stable reading for each data block of the given reading number according to the given accuracy.
Limitation measurement	To judge HI, IN, LO and display, with ALARM for HI/LO
Setup storage	10 setup files can be stored and loaded
Calibration	Recommend Fluke5520A with TH1951 /TH1961 Accuracy Calibration software (option)
Communication interface	SCPI command support for GPIB(optional), RS232(optional) and USB(standard) interface

Specifications

Measurement condition

Calibration interval: one year

Operation Humidity:18°C-28°C, \leq 90%RH;

When resistor range is 10M and 100M, \leq 70%RH

Warming up time: 30 min

Accuracy is expressed as: +/-(% of reading +% of range)

Temperature coefficient: 0°C--18°C & 28°C--40°C,+0.1%*accuracy /°C

Following is the specification at slow mode, others please refer the operation manual .

Full Scale Reading digits and Reading Rate (meas/sec)

Rate	Slow		Med	Fast
	TH1951	TH1961		
Full scale reading (digits)	119,999	1,199,999	119,999	11,999
Reading rate (meas/sec)	DC V,DC I	4	2	16
	AC V,AC I	3	1.5	4
	Ω 2W	4	2	16
	Ω 4W	3	1.5	10

DC V

Range	Max. reading	Resolution	Accuracy	Input impedance	
TH1951	100mV	119.999	1 μ V	0.02+0.008	>10G Ω
	1V	1.19999	10 μ V	0.01+0.004	>10G Ω
	10V	11.9999	100 μ V	0.01+0.004	>10G Ω
	100V	119.999	1mV	0.01+0.004	10M Ω
	1000V	1010.00	10mV	0.01+0.004	10M Ω
TH1961	100mV	119.9999	0.1 μ V	0.0065+0.0045	>10G Ω
	1V	1.199999	1 μ V	0.0040+0.0009	>10G Ω
	10V	11.99999	10 μ V	0.0035+0.0005	>10G Ω
	100V	119.9999	100 μ V	0.0045+0.0006	10M Ω
	1000V	1010.000	1mV	0.0055+0.0015	10M Ω

Digit Multimeter

H. TH1951/TH1961 Digit Multimeter

DC I						
Range		Max. reading	Resolution	Accuracy	Burden voltage/ shunt resistor	
TH1951	10mA	11.9999	0.1μA	0.05+0.008	<0.15V/10.1Ω	
	100mA	119.999	1μA	0.05+0.004	<1.5V / 10.1Ω	
	1A	1.19999	10μA	0.10+0.004	<0.3V / 0.1Ω	
	10A	11.9999	100μA	0.25+0.004	<0.15V/10mΩ	
TH1961	10mA	11.99999	10nA	0.05+0.004	<0.15V/10.1Ω	
	100mA	119.9999	0.1μA	0.05+0.004	<1.5V / 10.1Ω	
	1A	1.199999	1μA	0.08+0.004	<0.3V / 0.1Ω	
	10A	11.99999	10μA	0.25+0.004	<0.15V / 10mΩ	
AC V						
Range		100mV	1V	10V	100V	750V
TH1951	Max. reading	119.999	1.19999	11.9999	119.999	757.5
	Resolution	1μV	10μV	100μV	1mV	10mV
	10~20 Hz	1.5+0.1				
	20~50 Hz	0.5+0.1				
	50Hz~20 kHz	0.1+0.1				
	20~50 kHz	0.3+0.15	0.3+0.1			
	50~100kHz	1+0.15	1+0.1			
TH1961	Max. reading	119.9999	1.199999	11.99999	119.9999	757.50
	Resolution	0.1μV	1μV	10μV	100μV	1mV
	10~20 Hz	1.50+0.20				
	20~50 Hz	0.50+0.10				
	50Hz~100 Hz	0.10+0.03				
	100~20kHz	0.05+0.03		0.08+0.03		
	20~50 kHz	0.15+0.05	0.11+0.05		0.18+0.05	-----
	50~100kHz	-----				
	100~300kHz	4.00+0.05				
			-----		-----	

AC I				
TH1951	Range	10mA	1A	10A
	Max. reading	11.9999	1.19999	11.9999
	Resolution	0.1μA	10μA	100μA
	10Hz~20 Hz	1+0.08		
	20Hz~50 Hz	0.5+0.08		
	50Hz~2 kHz	0.25+0.08		
	2 kHz~10 kHz	2+0.08		
Burden voltage/ shunt Resistor	<0.15V/10Ω	<0.3V/0.1Ω	<0.15V/10mΩ	
TH1961	Range	10mA	1A	10A
	Max. reading	11.99999	1.199999	11.99999
	Resolution	10nA	1μA	10μA
	10Hz~20 Hz	1.50+0.10		1.60+0.10
	20Hz~50 Hz	0.50+0.03		0.60+0.30
	50Hz~100Hz	0.10+0.3	0.12+0.03	0.15+0.03
	100Hz~2 kHz	0.05+0.03	0.10+0.04	0.12+0.04
	2kHz~5 kHz	0.10+0.03	0.50+0.03	0.60+0.05
	5kHz~10 kHz	0.20+0.03	2.00+0.10	2.50+0.10
	Burden voltage/ shunt Resistor	<0.15V/10Ω	<0.3V/0.1Ω	<0.15V/10mΩ

Ω 2W/Ω 4W					
Range	Max. reading	Resolution	Measurement current	Accuracy	
TH1951	100 Ω	119.999	1mΩ	1 mA	0.05+0.008
	1 kΩ	1.19999	10mΩ	1 mA	0.03+0.004
	10 kΩ	11.9999	100mΩ	100μA	0.03+0.004
	100 kΩ	119.999	1Ω	10μA	0.03+0.004
	1 MΩ	1.19999	10Ω	10μA	0.03+0.004
	10 MΩ	11.9999	100Ω	7.0×Rx/ (10M+Rx)	0.1+0.004
TH1961	100 Ω	119.9999	100μΩ	1 mA	0.010+0.004
	1 kΩ	1.199999	1mΩ	1 mA	0.010+0.001
	10 kΩ	11.99999	10mΩ	100μA	0.010+0.001
	100 kΩ	119.9999	100mΩ	10μA	0.010+0.001
	1 MΩ	1.199999	1Ω	10μA	0.010+0.001
	10 MΩ	11.99999	10Ω	7.0×Rx/ (10M+Rx)	0.040+0.001
	100 MΩ	119.9999	100Ω	7.0×Rx/ (10M+Rx)	0.800+0.010
	Frequency				
	Range	Max. reading	Resolution	Accuracy	Sensitivity (sine wave)
	TH1951	5Hz~10 Hz	9.99999	10μHz	0.05+0.1
10Hz~100Hz		99.9999	100μHz	0.01+0.01	40mV rms
100Hz~100 kHz		999.999	1mHz	0.005+0.002	40mV rms
TH1961	100k~1.1MHz	1099.99	1Hz	0.005+0.002	100mV rms
	5Hz~10 Hz	9.999999	1μHz	0.05+0.1	200mV rms
	10Hz~100Hz	99.99999	10μHz	0.01+0.01	40mV rms
	100Hz ~100 kHz	999.9999	10mHz	0.005+0.002	40mV rms
	100k~1.1MHz	1099.999	0.1Hz	0.005+0.002	100mV rms

General Specifications

Operating Temperature and Humidity		0°C~40°C, ≤90%RH
Power Requirements	Voltage	99V~121V AC , 198V~242V AC
	Frequency	47.5Hz~63Hz
Power Consumption	20 VA max.	
Dimensions (W×H×D)	277mm×115mm×365mm	
Weight	2.5 kg Approx.	

Ordering Information

TH1951 5 1/2 Digit Multimeter

TH1961 6 1/2 Digit Multimeter

Instrument Accessories

TH26036 test leads one pair (black and red)
Power cord

Options

TH10003 GPIB interface board

TH12023 RS232C control software

TH26041 Glided shorting plate

TH26039 4 terminal Kelvin test clip

TH26040 SMD component test clip

TH12022 Accuracy Calibration software

Digit Multimeter

H. TH1941/TH1942 Digit Multimeter



TH1942

Features

- 21,000/51,000-count display
- Large-screen dual-display VFD with high brightness
- True RMS AC voltage and current measurements, bandwidth up to 100kHz
- Measurement functions, including DCV/ACV, DCI/ACI, Ω , frequency/period, diode, Continuity, dBm, dB, etc.
- Parameters, such as AC+DC, AC+Hz, Readout+d B, Readout+d B m, displayed synchronously
- Measurement speed up to 25 meas/sec
- DCV accuracy up to 0.02%, resolution up to 10 μ V
- Measured value displayed in the form of percentage
- Relative mode (REL) to eliminate residual reading
- Calibration without opening the case
- Limit function (HI/IN/LO) for fast sorting
- Equipped RS232C communication interface providing convenient system communication

Brief Introduction

■ TH1941 4 1/2-digit true-RMS digital multimeter and TH1942 50,000-count digital multimeter are voltage, current, resistance tester with multi functions and low cost. The instrument can stably perform measurement at high speed as several times as competitive instruments in this class. It provides excellent performance, such as maximum reading of 21,000/51,000 counts, maximum DC voltage accuracy of 0.02%, and low cost to give you a best choice.

Having VFD dual-display with high brightness, TH1941/TH1942 can synchronously display measurement parameters, such as AC/DC voltage or current, AC voltage/current and frequency to improve measurement efficiency and display results clearly. The instrument is equipped with SMD component inside to reduce density and physical size.

The instrument comes standard with RS232C communication interface and common communication software is optional to meet the need of communication with computer, data analysis and statistics, and building up automatic test system. The instrument accepts SCPI command to ensure compatibility of communication software.

Measurement Functions

Measurement Parameters	DC/AC Voltage, DC/AC Current, Resistance, Frequency, Period, Continuity, Diode
Math function	%, dB, dBm, REL
Range	Auto, Manual
Display	VFD, dual display
Reading mode	Single display: all measurement parameters Dual display: ACV+DCV, ACI+DCI, ACV+Hz, ACI+Hz, Readout+dB/dBm, Readout+Max/Min
Trigger mode	INT/MAN/BUS
Reading hold	TO find out the best stable reading for each data block of the given reading number according to given accuracy
Comparator	To judge HI, IN, LO and display, with ALARM at HI/LO (selectable)
Interface	RS232C (only TH1942), supporting SCPI command

General Specifications

Working temperature & humidity		0°C-40°C, \leq 90%RH
Power supply	Voltage	198V-242VAC, 99V-121VAC
	Frequency	47.5Hz-63Hz
Power consumption		\leq 10 VA
Dimensions (W×H×D)		277mm×115mm×340mm
Weight		Approx. 2.2 kg

Ordering Information

TH1941 4 1/2 Digit Multimeter
TH1942 50000 count Digit Multimeter

Instrument Accessories

TH26036 1 pair of test lead (red and black)
3 cord power line (According to different regions)

Options

TH26034 RS232C interface connection cable
TH12025 RS232C communication software
TH12024 Accuracy calibration software

Digit Multimeter

H. TH1941/TH1942 Digit Multimeter

Measurement condition

Calibration cycle: one year

Operation Humidity: 18°C~28°C, ≤90%RH;

When resistor range is 10M and 100M, ≤70%RH

Warming up time: 30 min

Accuracy is expressed as: +/- (% of reading + % of range)

Temperature coefficient: 0°C~18°C & 28°C~40°C, +0.1%×accuracy /°C



















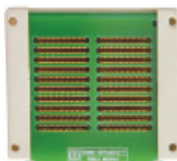





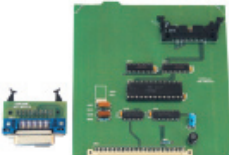

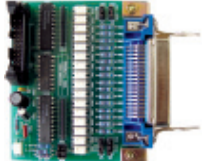
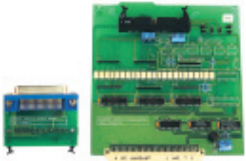







Following is the specification at slow mode, others please refer the operation manual .

Model		TH1941					TH1942				
Speed (counts/second)		Slow	Middle	Fast	Slow	Middle	Fast	Slow	Middle	Fast	
DCV,DCI		5	10	25	5	10	25	5	10	25	
ACV,ACI		5	10	25	5	10	25	5	10	25	
Ω		5	10	25	5	10	25	5	10	25	
AC+DC		1.2	1.4	1.5	1.2	1.4	1.5	1.2	1.4	1.5	
Freq		1	2	3.9	1	2	3.9	1	2	3.9	
DC voltage		Max. reading	Resolution	Accuracy	Input impedance	Max. reading	Resolution	Accuracy	Input impedance		
Range	200mV/500mV	210.00	10μV	0.03+0.04	10MΩ	510.00	10μV	0.02+0.016	10MΩ		
	2V/5V	2.1000	100μV	0.03+0.02	11.1MΩ	5.1000	100μV	0.02+0.008	11.1MΩ		
	20V/50V	21.000	1mV	0.03+0.02	10.1MΩ	51.000	1mV	0.02+0.008	10.1MΩ		
	200V/500V	210.00	10mV	0.03+0.02	10MΩ	510.00	10mV	0.02+0.008	10MΩ		
	1000V	1200.00	100mV	0.03+0.02	10MΩ	1200.00	100mV	0.02+0.008	10MΩ		
DC current		Max. reading	Resolution	Accuracy	Load voltage/ shunt resistance	Max. reading	Resolution	Accuracy	voltage /shunt		
Range	2mA/5mA	2.1000	0.1μA	0.08+0.025	<0.3V/100Ω	5.1000	0.1μA	0.05+0.010	<0.6V/100Ω		
	20mAV/50mA	21.000	1μA	0.08+0.020	<0.04V / 1Ω	51.000	1μA	0.05+0.008	<0.06V / 1Ω		
	200mA/500mA	210.00	10μA	0.08+0.020	<0.3V / 1Ω	510.00	10μA	0.05+0.008	<0.6V / 1Ω		
	2A/5A	2.1000	100μA	0.3+0.025	<0.05V / 10mΩ	5.1000	100μA	0.25+0.010	<0.1V / 10mΩ		
	20A	20.000	1mA	0.3+0.025	<0.6V / 10mΩ	20.000	1mA	0.25+0.010	<0.6V / 10mΩ		
AC voltage		200mV	2V	20V	200V	750V	500mV	5V	50V	500V	750V
Resolution		10μV	100μV	1mV	10mV	100mV	10μV	100μV	1mV	10mV	100mV
Accuracy	20~50 Hz	1.0+0.2		-----		1.0+0.08		-----			
	50~20 kHz	0.5+0.15	0.4+0.05	0.8+0.075		0.5+0.06	0.35+0.02	0.50+0.03			
	20k~50 kHz	1.8+0.25	1.5+0.10		1.5+0.1	1.00+0.04					
	50k~100 kHz	3.0+0.75	3.0+0.25		3.0+0.3	3.0+0.1					
AC current		2mA	20mA	200mA	2A	20A	5mA	50mA	500mA	5A	20A
Resolution		0.1μA	1μA	10μA	100μA	1mA	0.1μA	1μA	10μA	100μA	1mA
Accuracy	20~50 Hz	1.50+0.5		2.00+0.5		1.50+0.16		2.00+0.16			
	50~2 kHz	0.5+0.3		0.5+0.3		0.5+0.08		0.5+0.1			
	2k~20 kHz	2+0.5	2+0.38	-----		2+0.16	2+0.12	-----			
Load voltage/shunt resistance		Same as DC current					Same as DC current				
Resistance		Max. reading	Resolution	Test current	Accuracy	Max. reading	Resolution	Test current	Accuracy		
Range	200Ω/500Ω	210.00	10mΩ	0.5 mA	0.10+0.05	510.00	10mΩ	0.5 mA	0.10+0.010		
	2 kΩ/5 kΩ	2.1000	100mΩ	0.45 mA	0.10+0.025	5.1000	100mΩ	0.45 mA	0.10+0.008		
	20 kΩ/50 kΩ	21.000	1Ω	45μA	0.10+0.025	51.000	1Ω	45μA	0.10+0.008		
	200 kΩ/500 kΩ	210.00	10 Ω	4.5μA	0.10+0.025	510.00	10 Ω	4.5μA	0.10+0.008		
	2MΩ/5 MΩ	2.1000	100 Ω	450nA	0.15+0.025	5.1000	100 Ω	450nA	0.15+0.008		
	20MΩ/50 MΩ	21.000	1kΩ	45nA	0.30+0.05	51.000	1kΩ	45nA	0.30+0.010		
Frequency		Max. reading	Resolution	Accuracy	Sensitivity	Max. reading	Resolution	Accuracy	Sensitivity		
Range	5~10Hz	9.9999	0.0001Hz	0.05+0.02	200mV rms	9.9999	0.0001Hz	0.05+0.02	200mV rms		
	10~100Hz	99.999	0.001Hz	0.01+0.02	300mV rms	99.999	0.001Hz	0.01+0.02	300mV rms		
	100~100kHz	999.99	0.1Hz	0.01+0.008	300mV rms	999.99	0.1Hz	0.01+0.008	300mV rms		
	100k~1MHz	9999.9	10Hz	0.01+0.008	500mV rms	9999.9	10Hz	0.01+0.008	500mV rms		

J. Instrument Accessories & Options

 TH26001A	 TH26003	 TH26004S-1	 TH26004A	 TH26004B
 TH26004C	 TH26004D	 TH26004F	 TH26004E-1	 TH26005A
 TH26005B	 TH26006	 TH26007A	 TH26008A	 TH26009A
 TH26009B	 TH26009C	 TH26010	 TH26011AS	 TH26011BS
 TH26011CS	 TH26013	 TH26015	 TH26016	 TH26017
 TH26018	 TH26019	 TH26023	 TH26025	 TH26026
 TH26027	 TH26027A	 TH26028	 TH26029	 TH26029B

J. Instrument Accessories & Options

				
TH26029C	TH26033	TH26034	TH2883-01	TH2882AS-01
				
TH26036	TH26038	TH26047	TH26048	TH26050S
				
TH1901A	TH1901B	TH1801-EXT1A(2.54)	TH1801-EXT2A	TH1801-EXT3A(5.0/5.0)
				
TH1801-EXT4	TH1801-EXT8A(3.3/3.3)	TH1801-EXT9A(4.0/4.0)	TH1801-EXT11A(5.0/5.0)	TH1801-001
				
TH1802A	TH1902A	TH2881-001	TH10001	TH10002
				
TH10101A	TH10201	TH10202	TH19001 TH19002	TH5100-IL
				
TH90001R/TH90001B	TH90002	TH90003	TH90004	TH90005

J. Instrument Accessories & Options

Model	Name
TH26001A	4 terminal test fixture
TH26003	2 terminal test fixture
TH26004-1	4 terminal Kelvin test clip leads
TH26004A	Kelvin low-ohm test clip leads
TH26004B	3 Terminal test clip leads
TH26004C	2 Terminal test clip leads
TH26004D	3 Terminals test clip leads
TH26004F	Banana plugs - crocodile clip test leads
TH26004E-1	Bias current source link cable
TH26005A	4 terminal test fixture
TH26005B	4 terminal test fixture
TH26006	Axial component test fixture
TH26007A	Core inductor test tweezers
TH26008A	SMD component test fixture
TH26009A	SMD low-ohm test tweezers
TH26009B	SMD Kelvin test tweezers
TH26009C	SMD4-terminal Kelvin test tweezers
TH26010	Gilded shorting plate
TH26011AS	4 terminal Pair Kelvin test clip leads
TH26011BS	4 terminal Pair Kelvin test clip leads
TH26011CS	4 terminal Pair Kelvin test clip leads
TH26013	DC bias test clip leads
TH26015	Leakage group test fixture
TH26016	Handler/Scanner control cable
TH26017	USB interface control cable
TH26018	Low-ohm micro-clip leads
TH26019	Stitch Low-ohm Test cable
TH26023	Multi-channel capacitance link cable
TH26025	USB Interface Board
TH26026	2GB USB-Disk
TH26027	4 terminal Kelvin test clip leads
TH26027A	4-terminal Kelvin clip test leads
TH26028	AC power adapter
TH26029	SMD component test fixture
TH26029B	SMD component test fixture
TH26029C	SMD 4-terminal Kelvin test tweezers
TH26033	GPIB interface cable

Model	Name
TH26034	RS232C interface cable
TH2883-01	High-voltage Test clip leads
TH2882AS-01	High-voltage Test clip leads
TH26036	Test leads one pair(black and red)
TH26038	4 terminal kelvin test clip
TH26047	4 terminal test fixture
TH26048	4 terminal test fixture
TH26050S	4 Terminal Kelvin Clips
TH90001R	High-voltage Test clip leads
TH90001B	High-voltage Test clip leads
TH90002	High-voltage Test Rod
TH90003	remote control withstanding voltage test lead
TH90004	High Voltage Probe
TH90005	Remote control box
TH19001	BNC 50Ω cable leads
TH19002	Test probe with the safe standard
TH5100-IL	Cable plug
TH1801A	Pneumatic transformer scanning fixture
TH1801B	Manual transformer scanning fixture
TH1801-EXT1A	2.54mm Force DIP test socket
TH1801-EXT2A	FRC40 Force DIP test socket
TH1801-EXT3A	5.0mm/5.0mm Force DIP test socket
TH1801-EXT4A	3.3mm/5.0mm Force DIP test socket
TH1801-EXT8A	3.3mm/3.3mm Force DIP test socket
TH1801-EXT9A	4.0mm/4.0mm Force DIP test socket
TH1801-EXT11A	5.0mm/5.0mm Force DIP test socket
TH1801-001	Foot switch
TH1802A	100mA/10V DC bias board
TH1902A	100mA/10V DC bias board
TH2881-001	Foot switch
TH10001	GPIB interface board
TH10002	GPIB interface board
TH10101A	RS232C Handle interface
TH10201	Handle interface board
TH10202	Handler /Scanner interface board
TH10301	20Vrms/40V DC power amplifier / DC bias board



Tonghui



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