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Since 1994

TONGHUI ELECTRONIC

Catalog for Measure and Test Products

http://www.tonghui.com.cn

2021

- 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 Tonghui was granted the honor of “Top 10 civilian-owned New & Hi-tech Enterprises in Changzhou Hi-tech District”.
- 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 Mulitmeter.
- 2006 Granted the title of Credit Trust Enterprise in Changzhou.
- 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.
- 2015 Tonghui was listed on the New Third Board (Company name: Tonghui Electronics; stock code: 833509)
  2015 TH2826 series high frequency LCR Meter won the second prize of Changzhou Science and Technology Progress Award
- 2016 Tonghui was awarded the title of “Contract-honoring and Credit-worthy Enterprise” by Changzhou Administration for Industry and Commerce
  2016 The trademark is recognized as a well-known trademark in Changzhou
- 2017 Tonghui won the first Prize of 2017 Changzhou Innovation and Entrepreneurship Competition
  2017 Tonghui was funded by “Special Fund for Transformation of Scientific and Technological Achievements in Jiangsu Province”
  2017 Tonghui was elected as the vice chairman unit of the 8th Council of China Electronic Instrument Industry Association
- 2019 Tonghui was once again recognized as "Jiangsu High-tech Enterprise"

CHANGZHOU TONGHUI ELECTRONIC CO.,LTD.

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■ 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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Catalog 2021
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Our company reserves the right to change the specifications of the catalog without notice

Component Parameter Test Instruments

A. TH2839 Series Impedance Analyzer

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 Ls-R_{DC}
- High compatibility: Support SCPI commands, compatible with KEYSIGHT E4980A, E4980AL, HP4284A etc.

NEW

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	
	Resolution	100uV	
DC bias	Voltage	0V — ± 40V	
	Resolution	100uV	
	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	
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
TH26011BS 4 Terminal Kelvin Cable

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)
- Multi-parameter Graphic Sweep Function
- Arithmetical operation
- 10 bins sorting, sorting result with sound and light alarm
- Huge storage space:
  Internal: 40 groups of setting files, 10 groups of gif image files
  External: 500 groups of setting files through USB storage
- High compatibility: Support SCPI commands, compatible with KEYSIGHT E4980A, E4980AL, HP4284A etc.

RS232	USB	LAN	HANDER	DC BIAS
standard	standard	standard	standard	standard

GPIB
option

TH2838 Series

Dimension (mm): 400(W) x 132(H) x425(D)
Net weight: 15kg

Brief Introduction

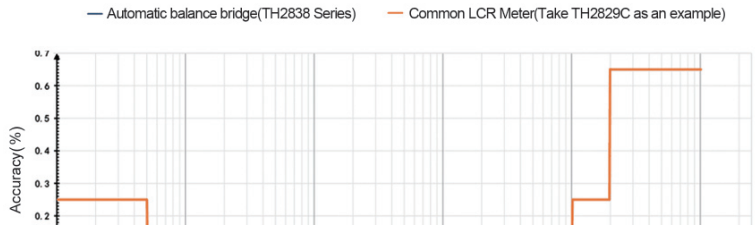
TH2838/TH2838H/TH2838A is a new generation impedance tester adopting the most advanced auto balance bridge theory in the world at present. With its 0.05% basic accuracy, speed up to 5.6ms, 20Hz-2MHz frequency range and impedance test range up to 1GΩ, this new impedance tester can meet all test demands 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 TH1778A/TH1778AS Bias current source, at most 1 set of TH1778+5 sets of TH1778S (120A MAX)	
RS232			
GPIB (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

TH26010 Gold-plated short circuit board

TH26011BS 4 terminal pair Kelvin test clip leads

TH26005C Four-terminal test fixture

Options

TH26108C Four-terminal-pair patch test fixture

TH26007A Magnetic ring test fixture

TH26047 Four-terminal test fixture

TH26063 Four-terminal test fixture

TH2838-GPIB GPIB Interface board

TH26008A SMD component test fixture

TH26009B SMD Kelvin test tweezers

TH26048 Four-terminal test fixture

TH26062A Four-terminal test fixture

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/2A 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-Idc
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±5ºC; 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	0.00001Ω — 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)	-179.999º — 179.999º
	θ(RAD)	-3.14159 — 3.14159
	Δ%	-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, Δ%
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		·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		·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		·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℃—40℃, ≤ 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 4.3-inch TFT LCD display
Frequency of test signal	TH2827A		20Hz—300kHz
	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±5ºC; 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	0.00001Ω — 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)	-179.999º — 179.999º
	θ(RAD)	-3.14159 — 3.14159
	Δ%	-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, Δ%
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		·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	GPIB (optional)
	NI	LAN
	Memory interface	USB HOST (front panel)
General Specifications		
Operating temperature and humidity		0℃—40℃, ≤ 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 TH2827C)

TH26048 Four-terminal test fixture

TH26038 Four-terminal test fixture

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)
- 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≤1MHz	10mV–5V,±(10%+10mV)
	f>1MHz	10mV–1V,±(20%+10mV)
Output impedance	10Ω, 30Ω, 50Ω, 100Ω	
Basic Accuracy	0.1%	
Display Range	L	0.0001 uH – 9.9999kH
	C	0.0001 pF – 9.9999F
	R,X,Z,DCR	0.0001 Ω – 99.999 MΩ
	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>30kHz),100(f>1kHz) 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,±(10%+10mV), with the resolution of 1mV
	Current mode (internal resistance is 50Ω)	-100mA – +100mA, ±(10%+0.2mA), with the resolution of 20uA
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, ≤90%RH
Power supply	Voltage	99V–121V,198V–242V
	Frequency	47.5Hz–63Hz
Power Consumption		≤ 80VA
Dimensions (W×H×D)		400mmx132mmx385mm
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) x360(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	TH2832
Basic measurement accuracy (See details in technical specification)	LCRZ	0.05%	0.05%
	DCR	0.1%	
	Calibration condition	Warm up time: ≥ 30 minutes ; Environment temperature: 23±5ºC 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	**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	
		100μA—20mArms	
		Resolution: 0.1mA	
	Constant level (ALC ON)	------	20mV—1Vrms
		------	Resolution: 10mV , Accuracy: 10%
		------	200μA—10mArms
		------	Resolution: 0.1mA
DCR test signal level		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	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
- High 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

CE

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, ΔABS, Δ%, 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	30Ω , 100Ω	
Test level	10mVrms to 2.0Vrms, 10mV steps	

Measurement display range	
|Z|, R,X	0.00001Ω — 99.9999MΩ
C	0.00001pF — 999.999mF
L	0.00001μH — 9.99999kH
G,B	0.00001μS — 999.999S
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%

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+ 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 (<100μV), 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

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+(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

TH2817B

Dimensions: 310mm(W)x108mm(H)x375mm(D)
Weight: 3.6kg

Standard | RS232 | HANDLER

option | GPIB ☐

Applications

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

- 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,△%	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,△ABS,△%	Direct reading,△%
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 sorting, PASS/FAIL instructions
Memory	Nonvolatile storage	100 sets of LCRZ instrument setting files	ten groups of the instrument setting file
	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 (<100μV), 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)

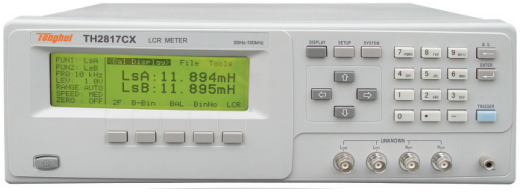
Support SCPI,MODBUS protocol

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 ☑

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 ±2VDC bias source, ±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 ☐

Applications

- Passive components:
  Evaluation of Impedance Parameters for Capacitors, Inductors, Cores, Resistors, piezoelectric devices, Transformers, Chip Components, and Network Components
- 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, θd, θr, Vm, Im, △%	|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	±1V	2V	------
DC bias		------	2V,can be expanded to 5V	------
Source impedance		10Ω, 100Ω optional	30Ω, 100Ω	
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,△ABS,△%	Direct reading,△%	
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 (<100μV), 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
- Other components:
  Impedance evaluation of printed circuit boards, relays, switches, cables, batteries, etc.

Specifications

Model	TH2810B+
Basic accuracy	0.1%
Test frequency	100Hz,120Hz,1kHz,10kHz
Test parameters	L, C, R, |Z|, D, Q, X, θd, θr, Vm, Im, △%
V/I monitor	Yes
AC test signal level	0.1Vrms,0.3Vrms,1Vrms
Signal source internal resistance	10Ω, 100Ω
Test terminal configuration	5-terminal
Test speed (ms/time)	Fast: 19ms;Medium:83ms;Slow: 333ms F≤120Hz Fast :4XT+3ms
Zero clearing	Open, Short, Load
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,△ABS,△%
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
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

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)

CE

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%
Equivalents 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	
C 1kHz	0.1pF - 9999.9μ F	
C 10kHz	0.01pF - 999.99μ F	
L 100Hz/120Hz	1μH - 99999H	
L 1kHz	0.1μH - 9999.9H	
L 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)		270mmx130mmx300mm
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	100Ω			
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	0.00μH - 1000.0H	0.000μH - 1000.0H	0.00μH - 1000.0H	0.000μH - 1000.0H
C	0.00pF - 20.000mF	0.000pF - 20.000mF	0.00pF - 20.000mF	0.000pF - 20.000mF
Z/R	0.0000Ω- 10.000MΩ			
DCR	------	------	0.0000Ω- 20.000MΩ	
ESR	0.0000Ω- 999.9Ω			
D	0.0000 - 9.999			
Q	0.0000 - 9999			
θ	0.00°- ±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(100Ω Load)			
Standby Currant	Max.2μA	18μA	11μA	
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)

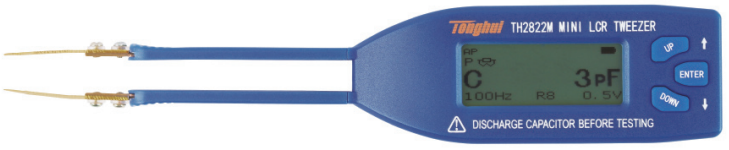
Component Parameter Test Instruments

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

NEW



Dimension (mm): 181.5(W) x 34(H) x20(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 : ±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 (±1, ±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 ±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 ±1%,±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±1%,1MHz±2%	100Hz,120Hz, 1kHz,10kHz,100kHz
	Accuracy	±0.02%	
Level	Range	0.1V-1V	
	Resolution	0.01V	
	Accuracy	±5%	
Output mode		Continuous or synchronous	
Signal source delay	Range	0-1s	
	Resolution	0.1ms	
Signal level compensation	100/120Hz	220μF, 470μF, 1mF range	
	1kHz	22μF, 47μF, 100μF range	

Component Parameter Test Instruments

A. TH2638 / TH2638A Precision Capacitance Meter

Output impedance	100 Hz 120Hz	SLC OFF (≥ 220μF range) 1.5 Ω SLC ON (≥ 220μF range) 0.3 Ω 2.2μF - 100μF range 0.3 Ω 10 nF - 1μF range 10 Ω	
	1kHz	SLC OFF (≥ 22μF range) 1.5 Ω SLC ON (≥ 22μF range) 0.3 Ω 220 nF - 10μF 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, 1μF, 2.2μF, 4.7μF, 10μF, 22μF, 47μF, 100μF, 220μF, 470μF, 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, 1μF, 2.2μF, 4.7μF, 10μF, 22μF, 47μF, 100μF	
	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, 1μF, 2.2μF , 4.7μF, 10μF	
	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 aΩ to 999.9999 EΩ	
	G	±1.000000 aS to 999.9999 ES	
	Δ%	±0.0001 % to 999.9999 %	
Basic measurement accuracy		C:0.07%, D:0.0005	
Display mode		Floating / fixed decimal point display, ΔABS, Δ%	
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 ℃ - 45 ℃, 15% - 85% RH (≤40℃, non-condensing), 0 - 2000m	
Power supply	voltage	90VAC - 264VAC	
	frequency	47Hz - 63Hz	
	power	Max.150VA	
Temperature, humidity, height (Storage environment)		-20 ℃ - 70 ℃，0 - 90% RH (≤65℃，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. 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, Vt
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. 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 grafic 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		Rmax= $\frac{Vmax}{I}$(Ω)(Calculation of Rmax, please refer to the description in user manual)
Maximum permitted inductance value		Lmax= $\frac{Vmax}{di/dt}$ (mH)(Calculation of Lmax, 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、laverLink
Work environment	Temperature	0℃-55℃
	Humidity	＜90%RH
Power requirement of adapter	Voltage	AC 220V/110V（1±10%）
	Frequency	50Hz/60Hz（1±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	ωL < 2kΩ, 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)		430mmx180mmx460mm
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

Component Parameter Test Instruments

A. TH902A/TH903A Inductance DC Bias Test System

Features

- Windows operation system
- High stability, high frequency response
- Flexible configuration
- Small current step
- Single output, step sweep, graphic sweep
- Multi frequency current sweep curve
- Graphic operation. English version included
- File format: Data base, Excel, Text

Standard | RS232 | SlaveLink

Dimensions : 600mm(W)x1600mm(H)x800mm(D)

weight : 180kg

Application

- DC feature analyze of inductor/reactor
- Saturation analyze of Iron core/ferrite
- Other material

Specifications

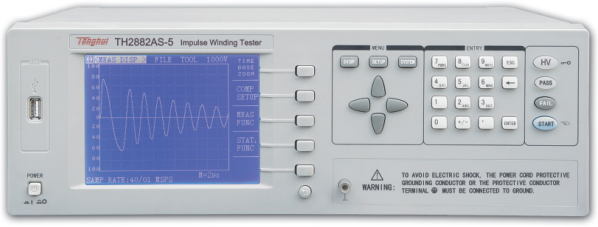
Model		TH903A		TH902A	
Display		LCR display+PC display		TH2829 or TH2827 display	
Frequency		0Hz-2MHz			
Current		20A-120A: TH1778A, 1-5 sets of TH1778S/TH1778AS			
Combination	LCR	TH2827A/TH2829A	TH2827B/TH2829B		TH2827C/TH2829C
	Frequency	20Hz - 300kHz	20Hz - 500kHz		20Hz - 1MHz
	Bias current source	TH1778A		TH1778AS	
	Current	Min. one set of 20A		20A, 5 sets at most	
	Control system	IPC, LCD display, keyboard, mouse, software, 19 inch frame		------	
	Display	Single point, list, graphic sweep, multi frequency current sweep curve		Single point, list, graphic sweep(Only for TH2829)	
	Storage	Test file, waveform picture, waveform, data (EXCEL,TXT,data base)		Test file, screen shot, csv,waveform(only for TH2829)	
Current loading way		Upper computer+LCR+Footswitch		LCR +footswitch	
Current step		1.000A - 5.000A	25mA	5.0A - 120.0A	100mA
Sweep adjust time		1.000A - 5.000A	10ms-3600s	5.0A - 120.0A	20ms - 3600s
Min.step of sweep adjust		1.000A - 5.000A	25mA	5.0A - 120.0A	100mA
Max. output voltage		10V			
Max. DCR		Rmax=Vmax/I (Ω)			
Max. Inductance		Lmax=Vmax/(di/dt) (mH)			
Continue loading time		2-3h, non-stop output			

B. TH2882A Series Impulse Winding Tester

Features

- Low inductance impulse test: down to 10μH
- 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
- Fridndly 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)

CE

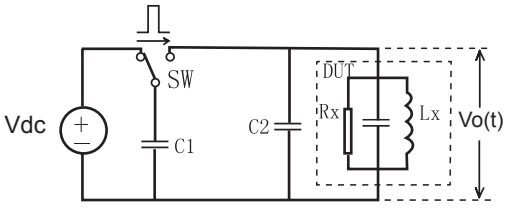


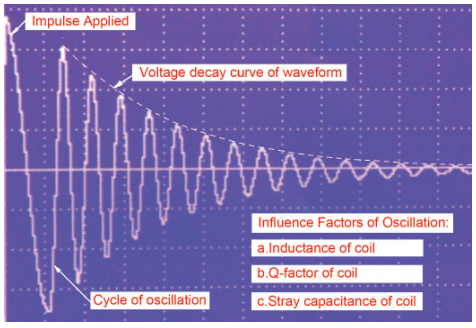
TH2882A Series

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 performace of coil products.

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

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.

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

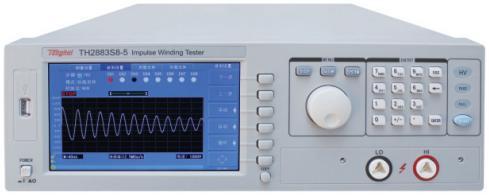
Instrument Accessories

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

Options

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

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



TH2883S8-5/th2883S4-5

Features

- Impulse voltage of 100V~5000V
- Two models of 4-channel and 8-channel4 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

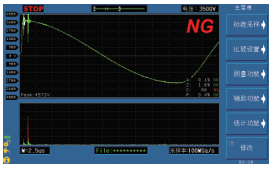
Brief Introduction

■ 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 of100V~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.

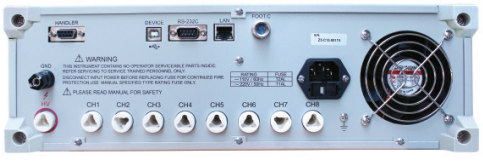
According to the output number of channels, TH2883 series is consist of 2 models:TH2883S8-5 and TH2883S4-5. TH2883S8-5 is the ideal product for measurements of multiphase coils. The 8 channel of TH2883S8-5 can be programmed and configured as voltage high-terminal, voltage low-terminal and OFF. Any combination 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:



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

Specifications

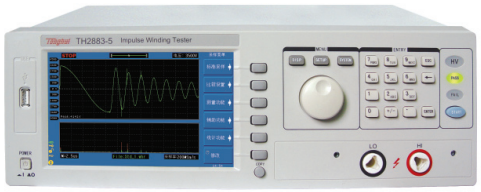
Model		TH2883S8-5	TH2883S4-5
Impulse voltage		100V-5000V 10V steps	
Voltage accuracy		±(5% set value +15V)	
Readback accuracy		±(5% actual value +15V)	
Channels		8	4
Inductance test range		≥10uH	
Impulse energy		Max.: 0.25 Joule	
Test speed		6 times/second (single channel, single step)	
Pulses applied		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: ● 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℃ - 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

TH90003R High voltage test cable x 8 (only for TH2883S8-5)
TH90003R High voltage test cable x 4 (only for TH2883S4-5)

B. TH2883 Series Impulse Winding Tester



TH2883 Series

Features

- Impulse voltage of 30V~10kV
- Minimum inductance value of winding that can be tested: 1uH
- 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
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Brief Introduction

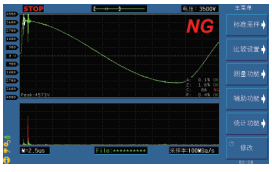
■ TH2883 series products are newly developed impulse winding testers by Tonghui. This product line makes Tonghui as the first provider of impulse winding tester from low voltage of 30V to high voltage of 10kV, single channel to multichannel (Max.:8 channels) in this industry. The instrument adopts popular 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 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 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.

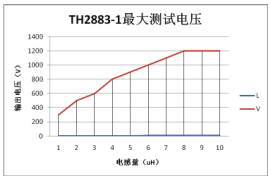
Standard-equipped USB Host, RS232C, USB Device and LAN interface of TH2883 series product are convenient for your fast storage of graphs and remote control.

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:



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: ● 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

Features

- 7-inch TFT LCD display with a resolution of 800×RGB×480
- Frequency up to 1MHz, resolution: 0.5mHz
- Signal level: 5mV-2Vrms, optional (2Vrms-10Vrms)
- Built-in 0-100mA/0-10V bias power supply, optional 1A/2A bias current source
- Up to 75 times / sec test speed
- Diode forward and reverse characteristic detection
- Improved high turns ratio and weakly coupled transformer test capability
- Improved DCR testing capabilities
- Single screen can accommodate all scan test results
- Time stamping system: memory file setting, calibration deviation and deduction time
- Sort the selected scanning parameters
- Self-test scanning fixture relays
- Flexible deviation deduction method
- Multiple handling ways for FAIL cases
- Single parameter test cycle to test independent windings
- Increased security: administrator and operator passwords
- Built-in statistical analysis capabilities: Cpk, Cp, Ck, etc.
- Bar-code reading function can be used to select a setting file or to manage the type of test products
- Optional PC-level instrument test setup file programming capability
- Online upgrade mode: USBHOST or RS232
- Support multiple instrument networking through LAN interface
- Backward compatible with TH2818X/TH2819X parameter setting file
- Storage: Internal: 100 groups of settings file to save
  U disk: 500 groups of configuration files, CSV format test data, GIF format images

TH2829X Series

Standard	RS232 ☑	USB HOST ☑	USB DEVICE ☑	LAN ☑	SCA NNER ☑
option	GPIB ☐	RS485 ☐	HANDLER ☐		

Dimension(mm): 400mm(W)x132mm(H)x385mm(D)
Weight: 13kg

Applications

- Switching transformer scanning test, comprehensive characteristics analysis.
- Network transformer scanning test, comprehensive characteristics analysis
- Discrete passive components (L, R, C) multi-channel scanning test
- Relay drive line package, contact resistance multi-channel scanning test
- Multi-channel DC resistance DCR scanning test
- Comprehensive test analysis of multiple passive components in impedance network

Specifications

Model	TH2829 LX	TH2829 AX	TH2829 AX-24	TH2829 AX-48	TH2829NX	TH2829CX
Test Pin(PIN)	20	20	24	48	72/96/120/144/168/192	20
Test frequency	20Hz — 200kHz					20Hz — 1MHz
Display	800×RGB×480 7 inch TFT LCD display					
LCR Function	option					
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					
Basic test accuracy	LCRZ	0.05%				
	DCR、Turn Ratio	0.1%				
Signal source output impedance	10Ω、30Ω、50Ω、100Ω					
Test speed (ms/times)	13ms, 90 ms, 370 ms					
AC signal level	5mVrms — 2Vrms(transformer test, can be customized to 10Vrms), 5mVrms — 10Vrms(LCR function); 50μArms — 100mArms					
DC bias voltage source	------	0V — ± 10V; 0mA — ± 100mA				
DC bias current source	0 — ±1A option(option TH2901) / 0 — ±2A option(option TH2902)					
DC constant current source	0mA – ±120mA for diode forward characteristic test					
Diode test	forward test voltage	0 — 9.9999 V				
	Reverse test current	0 — 99.999 mA				
Comparator	10 bins, PASS/FAIL indication, file counting function					
Storage	Internal: 100 sets of configuration file; U disk: 500 sets of configuration files, CSV format test data, GIF format images					

Standard Accessories

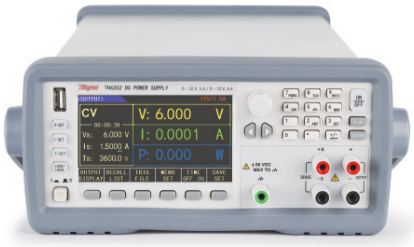
Three core power cord
TH26016 Handler/Scanner standard 36P control cable (TH2829LX/AX/BX/CX only)
TH26011AS four-terminal Kelvin test cable (TH2829LX/AX/AX-24/AX-48/NX only)
TH26011BS four-terminal Kelvin test cable(TH2829CX/CX-24/CX-48 only)
TH26004B two-terminal test cable
TH1901B manual transformer scanning test fixture
TH1801-001 Foot Start Switch (except TH2829AX-24/AX-48)
TH2829AX-001 Foot Start Switch (TH2829AX-24/AX-48 only)

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) x426(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	
Rated output (0℃-40℃)	Channel/Range		Range1	Range2	Range1	Range2	Range1	Range2	Range1	Range2	Range1	Range2
	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℃± 5℃) ± (% 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

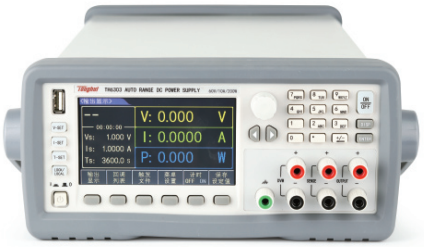
C. TH6300 Series DC Power Supply

Features

- 480x272 pixels, 24-bit color, 4.3-inch color TFT LCD screen for setting test conditions and display of testing results, etc.
- Digital keyboard and knob operation, simple and fast
- High accuracy, high resolution, low ripple and low noise
- Support shutdown data saving and boot data loading
- Support voltage test function
- Support data saving and callback
- List setting and step output
- Intelligent fan control to save energy and reduce noise
- Software control and detection via computer
- Interface: RS232, USB, GPIB (optional)

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



TH6303

Rack mount (mm): 215(W) x 88(H) x 412(D)
Dimension (mm): 235(W) x 111(H) x440(D)
Net weight: 8.1kg

Standard	RS232 √	USB HOST √	USB DEVICE √

option	GPIB □

Specifications

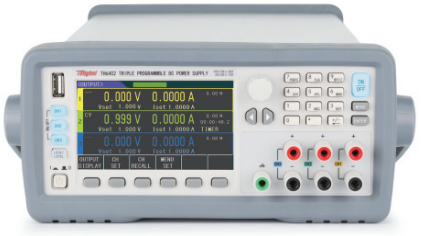
Modle		TH6301	TH6302	TH6303	TH6304	TH6312	TH6313	TH6314	TH6323	TH6324
Rated output	Voltage	20V	30V	60V	120V	30V	60V	120V	60V	120V
	Current	30A	20A	10A	5A	30A	15A	6A	25A	10A
	Power	200W	200W	200W	200W	360W	360W	360W	600W	600W
Load regulation≤	Voltage	0.01%+20mV	0.01%+20mV	≤0.01%+5mV	≤0.01%+5mV	0.01%+20mV	≤0.01%+8mV	≤0.01%+8mV	≤0.01%+15mV	0.01%+15mV
	Current	0.01%+20mA	0.01%+ 15mA	≤0.01%+4mA	≤0.01%+4mA	0.01%+20mA	≤0.01%+6mA	≤0.01%+6mA	≤0.01%+10mA	0.01%+10mA
Power regulation≤	Voltage	0.01%+20mV	0.01%+ 20mV	≤0.01%+5mV	≤0.01%+5mV	0.01%+20mV	≤0.01%+8mV	≤0.01%+8mV	≤0.01%+15mV	0.01%+15mV
	Current	0.01%+20mA	0.01%+ 15mA	≤0.01%+4mA	≤0.01%+4mA	0.01%+20mA	≤0.01%+6mA	≤0.01%+6mA	≤0.01%+10mA	0.01%+10mA
Set value resolution	Voltage	1mV(＜100V), 10mV(＞100V)								
	Current	0.1mA(＜10A), 1mA(＞10A)								
Read-back resolution	Voltage	1mV(＜100V), 10mV(＞100V)								
	Current	0.1mA(＜10A), 1mA(＞10A)								
Year set accuracy (25°C±5°C)≤	Voltage	0.05%+10mV	0.05%+10mV	0.05%+10mV	0.05%+15mV	0.05%+10mV	0.05%+10mV	0.03%+15mV	0.05%+10mV	0.05%+15mV
	Current	0.1%+30mA	0.1%+20mA	0.1%+10mA	0.1%+20mA	0.1%+30mA	0.1%+15mA	0.1%+20mA	0.1%+25mA	0.1%+25mA
Year read-back accuracy (25°C±5°C)≤	Voltage	0.05%+10mV	0.05%+10mV	0.05%+10mV	0.05%+15mV	0.05%+10mV	0.05%+10mV	0.03%+15mV	0.05%+10mV	0.05%+15mV
	Current	0.1%+30mA	0.1%+20mA	0.1%+10mA	0.1%+20mA	0.1%+30mA	0.1%+15mA	0.1%+20mA	0.1%+25mA	0.1%+25mA
Ripple and Noise (20Hz20MHz)≤	Differential mode voltage	15mVpp	15mVpp	15mVp-p	20mVp-p	15mVpp	15mVp-p	20mVpp	20mVp-p	25mVp-p
	Differential mode current	10mArms	10mArms	8mArms	10mArms	12mArms	10mArms	12mArms	13mArms	15mArms
Rise time≤	10%-90%	100ms	100ms	150ms	150ms	100ms	150ms	150ms	150ms	150ms
Fall time≤	90%-10%	2s	2s	2s	3.5s	2s	2s	3.5s	2s	3.5s
Memory		10 sets of trigger output, 100 steps per group, 100 groups of set memory								
Output		Support front and rear panel output, the maximum output current of front terminal is 10A								

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



CE

TH6402

Rack mount (mm): 215(W) x 88(H) x 457(D)
Dimension (mm): 235(W) x 105(H) x487(D)
Net weight: 13kg

Standard	RS232 ☑	USB HOST ☑	USB DEVICE ☑

(TH6402A only USB HOST)

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			TH6402A			TH6402			TH6412			TH6413		
Rated output (0℃-40℃)	Channel/Range		Range1	Range2	Range3	Range1	Range2	Range3	Range1	Range2	Range3	Range1	Range2	Range3
	Voltage		0-30V		0-5V	0-30V		0-6V	0-30V		0-6V	0-60V		0-6V
	Current		0-3A		0-3A	0-3A		0-5A	0-6A		0-5A	0-3A		0-5A
	Power		90W		15W	90W		30W	180W		30W	180W		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℃± 5℃) ± (% 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		≤0.1%+8mA
	Read-back	Voltage	≤0.05% + 20 mV			≤0.03% + 10 mV								
		Current	≤0.2%+5mA			≤0.1%+5mA		≤0.1%+8mA				≤0.1%+5mA		≤0.1%+8mA
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											

Power Electric Tester

C. TH6402B Quadruple 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 four 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 (The channel only supports front panel output)
- Programmable output of voltage and current
- Timing output: time (0.1-99999.9s)
- Four-channel independent adjustment
- Simultaneously display of voltage, current, power and timing output time for four-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 HOST
- Software monitoring via computer

TH6402B

Rack mount (mm): 215(W) x 88(H) x 473(D)
Dimension (mm): 235(W) x 111(H) x501(D)
Net weight: 12kg

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

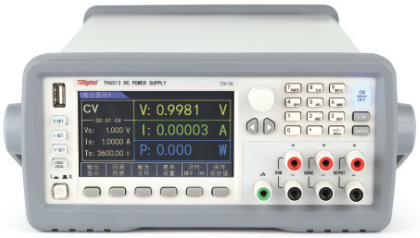
Model			TH6402B			
Rated output (0℃-40℃)	Channel/Range		Channel1	Channel2	Channel3	Channel4
	Voltage		0-30V		0-10V	0-5V
	Current		0-3A		0-3A	0-1A
	Power		90W		30W	5W
Load regulation ± (% Output + Bias)	Voltage		≤0.01% + 3 mV			
	Current		≤0.01% + 3 mA			
Power regulation ± (% Output + Bias)	Voltage		≤0.01% + 3 mV			
	Current		≤0.01% + 3 mA			
Programming resolution	Voltage		1mV			
	Current		0.1mA			
Read-back value resolution	Voltage		1mV			
	Current		0.1mA			
Year accuracy (25℃± 5℃) ± (% Reading + Bias)	Programming	Voltage	≤0.1% + 20 mV			
		Current	≤0.2%+5mA			
	Read-back	Voltage	≤0.1% + 20 mV			
		Current	≤0.2%+5mA			
Ripple and Noise (20Hz-20MHz)	Normal mode voltage		≤1mVrms/ 3mVp-p			
	Normal mode current		≤3mArms			
Series and parallel set value accuracy	Voltage		≤0.02% + 10 mV			
	Current		≤0.2% + 20 mA			
Timer			0.1 ~ 99999.9 seconds			
Memory			40 groups of settings files / channels			

Power Electric Tester

C. TH6501/TH6502/TH6503/TH6511/TH6512/TH6513 DC Power Supply

Features

- 24-bit color 4.3-inch color LCD display
- LCD resolution 480*272
- Numeric keypad operation
- Low ripple and low noise
- Intelligent fan control to save energy and reduce noise
- Software monitoring via computer
- Editable voltage and current output waveform with time (resolution 1ms) (LBT mode)
- The power output can be turned on and off by an external signal
- The knob can be used to coarsely adjust and fine tune the voltage and current values.
- High accuracy and resolution: 0.1mV/0.01mA
- Timing output time can be set (0.01-9999.99S)
- Screen information can be stored in the USB flash drive
- Chinese and English user interface
- Flexible and convenient file operating system
- Built-in 5 1/2 digital milliohm meter
- Automatic upgrade of instrument operating software via USB HOST
- Handler interface for online operations
- RS232, USB HOST, USB Device, GPIB can easily realize the data communication with PC and remote control of the instrument
- Comes with hardware OVP, OCP protection (OCP is software protection)
- Front panel and rear panel with output and sampling terminals, voltage and resistance measuring terminal
- Support standard SCPI and MODBUS communication protocols



TH6513

Rack mount (mm): 215(W) x 88(H) x 412(D)
Dimension (mm): 235(W) x 111(H) x440(D)
Net weight: 8.1kg

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

Modle		TH6501	TH6502	TH6503	TH6511	TH6512	TH6513
Rated output	Voltage	0-20V	0-32V	0-72V	0-20V	0-32V	0-72V
	Current	0-5A	0-3A	0-1.5A	0-10A	0-6A	0-3A
	Power	100W	96W	108W	200W	192W	216W
Load regulation	Voltage	≤0.01%+2mV					
	Current	≤0.05%+1.5mA					
Power regulation	Voltage	≤0.01%+1mV					
	Current	≤0.05%+1mA					
Set value resolution	Voltage	1mV					
	Current	0.1mA					
Read-back resolution	Voltage	0.1mV					
	Current	0.01mA					
Year set accuracy (25℃±5℃)	Voltage	≤0.03%+3mV					
	Current	≤0.05%+2mA					
Year read-back accuracy(25℃±5℃)	Voltage	≤0.02%+3mV					
	Current	≤0.05%+2mA			≤0.05%+2.5mA		
Ripple and Noise (20Hz-20MHz)	Differential mode voltage	≤3mVp-p and 1mVrms			≤4mVp-p and 1mVrms		
	Differential mode current	<3mArms			<4mArms		
Dynamic recovery time (50%-100% LOAD) Restore to time within 75mv		<200us					
Rise time	10%-90%	<20ms					
Fall time	90%-10%	<200ms	<250ms	<150ms	<200ms	<250ms	<150ms
Overvoltage protection	Range (Typical)	1-19V	1-31V	1-71V	1-19V	1-31V	1-71V
	Accuracy (typical)	± (set value *0.5%+0.5V)					
	Response time (typical)	<10ms					
DVM(DC)	Display value accuracy	±0.02%+10mv					
	Display resolution	0.1mv					
	Input differential mode voltage range	0-40Vpk					
	Input common mode voltage range	0-30Vpk					

Programmable DC Electronic Load

C. TH8200 Series Programmable DC Electronic Load

Features

- Constant current (CC), constant resistance (CR), constant power (CV), constant power (CP) operation mode
- Current remote control monitoring function, external trigger function
- 1mV/10μA high resolution, ripple measurement function
- Dynamic current/voltage test, up to 50K dynamic frequency
- Voltage and current measurement can achieve high precision while testing speed up to 100KHz
- Programmable soft start function
- CR-LED test, arbitrary I-V characteristics, battery test, dynamic scan test, load effect, list function and many other advanced functions
- Overvoltage (programmable), low voltage, over current (programmable), overpower (programmable), overheating, anti-reverse protection, etc.
- Remote voltage compensation input test function
- Short circuit function simulation
- The adoption of the Linux operating system makes the number of internal parameter file storages essentially unrestricted
- Perfect U disk function (parameter file storage and loading, interface screenshot, system firmware upgrade)
- Setting parameters support power-off memory function
- Intelligent temperature control fan
- RS232 (standard), USB (standard), Ethernet (standard), WIFI (optional)
- Matching with upper-computer software to achieve remote operation and monitoring matching

NEW

Standard	RS232 ☑	USB HOST ☑	USB DEVICE ☑	HANDLER ☑	LAN ☑

Dimension(mm): 215mm(W)x143mm(H)x525mm(D)[TH8201/TH8202/A]
Dimension(mm): 430mm(W)x143mm(H)x525mm(D)[TH8203/TH8204]
Weight: 7.8kg[TH8201] / 9.1kg[TH8202] / 8.7kg[TH8202A]

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	TH8201			TH8202			TH8202A			TH8203			TH8204		
Input voltage	1-150V														
Current	0-400mA	0-4A	0-40A	0-800mA	0-8A	0-80A	0-400mA	0-4A	0-40A	0-1.6A	0-16A	0-160A	0-2.4A	0-24A	0-240A
Power	0-1.75W	0-17.5W	0-175W	0-3.5W	0-35W	0-350W	0-3.5W	0-35W	0-350W	0-7.0W	0-70W	0-700W	0-10.5W	0-105W	0-1050W
Static mode	CC mode (constant current mode) CR mode (constant resistance mode) CV mode (constant voltage mode) CP mode (constant power mode)														
Accuracy	0.2% F.S.			0.2% F.S.			0.2% F.S.			0.2% F.S.			0.2% F.S.		
Dynamic mode															
Frequency range	100Hz~50kHz/0.01Hz~1kHz			100Hz~50kHz/0.01Hz~1kHz			100Hz~50kHz/0.01Hz~1kHz			100Hz~50kHz/0.01Hz~1kHz			100Hz~50kHz/0.01Hz~1kHz		
Accuracy	1μs/1ms+100ppm			1μs/1ms+100ppm			1μs/1ms+100ppm			1μs/1ms+100ppm			1μs/1ms+100ppm		
External waveform mode (20kHz) : CC	Control level range 0~10V accuracy: 0.5%F.S.														
Range	0-400mA	0-4A	0-40A	0-800mA	0-8A	0-80A	0-400mA	0-4A	0-40A	0-1.6A	0-16A	0-160A	0-2.4A	0-24A	0-240A
Soft start	Setting range: 0~500ms accuracy ±(30%+100μs)														
Front panel BNC terminal															
TRIG OUT	The output pulse level is about 4.5V, the output pulse width is about 2μs, and the output impedance is about 500Ω														
I MON OUT	Voltage detection output, the corresponding full-scale current is 1V														
Protection function	Overvoltage Protection (OVP) Overcurrent Protection (OCP) Over Power Protection (OPP) Over Temperature														
Interface	Handler、RS232、USB DEVICE、USB HOST、LAN														

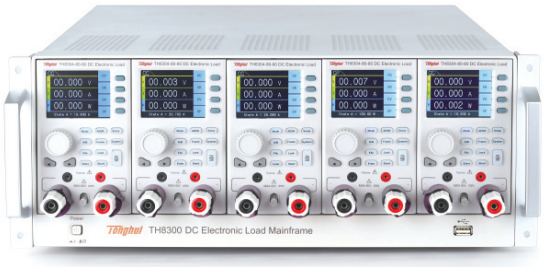
Programmable DC Electronic Load

C. TH8300 Series Programmable DC Electronic Load

Features

- High resolution: 0.1mV/10μA
- Up to 50kHz dynamic frequency
- Up to 500kHz sampling speed
- 12 advanced test functions
- Modular design, support each module to operate independently
- One single machine can support up to five modules in parallel and support up to ten channels
- The maximum power of the whole machine is 2000W, and the online maximum current is 400A
- The maximum power of the module is 400W, the maximum current is 80A and the maximum voltage is 600V
- Connect via CAN interface, support up to four complete machines online
- 24-bit color 2.8-inch color LCD display
- Chinese and English operation interface
- Smart fan system
- Support power-on hold function
- Support timing function
- Electrical isolation, external input and output
- Support over current protection (OCP), over voltage protection (OVP), over power protection (OPP), over temperature protection (OTP), reverse polarity protection (REV), low voltage protection (LVP)

NEW



Standard RS232 √ USB HOST √ USB DEVICE √ GPIB √

SYSTEM I/O √ LAN √ CAN √

Dimension(mm)：477mm(W)x177mm(H)x590mm(D) Weight: 15kg
Dimension(mm)：142mm(W)x85.5mm(H)x550mm(D) Weight: 4.2kg

Application

- Power supply

Chargers, switching power supplies, communication power supplies, LED drivers, mobile phone batteries, power banks, etc.

- New energy

Solar cells, new power cars, electric bicycles

- Electronic power components

Fuse/connector/relay/sensor

- Automation equipment integration test

Specifications

Main machine		TH8300 frame											
Supported modules		5											
Interface		RS232、USB HOST、USB DEVICE、LAN、GPIB、SYSTEM I/O、CAN											
Module													
Model		TH8301-80-20			TH8302-80-40			TH8303-80-60			TH8304-80-80		
Power		100W×2			200W×1			300W×1			400W×1		
Voltage		0-80V			0-80V			0-80V			0-80V		
Current		0-20A			0-40A			0-60A			0-80A		
Normal mode		Constant current (CC), constant resistance (CR), constant voltage (CV), constant power (CP)											
Constant voltage	Range	6V			16V			80V					
	Resolution	0.1mV			1mV			1mV					
	Accuracy	0.05%+0.1%FS											
Constant current	Range	0-0.2A	0-2A	0-·20A	0-0.4A	0-4A	0-40A	0-0.6A	0-6A	0-60A	0-0.8A	0-8A	0-80A
	Resolution	0.01mA	0.1mA	1mA	0.01mA	0.1mA	1mA	0.01mA	0.1mA	1mA	0.01mA	0.1mA	1mA
	Accuracy	0.1%+0.1%FS											
Constant resistance	Range	0.04-80Ω 100W/6V	1.44-2.9kΩ 100W/16V	5.76-12kΩ 100W/80V	0.02-40Ω 200W/6V	0.8-1.5kΩ 200W/16V	3-6kΩ 200W/80V	0.015-30Ω 300W/6V	0.3-600Ω 300W/16V	1.5-3kΩ 300W/80V	0.01-20Ω 400W/6V	0.36-720Ω 400W/16V	1.45-2.9kΩ 400W/80V
	Resolution	0.1Ω											
	Accuracy	1%											
Constant power	Range	0-2W	0-10W	0-100W	0-4W	0-20W	0-200W	0-6W	0-30W	0-300W	0-8W	0-40W	0-400W
	Resolution	1mW	10mW	100mW	2mW	20mW	200mW	3mW	30mW	300mW	4mW	40mW	400mW
	Accuracy	1%											
Advanced mode		dynamic test, dynamic frequency scan, CR-LED test, battery test, time test, MPPT test, OCPT test, OVPT test, OPPT test, sine wave test, list test, automatic test											
Dynamic mode-constant current mode													
Frequency range		100Hz-50kHz/0.01Hz-1kHz											
Accuracy		1μs/1ms+100ppm											
Measurement (read back)													
Voltage	Range	0-6V			0-16V			0-80V					
	Resolution	0. 2mV			0.3mV			1.4mV					
	Accuracy	0.025%+0.01%FS						0.01%+0.025%FS					
Current	Range	0-0.2A	0-2A	0-20A	0-0.4A	0-4A	0-40A	0-0.6A	0-6A	0-60A	0-0.8A	0-8A	0-80A
	Resolution	0.004mA	0.04mA	0.4mA	0.008mA	0.08mA	0.8mA	0.012mA	0.12mA	1.2mA	0.016mA	0.16mA	1.6mA
	Accuracy	0.05%+0.05%FS											
Protection function		Over voltage protection (OVP) Over current protection (OCP) Over power protection (OPP) Over temperature protection (OTP)											
Storage		40groups											

Programmable DC Electronic Load

C. TH8400 Series Programmable DC Electronic Load

Features

- High resolution:1mV/0.1mA
- Up to 25kHz dynamic frequency
- Up to 500kHz sampling speed
- Low ripple and low noise
- Voltage/current ripple, peak, peak-valley measurement
- Voltage/current waveform display
- 11 kinds of operation and measurement functions
- 4.3-inch 24-color 480X272 TFT LCD screen, Chinese and English interface
- Numeric keyboard and knob operation
- Screen copy function
- Remote compensation function
- Intelligent fan control
- Protection mode: over voltage, over current, over power
- Support U disk file storage and loading, program upgrade
- Software control and detection through computer
- Equipped with HANDLER interface for automatic matching
- SCPI command protocol

NEW

Standard RS232 ☑ | USB HOST ☑ | USB DEVICE ☑ | I-MONITOR ☑

Shelf dimension(mm):215(W)×88(H)×390(D)
Exterior dimension(mm):236(W)×111(H)×454(D)

Weight:3kg(TH8401/TH8411), 4.8kg(TH8402A/TH8402/TH8412)

Application

- Power supply

Chargers, switching power supplies, communication power supplies, LED drivers, mobile phone batteries, power banks, etc.

- New energy

Solar cells, new power cars, electric bicycles

- Electronic power components

Fuse/connector/relay/sensor

- Automation equipment integration test

Specifications

Model			TH8401		TH8402A		TH8402		TH8411		TH8412	
Rated value	Power		175W		350W		350W		175W		350W	
	Voltage		150V		150V		150V		500V		500V	
	Current		30A		30A		60A		15A		30A	
	Minimum operating voltage		1.5V@30A		1.2V@30A		1.5V@60A		1.8V@15A		3V@30A	
	Minimum rise time		20μs									
Static mode			CC mode(constant current mode) CR mode(constant resistance mode) CV mode(constant voltage mode) CP mode(constant power mode)									
Voltage	Range		0-15V	0-150V	0-15V	0-150V	0-15V	0-150V	0-50V	0-500V	0-50V	0-500V
	Setting	Resolution	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
		Accuracy	0.05%+0.05%FS									
	Resistance	Resolution	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
		Accuracy	0.08%+0.05%FS									
Current	Range		0-3A	0-30A	0-3A	0-30A	0-6A	0-60A	0-1.5A	0-15A	0-3A	0-30A
	Setting	Resolution	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA
		Accuracy	0.05%+0.05%FS									
	Measurement	Resolution	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA	0.1mA	1mA
		Accuracy	0.08%+0.05%FS									
Resistance	Range		0.05Ω-50kΩ		0.05Ω-50kΩ		0.05Ω-50kΩ		0.05Ω-50kΩ		0.05Ω-50kΩ	
	Resolution		0.05Ω									
	Accuracy		1%									
Power	Range		0-175W		0-350w		0-350w		0-175W		0-350w	
	Resolution		10mW		10mW		10mW		10mW		10mW	
	Accuracy		0.5%+0.1%FS									
Dynamic mode												
Dynamic mode	Range		20 μs - 60S									
	Resolution		2 μs									
	Accuracy		1μs+100ppm									
	Rise rate		0.6A/ms-1.5A/μs		0.6A/ms-1.5A/μs		1.2A/ms-3A/μs		0.3A/ms-0.75A/μs		0.6A/ms-1.5A/μs	
Measurement												
Ripple	Range		0-15V	0-150V	0-15V	0-150V	0-15V	0-150V	0-50V	0-500V	0-50V	0-500V
	Bandwidth		250kHz									
	Accuracy		0.1%									
Protection function			Over voltage protection (OVP) Over current protection (OCP) Over power protection (OPP)									
Storage			Internal: 40 groups									
Specification												
Volume (W*H*D)			Shelf dimension(mm):215(W)×88(H)×390(D), Exterior dimension(mm):236(W)×111(H)×454(D)									
Weight			3kg		4.8kg		4.8kg		3kg		4.8kg	
Power			Supply voltage: 220V(1±10%), Supply frequency: 50Hz/60Hz(1±5%), Power consumption: <50VA									
Temperature and humidity			0℃～40℃, humidity: < 90%RH									

Digital Power Meter

C. TH3300 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

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

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
- 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	☑	☑	☑	☑
	DC	☑	☑	☑	☑
	Precise	☑	☑	☑	☑
	Micro current	☐	☐	☑	☐
	Wide current	☐	☐	☐	☑
	Harmonic Analysis	☐	☑	☑	☑
	Power test	☑	☑	☑	☑
Display mode	Data	☑	☑	☑	☑
	Oscillogram	☑	☑	☑	☑
	Harmonic histogram	☐	☑	☑	☑
Basic accuracy		0.15% reading + 0.2% range +1 digit			
Voltage	Range	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			

Digital Power Meter

E. TH3400 series multi-channel digital power meter

Features

- Channel combination: optional 3/4 channels
- AC and DC test
- High stability and consistency: adopt phase-locked loop frequency multiplication synchronization control and power synchronization setting
- High resolution display: 7-inch 800×600 resolution touch screen, support mouse operation
- Display screenshot function
- Broadband input: 45Hz-420Hz, suitable for most power systems on the market
- Embedded system: equipped with embedded operating system, human-computer interaction is more flexible and friendly
- Comparison function: provide comparison output of 8 comparison channels, and the output mode is programmable
- Harmonic analysis: controllable analysis parameters, providing list display and bar graph display
- Waveform display: input signal waveform/integrated power waveform
- Vector display: vector display of input signal
- Flexible energy integration control: provide continuous time control and manual control the running and stopping of energy integration
- File storage: relatively powerful file system, compatible with most U disks
- Protocol: SCPI instruction set and MODBUS instruction analysis

NEW

Shelf volume：215mm(W)x132mm(H)x441mm(D)
Dimensions：236mm(W)x154mm(H)x475.5mm(D)
Net weight：8.1kg

Standard	RS232 ☑	USB HOST ☑	USB DEVICE ☑	LAN ☑
Option	RS485 ☐			

Application

- Power supply: AC power supply, DC power supply, linear power supply, switching power supply, inverter
- New energy: solar batteries, new power cars, electric bicycles
- Test and analysis of electrical parameters of electrical equipment such as household appliances, industrial electrical appliances, and various electronic loads
- Automation equipment integration test

Specifications

Model		TH3411	TH3421	TH3422
Number of channels		3	4	4
Display		7 inch (800x480) color TFT resistive touch screen		
Wiring mode		One-phase two-wire (1P2W) / One-phase three-wire (1P3W)	Three-phase three-wire (3P3W)	Three-phase four-wire (3P4W) / Three-voltage three-current (3V3A)
Basic features	AC	☑	☑	☑
	DC	☑	☑	☑
	Precision type	☑	☑	☑
	Micro current	☐	☐	☑
	Harmonic analysis	☑	☑	☑
	Electric energy test	☑	☑	☑
Display mode	Data	☑	☑	☑
	Integration data	☑	☑	☑
	Waveform graph	☑	☑	☑
	Vector analysis	☑	☑	☑
	Histogram	☑	☑	☑
Basic accuracy		0.15% reading + 0.2% range + 1digit		
Voltage	Range	5V-75V/150V/300V/600V（Input impedance：3MΩ）		
	Resolution	0.01V		
Current	Range	10mA/30mA/100mA/400mA（Input impedance：200mΩ）		1mA/3mA/10mA/40mA（Input impedance：2Ω）
		1.5A/5A/20A（Input impedance：4mΩ）		150mA/500mA/2A（nput impedance：40mΩ）
	Minimum resolution	10μA		1μA
Power	Range	5mW-12kW		0.5mW-1.2kW
	Minimum resolution	0.01mW		0.001mW
Frequency	Range	Fundamental Frequency range：DC/45Hz-420Hz，Bandwidth：21kHz，filter 5kHz Minimum resolution		
	Minimum resolution	0.01Hz		
Power factor	Range	-1.000-1.000		
	Minimum resolution	0.001		
Harmonic analysis		± (5% reading + 0.3% range)		
Energy integration	Range	0-99999kWh		
	Resolution	0.001Wh		
	Accuracy	±(0.2% reading + 0.3% range)		
Energy timing	Range	0-9999：59：59		
	Resolution	1s		
	Accuracy	±0.05%		
Measuring speed		about 7 times/s, harmonic/waveform function is ON: 4 times/s		
Lock function		Data lock		
Range method		Auto/Manual		
Input impedance		≥3MΩ(Voltage input)		
Comparator		Over-limit sound and light alarm		
Output		8 channel programmable relay output		
Communication interface		RS232C/RS485、USB DEVICE、USB HOST、LAN、HANDLER、WIFI(support RTL8192 and MT7601 drive network card)		
Storage		USB waveforms, setting 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

NEW

TH7110

Dimension(mm): 430(W)×88(H)×600(D)

Weight: 40kg

Standard	RS232 ☑	USB HOST ☑	USB DEVICE ☑	REMOTE ☑
Option	GPIB ☐				

Application

- Motors and transformers
- Electronic production design
- Lighting
- Aerospace military
- Network communication
- 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 ~ 8.400A		0.000 ~ 16.800A
	0-300V	0.000 ~ 2.100A		0.000 ~ 4.200A		0.000 ~ 8.400A
	Resolution	0.001A				
	Accuracy	±0.5%+5 digits				
Peak current	0-150V	0.00 ~ 16.80A		0.00 ~ 33.60A		0.00 ~ 67.20A
	0-300V	0.00 ~ 8.40A		0.00 ~ 16.80A		0.00 ~ 33.60A
	Resolution	0.01A				
	Accuracy	±5%+2 digits				
Power	Range	0 ~ 500W		0 ~ 1000W		0 ~ 2000W
	Resolution	0.1W				0.1W(0 ~ 1000W);1W(1000 ~ 2000W)
	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 sll kings 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

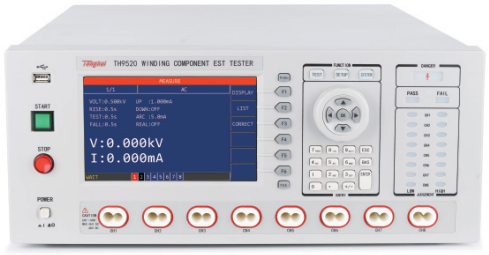
Parameters	Range		Specific Index
Test Pin	TH8601		128 Pin
	TH8601A		64 Pin
Test signal source	Sine signal source: 50Hz-300kHz, Programmable capacitance component test 1Vrms		frequency: 0.02%, 1Vrms, Voltage 10%
	Programmable DC signal source:5Vdc MAX		10%
	Programmable DC current source:1-20mA		10%
	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 △ 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	TH9520A
Number of channels		8	
Withstand test			
Output voltage	AC	0.050 - 5.000kV，Step 0.001kV，Frequency 50Hz/60Hz ±0.1%，sinusoidal waveform	
	DC	0.050 - 6.000kV，Step 0.001kV	
	Accuracy	± (1% set value + 0.1% of full scale)	
	Adjustment rate	(1% output + 0.1% of full scale) rated power	
Current range	AC	Voltage≤4.000kV： 0.001mA - 120.0mA, Voltage＞4.000kV：0.001mA – 100.0mA	0.001mA - 40.0mA
	DC	0.1uA - 20.00mA	0.1μA - 10.00mA
	Accuracy	± (1% of reading + 0.5% of full scale), AC Real: ± (1% of reading + 5% of total current reading + 5 digits)	
Output power		AC:500VA DC:120VA	AC:200VA DC:60VA
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: ± (1% of set value + 0.1% of full scale)	0.050 - 1.000kV，Step 0.001kV Accuracy: ± (1% of set value + 0.1% of full scale)
Resistance test range		0.100MΩ- 99.99GΩ Resolution：0.1MΩ	
Measurement accuracy	≥500V	1.000MΩ – 1.000GΩ, ± (3% of reading + 5 digits)	
		1.000GΩ – 10.00GΩ, ± (7% of reading + 5 digits)	
		10.00GΩ – 99.99GΩ, ± (10% of reading + 5 digits)	
	< 500V	0.100MΩ – 1.000GΩ， ± (7% of reading + 5 digits)	
		1.000GΩ – 99.99GΩ，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，± 5% set value ± 15V	0.01kV – 3.000kV，0.01kV Step，± 5% set value ± 15V
Inductance test range		≥10μH	
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 / △ and Y type resistance test			
Test signal		100 mΩ 1A，1Ω 0.5A，others ≤3V	
Test range		0.01mΩ - 1.2MΩ	
Resistance	Range	0.01mΩ - 120.00mΩ	0.1mΩ - 1200.0mΩ	0.001Ω - 12.000Ω	0.01Ω - 120.00kΩ	0.1kΩ - 1200.0kΩ
	Accuracy	± 0.5% of reading + 0.04% of full scale	± 0.3% of reading + 0.03% of full scale	± 0.2% of reading + 0.03% of full scale	± 0.1% of reading + 0.03% of full scale	± 0.2% + 0.03% of full scale)
Inductance test(standard)					Inductance test(option)	
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

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

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 Range	AC	0mA — 10.00mA ±(2% readings + 5 digits)	
	DC	0uA — 5.00mA ±(2% readings + 5 digits)	
	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	

Safety Tester/Hipot Tester

E. TH9110/A Hipot Tester

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

Features

- 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

NEW

Standard RS232 √ USB HOST √ USB DEVICE √ HANDLER √ LAN √

Option GPIB □

Dimension(mm):430mm(W)x132mm(H)x500mm(D)

Weight: 21kg

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

- Non-electrical products

Withstand voltage and insulation resistance test of wire, non-woven fabric, insulating material, etc.

- New energy vehicles
- Automatic test system

Specifications

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

Safety Tester/Hipot Tester

E. TH9120A/D Hipot Tester

Resistance test accuracy	Voltage≥0.5kV	------	1MΩ–1GΩ ± (3% reading + 0.1% full scale)
			1GΩ–10GΩ ± (7% reading + 2% full scale)
			10GΩ–50GΩ ± (10% reading + 1% full scale)
	Voltage<500V	------	0.1MΩ–1GΩ ± (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 ± 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℃～28℃，Humidity: 30%～70%RH	
Normal working temperature		0℃～45℃，Humidity: 20%～90%RH	
Storage environment temperature		-10℃～55℃，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: AC 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	0.01mA - 30mA		0.01mA - 20mA	
	DC	0.1μA - 10mA		0.1μA - 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			------

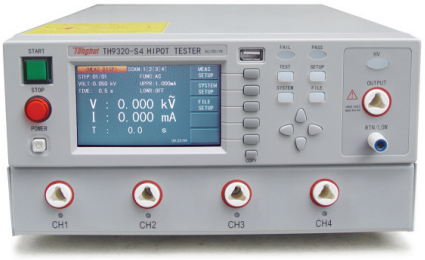
Safety Tester/Hipot Tester

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

TH9320-S8



TH9320-S4

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.

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. TH9320-S4A/TH9320-S8A Hipot Tester

Features

- Contact check function
- 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

TH9320-S8A

Brief Introduction

- TH9320-SA 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-SA series can be widely used in the safety tests of household appliances, transformer, electrical equipments and components.

Specifications

Model		TH9320-S4A	TH9320-S8A
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

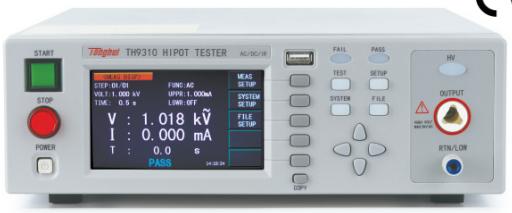
E. TH9310/TH9320 Series Hipot Tester

Features

- TH9310 series: AC:5kV/10mA; DC:6kV/5mA AC/ DC withstanding voltage/insulation resistance tester
  TH9320 series: AC:5kV/20mA; DC6kV/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

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.

Specifications

Model	TH2515		
Display			
Display	24-bit, 400 X 272 and touch TFT LCD screen		
Reading digits	5 ½ digits		
Resistance measurement			
Measurement range	0.1μΩ --110MΩ		
Resistance 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		

Resistance Tester

F. TH2515 DC Resistance Meter

20Ω	10mA	100μΩ	250+10
200Ω		1mΩ	100+10
2kΩ	1mA	10mΩ	100+10
20kΩ	100μA	100mΩ	100+5
100/200kΩ		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 DISPLY 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

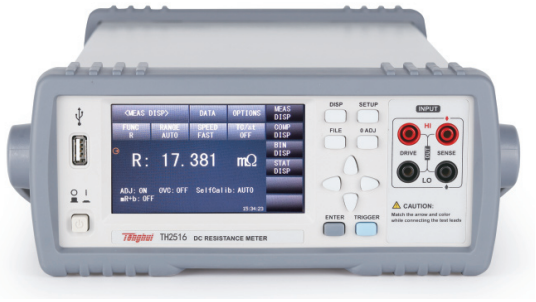
*: the accuracy is guaranteed under certain environmental and test conditions:temperature of 18℃-28℃,humidity is ≤ 80%RH,test speed is SLOW2 and OVC function is ON(see details in Manual).

Standard Accessories

Three core power cord TH26050S Four-terminal test cable PT500 temperature sensor

Resistance Tester

F. TH2516 DC Resistance Meter



TH2516

Features

- Maximum resistance accuracy: 0.05%
- Temperature accuracy: 0.2℃
- Minimum resolution: 1uΩ
- 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

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 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. 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.

Specifications

Model	TH2516			TH2516A			TH2516B		
Display									
Display	24-bit, 480 X 272 and touch TFT LCD screen								
Reading digits	4½ digits								
Resistance measurement									
Measurement range	1μΩ --2MΩ			10μΩ –200kΩ			10μΩ –20kΩ		
Resistance range	Current	Resolution	Accuracy Rd%+digits	Current	Resolution	*Accuracy Rd%+digits	Current	Resolution	*Accuracy Rd%+digits
20 mΩ	1A	1μΩ	0.100+3	------			1A	1μΩ	0.100+3
200mΩ	100mA	10μΩ	0.05+2	100mA	10μΩ	0.05+2	100mA	10μΩ	0.1+2
2Ω		100μΩ			100μΩ			100μΩ	
20Ω	10mA	1mΩ		10mA	1mΩ		10mA	1mΩ	
200Ω	1mA	10mΩ		1mA	10mΩ		1mA	10mΩ	
2kΩ	100μA	100mΩ		100μA	100mΩ		100μA	100mΩ	
20kΩ		1Ω			1Ω			1Ω	
200kΩ	10μA	10Ω		10μA	10Ω		------		
2MΩ	1μA	100Ω	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

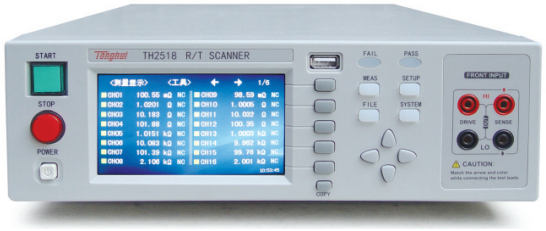
Three core power cord　　TH26050S　Four-terminal test cable　　PT500 temperature sensor (only for TH2516)

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



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

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	------
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
PT500 temperature sensor (only for TH2518)
40-core flat cable

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:1uΩ
  - Min. resolution of voltage:100uV
  - 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 480×272
- 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 30mΩ-3000Ω 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-θr, L-Q,L-R,R-X,R-Q	
Basic accuracy		R:0.1%, V:0.05%	
Test signal source	Frequency	1kHz ±0.2Hz sine waveform	
	Constance current	100mA/10mA/1mA/100uA/10uA	
Display range	R/ Z/ X	1uΩ—3.5kΩ	
	DC V	100uV—65V	100uV—350V
	L	0.2nH-1H	
	Q	0.001—9999.9	
	θd(deg)	-179.99—179.99	
	θd(rad)	-3.1416—3.1416	
Mathematics		Direct, ΔABS, Δ%	
Range	AC R	30mΩ/300mΩ/3Ω/30Ω/300Ω/3kΩ	
	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℃ -40℃	
	Humidity	≤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 capactitor

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 quipped 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

CE

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.

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 outpu; USBDEVICE(USBTMC and USBCDC 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

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

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: ± (% of reading +% of range), T_{CAL}=25°C				

Parameters	Range / Test Range	Frequency	Highest annual accuracy T_{CAL} ± 5°C		Highest temperature coefficient/°C
			TH1963	TH1953	
DC voltage	100.0000 mV - 1000.000V（TH1963） 100.000 mV - 1000.00V（TH1953）		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	10Ω-100MΩ,Test current:10mA - 500nA		0.010 + 0.001	0.030 + 0.004	0.0006 + 0.0001
DC current	100uA - 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	100μA - 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	1kΩ,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)		± 0.05°C		
	5 kΩ Thermistor		± 0.10°C		

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 to1μV
- 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, Ω2W/Ω4W,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

CE

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, Ω2W, Ω4W, 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 , ≤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 .

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	57
	AC V,AC I	3	1.5	4	25
	Ω 2W	4	2	16	57
	Ω 4W	3	1.5	10	33

DC V

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

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			
	50~100 kHz	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	0.60+0.08				------
	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
	100 MΩ	119.999	1KΩ	7.0×Rx/ (10M+Rx)	0.5+0.008
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	100m Ω	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	200mV rms
	10Hz~100Hz	99.9999	100μHz	0.01+0.01	40mV rms
	100Hz~100 kHz	999.999	1mHz	0.005+0.002	40mV rms
	100k~1.1MHz	1099.99	1Hz	0.005+0.002	100mV rms
TH1961	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)		277mmx115mmx365mm
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+dB, Readout+dBm ,displayed synchronously
- Measurement speed up to 25 meas/sec
- DCV accuracy up to 0.02%, resolution up to10μV
- 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, ≤90%RH
Power supply	Voltage	198V-242VAC,99V-121VAC
	Frequency	47.5Hz-63Hz
Power consumption		≤ 10 VA
Dimensions (W×H×D)		277mmx115mmx340mm
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

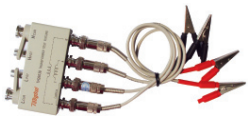
Digit Multimeter

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	
DCV,DCI		5	10	25		5	10	25	
ACV,ACI		5	10	25		5	10	25	
Ω		5	10	25		5	10	25	
AC+DC		1.2	1.4	1.5		1.2	1.4	1.5	
Freq		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	

 TH26001A	 TH26003	 TH26004S-1	 TH26004A	 TH26004B
 TH26004C	 TH26004D	 TH26004F	 TH26004E-1	 TH26005A
 TH26005B	 TH26006	 TH26007A	 TH26008A	 TH26009A
 TH26009B	 TH26009C	 TH26010	 TH26011AS	 TH26011BS
 TH26011CS	 TH26013	 TH26018	 TH26019	 TH26023
 TH26027	 TH26027AS	 TH26028	 TH26029	 TH26029B
 TH26029C	 TH26033	 TH26034	 TH2883-01	 TH2882AS-01

 TH26036	 TH26038	 TH26047	 TH26048	 TH26048A
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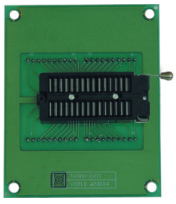
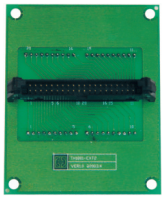
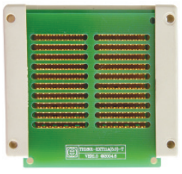
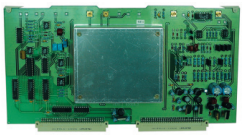
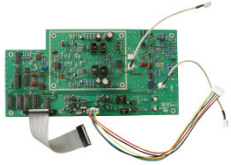
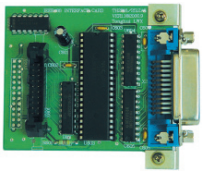
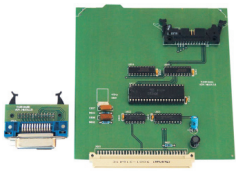
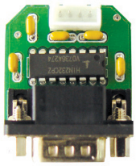
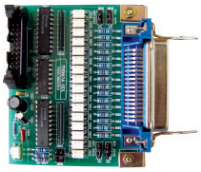
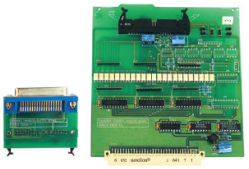
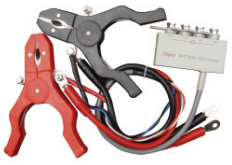
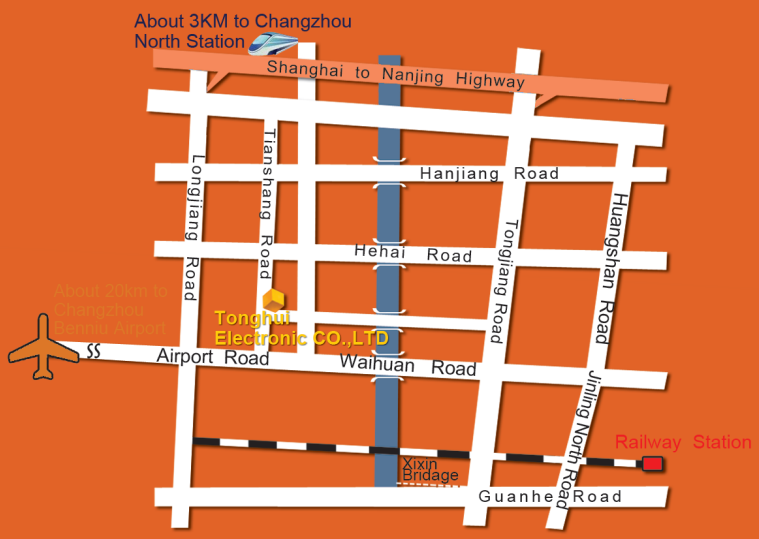
 TH1901A	 TH1901B	 TH1801-EXT1A(2.54)	 TH1801-EXT2A	 TH1801-EXT3A(5.0/5.0)
 TH1801-EXT4	 TH1801-EXT8A(3.3/3.3)	 TH1801-EXT9A(4.0/4.0)	 TH1801-EXT11A(5.0/5.0)	 TH1801-001
 TH1802A	 TH1902A	 TH2881-001	 TH10001	 TH10002
 TH10101A	 TH10201	 TH10202	 TH19001 TH19002	 TH5100-IL
 TH90003R/B	 TH90004	 TH1778-01	 TH1778-02	 TH1778-03



Tonghui®

CHANGZHOU TONGHUI ELECTRONIC CO.,LTD.

Addr：NO.3,TianShan Road,XinBei District,Changzhou,Jiangsu,China.
Tel ： 00-86-519-85195566 85132222
Fax： 00-86-519-85109972
P C： 213022
http://www.tonghui.com.cn
Email: lq@tonghui.com.cn

Hong Kong Company

TH&S Electronics Co., Ltd.
Addr:Unit 503, 5/F, Tower 2,Lippo Centre, 89 Queensway, Admiralty, Hong Kong.
TEL: 00852-92059379 Mobile:00852-95008906
FAX: 00852-36255001
Email: thhongkong@hotmail.com thhongkong@tonghui.com.cn thhk@tonghui.com.cn