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East Tester®

Hangzhou Zhongchuang Electron Co.,Ltd.

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Process Calibration Instrument

- Handheld Process Calibrator Series
- Benchtop Process Calibrator Series
- Pressure Series
- Temprature Calibration Series

Electric Measurement and Instrument

- High Precision Digital Multimeter Series
- Function Signal Generator Series
- Digital LCR Meter (Benchtop/Handheld) Series
- Programmable DC Power Supply Series
- Programmable DC Electronic Load Series

About Us Company profile

Hangzhou Zhongchuang Electron Co., Ltd. is a professional manufacturer integrating R&D, production and sales of "Zhongchuang" series thermal inspection instruments. At present, the company has more than 120 employees, including 23 high-tech talents with intermediate and senior titles and master's degree or above. The factory is located in Kangqiao Industrial Park, North Hangzhou Software Park. The company covers an area of 7300 square meters and a building area of 17500 square meters.

The company began the research and development of thermal inspection instruments in 1998, and has developed portable signal calibrator, desktop signal generator, portable pressure calibrator and other products, mainly used in electric power, petroleum, chemical industry, metallurgy, metrology, railway, textile, environmental protection and other industries.

The company imported ISO9001:2000 quality management system certification to ensure product quality. The company was awarded Hangzhou Information Port Enterprise in 2003 and Hangzhou Enterprise Technology Center in 2006. By 2018, seventeen software products of the company had obtained the national copyright certificate and nine products had passed the appraisal of the achievements of the scientific and technological management departments at the national, provincial and municipal levels.

The company's target: "the leading domestic thermal calibrator manufacturer".

Culture creates value and brand expands the future. Zhongchuang people will create a first-class brand belonging to the Chinese nation with a brand-new spiritual outlook, positive progress and continuous innovation.

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Process Calibration Instrument

ET2125 High-Precision Multifunctional Process Calibrator

ET2125 multifunctional process calibrator is a high-precision, handheld process signal measuring/output instrument, which can simultaneously measure and output various industrial process signals such as voltage, current, resistance, thermocouple, thermal resistance, frequency, pulse, switch, etc. With built-in HART function, ET2125 can completely replace HART communicator; The built-in pressure module communication function can be matched together with our ET-CY series pressure modules for use of standard pressure transmitter’ s on-site calibration. Besides, ET2125 is equipped with these functions, such as built-in temperature deviation, measurement,standard temperature measurement,,PID temperature control, value of ρ’ s measurement.Customized sensor function allows users to input specific RTD, thermocouple types; ;It is very convenient to realize the mutual conversion between various electric types and temperature through thermal auxiliary tools.Data recording function can facilitate customers to record verification data on site.

The product can replace current signal source, voltage signal source, resistance box, electronic potential difference meter, frequency meter, HART communicator and other measurement and calibration instruments.ET2125 is mainly used in industrial field signal calibration, fault diagnosis;It is also suitable for signal measurement and calibration in chemical industry, military industry and various research institutes and laboratories.This product is a multifunctional standard industrial process measurement instrument which reaches the requirement of scene and laboratories.

Basic Function

- Measurement/output: voltage, current, resistance, frequency, pulse, switching values, in which the current output supports active and passive.
- 220V measurement function.
- 200mA AC current measurement function.
- Simulating RTD and thermocouple through temperature form.
- Simulating 2-wire transmitter.
- Resistance measurement options: 2 wires, 3 wires, 4 wires.
- Accuracy: 0.01%, 0.02%.
- Two isolated channels support measure and output simultaneously.
- Providing manual step, automatic step, automatic step and manual step functions.
- 3.5 TFT LCD screen,resolution rate 480*320.
- Measurement and output data can be displayed simultaneously or separately.
- 5000mAh Lithium battery.
- Automatic power shutdown function, shutdown time can be set, and suitable for on-site use.
- DC 24V loop power for on -site use.
- Thermocouple measurement and output provide three kinds of cold junction temperature compensation methods: built-in, external and manual, among them, external reference junction adopts A class Pt100 Platinum resistance, which can correct temperature through inputting certificate value.
- Thermocouple types: R,S,K,E,J,T,N,B,L,U,XK,WRE325,WRE526.
- RTD types:PT100-385,PT100-392,PT100-JIS,PT200-385,PT500-385,PT1000-385,Cu10,Cu50，Cu100,Nil20，BA1,BA2,PT10.

Optional Function

- HART Function:completely replace HART communicator;set or calibrate smart transmitter’ s range; force the output current of intelligent transmitter at fix value(20mA, 12mA, 4mA) set linear or square function; Set up linear or square functions, which can HART reset the pressure sensor of transmitter, etc.
- Pressure module function: through RS232 communication port, it can be used together with our COMPANY's ET-CY series pressure module, for on-site verification of pressure transmitter, pressure switch, pressure gauge, blood pressure meter or other pressure instruments, and also for precise measurement of pressure;Support 12 pressure units: kPa, MPa, Pa, PSI, inHg, inH_2O, mmHg, mmH_2O, bar, Mbar, ATM, kg/cm2, etc.
- Temperature difference measurement function: the accuracy is up to 0.003℃. This product can measure the temperature difference between two points in the space, and complete a temperature difference data collection within 0.4 seconds, effectively improving the measurement accuracy.The 10-minute fluctuation during the test can be calculated in real time. Before using standard platinum resistance or standard thermocouple for measuring work, the measurement results can be traced through the input of certificate value, and meet the requirements of the thermostatic tank test specification for electrical measuring instruments.
- Standard temperature measurement function: Comparing with common thermocouple measurement and RTD measurement, the difference is that this measurement method can trace the temperature by certificate value,the supported standard thermocouple and RTD are as followed: S、R、B、T,Pt25、Pt100.
- Arbitrary sensor’ s measurement function; Users can transform the measured physical quantity(Pressure, flow speed, temperature,etc) to voltage, current, resistance,etc conveniently for measurement. Besides, Users only need to input the response curve in advance, and the multimeter will adopt the internal algorithm for numerical conversion and correction, and finally the measured physical quantity will be displayed on the screen.You are free to edit and modify the display units of the measured physical quantities.
- Precision temperature control function; Precision temperature control function will realize the temperature closed-loop control of thermostatic equipment, which replace the high precision PID controller.Under the condition of thermostatic equipment and network voltage,temperature fluctuation will be better than 0.02℃/10min (Thermostatic Bath) Measurement function of ρ’ s value: can measure duty ratio of periodic square wave signal; verify and calibrate the PID parameter of Various digital temperature indicating regulators which is outputted by time scale.
- Thermal Conversion Function: realize the conversion between various electric quantity and temperature.The types of electric quantity and temperature conversion include: working thermocouple, industrial rtd and various temperature transmitter.
- Numerical setting mode:its with the most flexible and convenient way to set output value; User can use the numerical keyboard to set output value directly, and can realize the incremental setting by direction key.In addition, the equipment also has a step or ramp numerical setting mode that can be numbered.
- Sinusoidal output function: The verification/calibration of some process logger (especially mechanical logger); Usually It involves running test, and it can provide signals to the measured table by using sinusoidal output mode.
- Data Record Function: with powerful record management function, it can establish up to 32 device numbers. Each device number has 16 record pages, and each record page contains four basic information: time, measured value, output value and custom value.Users can carry out equipment management, record deletion and other operations according to requirements.

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Process Calibration Instrument

ET2125 High-Precision Multifunctional Process Calibrator

Model Descrption

Model	Accuracy	Temp Range	Optional function
ET2125B	0.01%	15～25℃	For optional function,please contact us for detail code information about its relevant function
ET2125C	0.02%		
ET2125BT	0.01%	0～50℃	
ET2125CT	0.02%		

Product Parameter

	Function	Range	Resolution rate(0.01%)	Resolution rate(0.02%)	Accuracy(0.01%)	Accuracy(0.02%)	Note
DC Output	Voltage	100mV	0.1μV	1μV	0.005%+0.003%	0.01%+0.005%	Max load current <=2.5mA
		1V	1μV	10μV	0.005%+0.001%	0.01%+0.005%	
		10V	10μV	100μV	0.005%+0.001%	0.01%+0.005%	
	Current (Active/Passive)	30mA	0.1μA	1μA	0.005%+0.003%	0.01%+0.003%	Max load voltage(active output)20V
	Resistance	50Ω	0.1mΩ		0.005%+10 mΩ	0.01%+15 mΩ	Excitation current 0.4-4mA
		500Ω	1mΩ		0.005%+20 mΩ	0.01%+30 mΩ	Excitation current 0.1-2mA
		5000Ω	10mΩ		0.005%+50 mΩ	0.01%+50 mΩ	Excitation current 0.04-0.4mA
	24V	24V	±10%				Loop output
	Frequency	10Hz	0.001Hz		0.01%FS		Max load current ≤2.5mA
		1kHz	0.01Hz				
		100kHz	10Hz				
		10Hz(1~100000)	1cyc		±2dig		Max load current ≤2.5mA
		1kHz(1~100000)					
		100kHz(1~100000)					
	Switch value	100Hz(1Hz~110Hz)	0.01Hz		±2dig		
		1kHz(0.1kHz~1.1kHz)	1Hz				
		10kHz(1kHz~11kHz)	0.1KHz				
		100KHz(10kHz~110kHz)	2KHz				
	RTD	See detail of RTD sheet					
	Thermocouple	See detail of thermocouple sheet					
DC Measurement	Voltage	200mV	0.1μV		0.005%+0.003%	0.01%+0.005%	
		2V	1μV		0.005%+0.001%	0.01%+0.005%	
		20V	10μV		0.005%+0.001%	0.01%+0.005%	
		200V	100μV		0.005%+0.001%	0.01%+0.005%	
	Current	20mA	0.1μA		0.005%+0.003%	0.01%+0.003%	
		200mA	1μA		0.005%+0.003%	0.01%+0.003%	
	Resistance (4-wire)	50Ω	0.1mΩ		0.005%+10 mΩ	0.01%+15 mΩ	Excitation current 1mA
		500Ω	1mΩ		0.005%+20 mΩ	0.01%+30 mΩ	
		5kΩ	10mΩ		0.005%+50 mΩ	0.01%+50 mΩ	Excitation current 0.1mA
	Resistance (2,3-wire)	50Ω	0.1mΩ		0.005%+30 mΩ (3-wire) 0.005%+50 mΩ (2-wire)	0.005%+35 mΩ (3-wire) 0.005%+60 mΩ (2-wire)	Excitation current 1mA
		500Ω	1mΩ				
		5kΩ	10mΩ		0.005%+80mΩ	0.01%+80 mΩ	Excitation current 0.1mA
	RTD	See detail of RTD sheet					
	Thermocouple	See detail of thermocouple sheet					
	Switch measurement				CLOSE/OPEN		Excitation current 1mA
	Frequency	10Hz	0.001Hz		0.01%FS		
		1kHz	0.01Hz				
		100kHz	10Hz				
AC Measurement	AC Voltage	200mV	1μV		±(0.2%+100) (40Hz-30kHz)		
		2V	10μV				
		20V	100μV		±(0.2%+100) (40Hz-5kHz) ±(0.8%+300) (5k-30kHz)		
		200V	1mV		±(0.2%+200) (40Hz-5kHz) ±(0.8%+450) (5k-30kHz)		
	AC Current	20mA	0.1μA		± (0.3%+400) (40Hz-5kHz)		
		200mA	1μA				

RTD Sheet

Signal Types	Temp Range	Resolution rate	Accuracy (0.01%)	Accuracy (0.02%)	Note
PT10	-200-850℃	0.01℃	0.1℃	0.2℃	4 -wire measurement
PT100-385	-200-850℃	0.01℃	0.1℃	0.2℃	
PT100-392	-200-850℃	0.01℃	0.1℃	0.2℃	
PT100-JIS	-200-850℃	0.01℃	0.1℃	0.2℃	
PT200-385	-200-630℃	0.01℃	0.1℃	0.2℃	
PT500-385	-200-630℃	0.01℃	0.2℃	0.3℃	
PT1000-385	-200-650℃	0.01℃	0.1℃	0.2℃	
Cu10	-100-260℃	0.01℃	0.5℃	0.6℃	
Cu50	-50-150℃	0.01℃	0.15℃	0.25℃	
Cu100	-50-150℃	0.01℃	0.08℃	0.2℃	
BA1	-200-650℃	0.01℃	0.4℃	0.5℃	
BA2	-200-650℃	0.01℃	0.25℃	0.3℃	
Ni20	-80-260℃	0.01℃	0.3℃	0.4℃	

Thermocouple Sheet

Signal Types	Temp Range	Resolution rate	Accuracy (0.01%)	Accuracy (0.02%)	Note
K	-200-0℃	0.1℃	0.4℃		Exclude accuracy of cold junction compensation
	0-1372℃		0.3℃		
R	-50-0℃	0.1℃	0.9℃		
	0-1768℃		0.7℃		
S	-50-0℃	0.1℃	0.9℃		
	0-1768℃		0.6℃		
E	-50-0℃	0.1℃	0.5℃		
	0-1000℃		0.4℃		
J	-200-0℃	0.1℃	0.2℃		
	0-1200℃		0.1℃		
T	-100-0℃	0.1℃	0.3℃		
	0-400℃		0.15℃		
L	-200-900℃	0.1℃	0.2℃		
N	-200-0℃	0.1℃	0.3℃		
	0-1300℃		0.2℃		
B	600-1820℃	0.1℃	0.6℃		
U	-200-0℃	0.1℃	0.4℃		
	0-400℃		0.2℃		
XK	-200-800℃	0.1℃	0.5℃		
WRE325	0-1500℃	0.1℃	0.5℃		
WRE526	0-1500℃	0.1℃	0.4℃		

ET2115 precision loop process calibrator is a high-precision, handheld process instrument, which can measure and output the process signals such as V, mV,mA, frequency, pulse, switch, etc. This instrument adopts 3.5 TFT screen. With built-in HART function, ET2115 can completely replace HART communicator; The built-in pressure module communication function can be matched together with our ET-CY series pressure modules for use of standard pressure transmitter’ s on-site calibration.

The product can replace current signal source, voltage signal source, electronic potential difference meter, frequency meter, HART communicator and other measurement and calibration instruments.ET2115 is mainly used in industrial field signal calibration, fault diagnosis;It is also suitable for signal measurement and calibration in chemical industry, military industry and various research institutes and laboratories.This product is a multifunctional standard industrial process measurement instrument which reaches the requirement of scene and laboratories.

Basic Function

¤ Measurement/output: voltage, current, frequency, pulse, switching values, in which the current output supports active and passive.
¤ 220V measurement function.
¤ 200mA AC current measurement function.
¤ Simulating 2-wire transmitter.
¤ Accuracy: 0.01%, 0.02%.
¤ Two isolated channels support measure and output simultaneously.
¤ Providing manual step, automatic step, automatic step and manual step functions.
¤ 3.5 TFT LCD screen,resolution rate 480*320.
¤ Measurement and output data can be displayed simultaneously or separately.
¤ 5000mAh Lithium battery.
¤ Automatic power shutdown function, shutdown time can be set, and suitable for on-site use.
¤ DC 24V loop power for on -site use.

Optional Function

¤ HART Function:completely replace HART communicator; Set or calibrate intelligent transmitter’ s range; force the output current of intelligent transmitter at a fixed value(20mA, 12mA, 4mA); Set up linear or square functions, which can HART reset the pressure sensor of transmitter, etc.
¤ Pressure module function: through RS232 communication port, it can be used together with our COMPANY's ET-CY series pressure module, for on-site verification of pressure transmitter, pressure switch, pressure gauge, blood pressure meter or other pressure instruments, and also for precise measurement of pressure;Support 12 pressure units: kPa, MPa, Pa, psi, inHg, inH_2O, mmHg, mmH_2O, bar, Mbar, ATM, kg/cm2, etc.
¤ Arbitrary sensor’ s measurement function; You can transform the measured physical quantity(Pressure, flow speed, temperature,etc) to voltage, current, resistance,etc,which is conveniently for measurement. Users only need to input the response curve in advance, and the multimeter will adopt the internal algorithm for numerical conversion and correction, then the measured physical quantity will be displayed on the screen finally. You are free to edit and modify the display units of the measured physical quantities.
¤ Numerical setting mode:its with the most flexible and convenient way to set output value; User can use the numeric keyboard to set output value directly, and can realize the incremental setting by direction key as well. .In addition, the equipment also has a step or ramp numerical setting mode that can be numbered.
¤ Sinusoidal output function: The verification/calibration of some process loggers (especially mechanical logger); Usually It involves running test, and it can provide signals to the measured table by using sinusoidal output mode.
¤ Data Record Function: with powerful record management function, it can establish up to 32 device numbers. Each device number has 16 record pages, and each record page contains four basic information: time, measured value, output value and custom value.Users can carry out equipment management, record deletion and other operations according to requirements.

Process Calibration Instrument
ET2115 High-Precision Loop Process Calibrator
East Tester®

Model Descrption

Model	Accuracy	Temp Range	Optional Function
ET2115B	0.01%	15～25℃	For optional function,please contact us for detail code information about its relevant function
ET2115C	0.02%		
ET2115BT	0.01%	0～50℃	
ET2115CT	0.02%		

Product Parameter

Function		Range	Resolution rate(0.01%)	Resolution rate(0.02%)	Accuracy (0.01%)	Accuracy (0.02%)	Note
DC Output	Voltage	100mV	0.1μV	1μV	0.005%+0.003%	0.01%+0.005%	Max load current <=2.5mA
		1V	1μV	10μV	0.005%+0.001%	0.01%+0.005%	
		10V	10μV	100μV	0.005%+0.001%	0.01%+0.005%	
	Current (Active/Passive)	30mA	0.1μA	1μA	0.005%+0.003%	0.01%+0.003%	Max load voltage(active output) 20V
	Resistance	50Ω	0.1mΩ		0.005%+10 mΩ	0.01%+15 mΩ	Excitation current 0.4-4mA
		500Ω	1mΩ		0.005%+20 mΩ	0.01%+30 mΩ	Excitation current 0.1-2mA
		5000Ω	10mΩ		0.005%+50 mΩ	0.01%+50 mΩ	Excitation current 0.04-0.4mA
	24V	24V			±10%		Loop output
	Frequency	10Hz	0.001Hz		0.01%FS		Max load current ≤2.5mA
		1kHz	0.01Hz				
		100kHz	10Hz				
	Pulse	10Hz(1~100000)	1cyc		±2dig		Max load current ≤2.5mA
		1kHz(1~100000)					
		100kHz(1~100000)					
	Switch Value	100Hz(1Hz~110Hz)	0.01Hz		±2dig		
		1kHz(0.1kHz~1.1kHz)	1Hz				
		10kHz(1kHz~11kHz)	0.1KHz				
		100KHz(10kHz~110kHz)	2KHz				
DC Measurement	Voltage	200mV	0.1μV		0.005%+0.003%	0.01%+0.005%	
		2V	1μV		0.005%+0.001%	0.01%+0.005%	
		20V	10μV		0.005%+0.001%	0.01%+0.005%	
		200V	100μV		0.005%+0.001%	0.01%+0.005%	
	Current	20mA	0.1μA		0.005%+0.003%	0.01%+0.003%	
		200mA	1μA		0.005%+0.003%	0.01%+0.003%	
	Switch Value measurement				CLOSE/OPEN		Excitation current 1mA
	Frequency	10Hz	0.001Hz		0.01%FS		
		1kHz	0.01Hz				
		100kHz	10Hz				
AC Measurement	AC Voltage	200mV	1μV		±(0.2%+100) (40Hz-30kHz)		
		2V	10μV				
		20V	100μV		±(0.2%+100) (40Hz-5kHz)		
					±(0.8%+300) (5k-30kHz)		
		200V	1mV		±(0.2%+200) (40Hz-5kHz)		
					±(0.8%+450) (5k-30kHz)		
	AC Current	20mA	0.1μA		± (0.3%+400) (40Hz-5kHz)		
		200mA	1μA				

ET2110 precision loop process calibrator is a high-precision, high-resolution handheld process instrument, which can measure/stimulate the process signals such as RTD, thermocouple, and measure/output voltage, millivolt, resistance, current, etc. Its with Built-in temperature measurement, standard temperature measurement, PID temperature control, ρ measurement and other functions; Custom sensor function allows users to input specific thermal resistance, thermocouple indexing; It is convenient to realize the mutual conversion between various electric quantity and temperature through thermal auxiliary tools. Data recording function can facilitate customers to record verification data on site.

The instrument adopts 3.5-inch TFT color screen, it can be used in the instrument workshop, measuring room and calibration room, with its clear-reading, simple -operation, solid-structure, compact and economical advantage and its also the ideal calibration instrument for temperature instruments.

Basic Function

- Measurement/output: voltage, millivolt, resistance, resistance, thermocouple, rtd, current, etc.
- 220V measurement function.
- Simulating 2-wire transmitter.
- Resistance measurement options: 2 wires, 3 wires, 4 wires.
- Accuracy: 0.01%, 0.02%.
- Two isolated channels support measure and output simultaneously.
- Providing manual step, automatic step, automatic step and manual step functions.
- 3.5 TFT LCD screen,resolution rate 480*320.
- Measurement and output data can be displayed simultaneously or separately.
- 5000mAh Lithium battery.
- Automatic power shutdown function, shutdown time can be set, and suitable for on-site use.
- Providing DC 24V loop power for on -site use.
- Thermocouple measurement and output provide three kinds of cold junction temperature compensation methods: built-in, external and manual, among them, external reference junction adopts A class Pt100 Platinum resistance, which can correct temperature through inputting certificate value.
- Thermocouple types: R,S,K,E,J,T,N,B,L,U,XK,WRE325,WRE526.
- RTDtypes:PT100-385,PT100-392,PT100-JIS,PT200-385,PT500-385,PT1000-385,Cu10,Cu50，Cu100,Nil20，BA1,BA2,PT10.

Optional Function

- Temperature difference measurement function: the accuracy is up to 0.003℃. This product can measure the temperature difference between two points in the space, and complete a temperature difference data collection within 0.4 seconds, effectively improving the measurement accuracy.The 10-minute fluctuation during the test can be calculated in real time.Before using standard platinum resistance or standard thermocouple for measuring work, the measurement results can be traced through the input of certificate value, and meet the requirements of the thermostatic tank test specification for electrical measuring instruments.
- Standard temperature measurement function: Comparing with common thermocouple measurement and RTD measurement, the difference is that this measurement method can trace the temperature by certificate value,the supported standard thremocouple and RTD are as followed: S、R、B、T, Pt25、Pt100.
- Arbitrary sensor’s measurement function; Users can transform the measured physical quantity(Pressure, flow speed, temperature,etc) to voltage, current, resistance,etc conveniently for measurement. Besides, Users only need to input the response curve in advance, and the multimeter will adopt the internal algorithm for numerical conversion and correction, and finally the measured physical quantity will be displayed on the screen.You are free to edit and modify the display units of the measured physical quantities.
- Precision temperature control function; Precision temperature control function will realize the temperature closed-loop control of thermostatic equipment, which replace the high precision PID controller.Under the condition of thermostatic equipment and network voltage,temperature fluctuation will be better than 0.02℃/10min (Thermostatic Bath).
- Measurement function of ρ’s value: can measure duty ratio of periodic square wave signal; verify and calibrate the PID parameter of Various digital temperature indicating regulators which is outputted by time scale,and conform to the requirement of《JJG617-1996 digital temperature indicating regulators》.
- Thermal Conversion Function: realize the conversion between various electric quantity and temperature.The types of electric quantity and temperature conversion include: working thermocouple, industrial rtd and various temperature transmitter.
- Numerical setting mode:its with the most flexible and convenient way to set output value; User can use the numerical keyboard to set output value directly, and can realize the incremental setting by direction key. In addition, the equipment also has a step or ramp numerical setting mode that can be numbered.
- Sinusoidal output function: The verification/calibration of some process logger (especially mechanical logger); Usually It involves running test, and it can provide signals to the measured table by using sinusoidal output mode.
- Data Record Function: with powerful record management function, it can establish up to 32 device numbers. Each device number has 16 record pages, and each record page contains four basic information: time, measured value, output value and custom value.Users can carry out equipment management, record deletion and other operations according to requirements.

Model Descrption

Model	Accuracy	Temp Range	Optional Function
ET2110B	0.01级	15～25℃	For optional function,please contact us for detail code information about its relevant function
ET2110C	0.02级		
ET2110BT	0.01级	0～50℃	
ET2110CT	0.02级		

Process Calibration Instrument
ET2110 High-Precision Temperature Process Calibrator
East Tester®

Product Parameter

Function		Range	Resolution rate(0.01%)	Resolution rate(0.02%)	Accuracy(0.01%)	Accuracy(0.02%)	Note
DC Output	Voltage	100mV	0.1μV	1μV	0.005%+0.003%	0.01%+0.005%	Max load current <=2.5mA
		1V	1μV	10μV	0.005%+0.001%	0.01%+0.005%	
		10V	10μV	100μV	0.005%+0.001%	0.01%+0.005%	
	Current (Active/Passive)	30mA	0.1μA	1μA	0.005%+0.003%	0.01%+0.003%	Max load voltage(active output) 20V
	Resistance	50Ω	0.1mΩ		0.005%+10 mΩ	0.01%+15 mΩ	Excitation current 0.4-4mA
		500Ω	1mΩ		0.005%+20 mΩ	0.01%+30 mΩ	Excitation current 0.1-2mA
		5000Ω	10mΩ		0.005%+50 mΩ	0.01%+50 mΩ	Excitation current 0.04-0.4mA
	24V	24V			±10%		Loop output
	RTD	See detail of RTD sheet					
	Thermocouple	See detail of thermocouple sheet					
DC Measurement	Voltage	200mV	0.1μV		0.005%+0.003%	0.01%+0.005%	
		2V	1μV		0.005%+0.001%	0.01%+0.005%	
		20V	10μV		0.005%+0.001%	0.01%+0.005%	
		200V	100μV		0.005%+0.001%	0.01%+0.005%	
	Current	20mA	0.1μA		0.005%+0.003%	0.01%+0.003%	
		200mA	1μA		0.005%+0.003%	0.01%+0.003%	
	Resistance (4-wire)	50Ω	0.1mΩ		0.005%+10 mΩ	0.01%+15 mΩ	Excitation current 1mA
		500Ω	1mΩ		0.005%+20 mΩ	0.01%+30 mΩ	
		5kΩ	10mΩ		0.005%+50 mΩ	0.01%+50 mΩ	Excitation current 0.1mA
	Resistance (2,3-wire)	50Ω	0.1mΩ		0.005%+30 mΩ	0.005%+35 mΩ	Excitation current 1mA
					(3-wire)	(3-wire)	
					0.005%+50 mΩ	0.005%+60 mΩ	
		500Ω	1mΩ		(2-wire)	(2-wire)	
		5kΩ	10mΩ		0.005%+80mΩ	0.01%+80 mΩ	Excitation current 0.1mA
	RTD	See detail of RTD sheet					
	Thermocouple	See detail of thermocouple sheet					
AC Measurement	AC Voltage	200mV	1μV		±(0.2%+100) (40Hz-30kHz)		
		2V	10μV				
		20V	100μV		±(0.2%+100) (40Hz-5kHz)		
					±(0.8%+300) (5k-30kHz)		
		200V	1mV		±(0.2%+200) (40Hz-5kHz)		
					±(0.8%+450) (5k-30kHz)		
	AC Current	20mA	0.1μA		± (0.3%+400) (40Hz-5kHz)		
		200mA	1μA				

RTD Sheet

Signal Types	Temp Range	Resolution rate	Accuracy (0.01%)	Accuracy (0.02%)	Note
PT10	-200-850℃	0.01℃	0.1℃	0.2℃	4 -wire measurement
PT100-385	-200-850℃	0.01℃	0.1℃	0.2℃	
PT100-392	-200-850℃	0.01℃	0.1℃	0.2℃	
PT100-JIS	-200-850℃	0.01℃	0.1℃	0.2℃	
PT200-385	-200-630℃	0.01℃	0.1℃	0.2℃	
PT500-385	-200-630℃	0.01℃	0.2℃	0.3℃	
PT1000-385	-200-650℃	0.01℃	0.1℃	0.2℃	
Cu10	-100-260℃	0.01℃	0.5℃	0.6℃	
Cu50	-50-150℃	0.01℃	0.15℃	0.25℃	
Cu100	-50-150℃	0.01℃	0.08℃	0.2℃	
BA1	-200-650℃	0.01℃	0.4℃	0.5℃	
BA2	-200-650℃	0.01℃	0.25℃	0.3℃	
NI20	-80-260℃	0.01℃	0.3℃	0.4℃	

Thermocouple Sheet

Signal Types	Temp Range	Resolution rate	Accuracy (0.01%)	Accuracy (0.02%)	Note
K	-200-0℃	0.1℃	0.4℃		Exclude accuracy of cold junction compensation
	0-1372℃		0.3℃		
R	-50-0℃	0.1℃	0.9℃		
	0-1768℃		0.7℃		
S	-50-0℃	0.1℃	0.9℃		
	0-1768℃		0.6℃		
E	-50-0℃	0.1℃	0.5℃		
	0-1000℃		0.4℃		
J	-200-0℃	0.1℃	0.2℃		
	0-1200℃		0.1℃		
T	-100-0℃	0.1℃	0.3℃		
	0-400℃		0.15℃		
L	-200-900℃	0.1℃	0.2℃		
N	-200-0℃	0.1℃	0.3℃		
	0-1300℃		0.2℃		
B	600-1820℃	0.1℃	0.6℃		
U	-200-0℃	0.1℃	0.4℃		
	0-400℃		0.2℃		
XK	-200-800℃	0.1℃	0.5℃		
WRE325	0-1500℃	0.1℃	0.5℃		
WRE526	0-1500℃	0.1℃	0.4℃		

ET2725A/ET2725B Multifunction Process Calibrator
ET2726A/ET2726B Multifunction Process Calibrator

ET2725A,ET2725B,ET2726A,ET2726B multifunctional process Calibration instrument is a high precision hand-held signal measurement / output instrument, which can measure and output voltage, current, resistance, frequency, thermocouple at the same time. Various industrial process signals, such as thermal resistance, can be used to calibrate pressure transducers with external high precision intelligent pressure modules. It can replace current signal source, voltage signal source, resistance box, electronic potentiometer, frequency meter and other measuring and calibration instruments. Mainly used in industrial field signal calibration, fault diagnosis; also applicable to chemical, military and all kinds of research institutes, real Signal measurement and calibration in laboratory.

Product Features

- Super strong protection function: waterproof grade IP67, arbitrary signal end misconnect 220 V automatic protection.
- Measurement / output: voltage, current, frequency, resistance, in which current output supports active, passive.
- The thermal resistance and thermocouple are simulated in the form of temperature.
- Can simulate two-wire transmitter.
- The accuracy was 0.02% (ET2725A,ET2726A) ;0.05% (ET2725B,ET2726B).
- Two isolated channels support synchronous measurement and output.
- Can provide manual step, automatic step, 0-100% step and slope output function;
- With white LED backlight, manual backlight adjustment and automatic power off function, suitable for field use.
- Provide DC24V circuit power suppcalibration;ly for field debugging.
- Unique automatic identification of three-wire, four-wire connection mode.
- Support customer self,Band on-off test function.
- Thermocouple measurement and output provide automatic and manual cold end temperature compensation.
- ET2726A,ET2726B can be connected to APSL type high precision intelligent pressure module to realize the pressure measurement function.
- Can add new thermocouple, thermal resistance type according to customer needs.

Measurement Index

Function	Range	Accuracy (% of reading + counts)	
		ET2725A/ET2726A	ET2725B/ET2726B
DC V	0~60.000V (upper display±30V)	0.02%+2	0.05%+2
DC mA	0~24.000mA (upper display±24mA)	0.02%+2	0.05%+2
DC mV	-15.000mV~80.000mV	0.02%+2	0.05%+2
	80.00mV~125.00mV		
Resistance (2 wire, 3 wire)	0.00Ω~440.00Ω	0.15Ω	0.25Ω
	400.00Ω~3200.00Ω	1.0Ω	1.5Ω
Resistance (4 wire)	0.00Ω~440.00Ω	0.10Ω	0.15Ω
	400.00Ω~3200.00Ω	0.5Ω	1.0Ω
Frequency	1.000Hz~99.999Hz	0.01%+1	0.02%+1
	100.00Hz~999.99Hz		
	1000.0Hz~9999.9Hz		
	10.000kHz~99.999kHz		
TC	J、K、T、E、R、S、B、N		
RTD	Pt100、Pt1000、Cu50、Cu100		

Output Index

Function	Range	Accuracy (% of reading + counts)	
		ET2725A/ET2726A	ET2725B/ET2726B
DC mA	0-10.000V	0.02%+2	0.05%+2
Active DC mA	0-24.000mA	0.02%+2	0.05%+2
Passive DC mA	0-24.000mA	0.02%+2	0.05%+2
DC mV	-15.000mV~99.999mV	0.02%+2	0.05%+2
	100.00mV~125.00mV		
Resistance	10.00Ω~440.00Ω	0.15Ω	0.25Ω
	400.0Ω~3200.0Ω	0.50Ω	1.0Ω
Frequency	0.20Hz~200.00Hz	0.01%+1	0.02%+1
	200.0Hz~2000.0Hz		
	2.000kHz~20.000kHz		
TC	J、K、T、E、R、S、B、N		
RTD	Pt100、Pt1000、Cu50、Cu100		

General technical specifications

use temperature ：-10℃~55℃
Storage temperature: -20℃~60℃
relative humidity: 0-90%RH, Non-condensed dew
Weight: 650 g
outline dimension: 200mm×93mm×47mm
power supply mode : 6 sections of 7# Ni MH battery orAC adapters
communication mode: RS232

Standard accessories

Form pen: watch pen*2;
Power adapter: charger*1

Selected accessories

RS232 communication line:18P01

Enclosure

The power adapter

Watch pen

7# Ni MH battery

ET2715A Current and voltage calibrator
ET2715B Current and voltage calibrator

ET2715A,ET2715B Current and voltage calibrator is a high precision, high resolution and high reliability hand-held calibrator which integrates output and measurement of V, mV, mA and HZ signals. The instrument adopts large liquid crystal display with clear reading. It also has adjustable backlight and automatic shutdown function. The instrument can be supplied by DC or AC power supply, and is more convenient to use.

Product Features

- Super protection function: waterproof grade IP67, any signal end is mistakenly connected with 220V automatic protection.
- Measurement / output: voltage, current, frequency, milli volt, current output support active and passive.
- It can simulate two wire transmitter.
- The accuracy is 0.02%(ET2715A); 0.05%(ET2715B).
- It can provide manual step, automatic step, 0~100% step and slope output function.
- With white LED backlight and manual backlighting and automatic power off function, it is suitable for field use.
- Provide DC24V loop power supply for on-site commissioning.
- Battery box cover to facilitate battery replacement.
- Support customer self calibration.

Measurement Index

Function	Range	Accuracy (% of reading + counts)	
		ET2715A	ET2715B
DC mA	0~24.000mA	0.02%+2	0.05%+2
DC V	0~30.000V	0.02%+2	0.05%+2
DC mV	-15.000mV~80.000mV	0.02%+2	0.05%+2
	80.00mV~125.00mV		
Frequency	1.000Hz~99.999Hz	0.01%+1	0.02%+1
	1000.0Hz~9999.9Hz		
	10.000kHz~99.999kHz		

Output Index

Function	Range	Accuracy (% of reading + counts)	
		ET2715A	ET2715B
Active DC mA	0~24.000mA	0.02%+2	0.05%+2
Passive DC mA	0~24.000mA	0.02%+2	0.05%+2
DC V	0~10.000V	0.02%+2	0.05%+2
DC mV	-15.000mV~99.999mV	0.02%+2	0.05%+2
	100.00mV~125.00mV		
Frequency	0.20Hz~200.00Hz	0.01%+1	0.02%+1
	200.0Hz~2000.0Hz		
	2.000kHz~20.000kHz		

General technical specifications

use temperature ：-10℃~55℃
Storage temperature: -20℃~60℃
relative humidity: 0-90%RH, Non-condensed dew
Weight: 650 g
outline dimension: 185mm×93mm×47mm
power supply mode : 6 sections of 7# Ni MH battery orAC adapters
communication mode: RS232

Standard accessories

Form pen: watch pen*1;
Power adapter: charger*1

Selected accessories

Rs232 communication line:18P02

Enclosure

The power adapter

Watch pen

7# Ni MH battery

East Tester®

Process Calibration Instrument

ET2710A Temperature Calibrator
ET2710B Temperature Calibrator

ET2710A, ET2710B temperature calibrator is a high precision, high resolution, high reliability hand-held calibrator which integrates measuring and simulating thermal resistance, thermocouple, output and measuring voltage, millivolt, resistance and other electrical parameters. High brightness large screen display with backlight, simple operation, strong structure, compact and economical, can be used in instrument workshop, metering room and calibration laboratory. It is an ideal calibration instrument for process control instruments.

Product Features

¤ Super protection function: waterproof grade IP67, any signal end is mistakenly connected with 220V automatic protection.
¤ Measure the temperature of the thermocouple and RTD output.
¤ Analog thermocouple and RTD output.
¤ It can provide manual step, automatic step, 0~100% step and slope output function.
¤ With white LED backlight and manual backlighting and automatic power off function, it is suitable for field use.
¤ Unique automatic identification of three wire and four wire connection mode.
¤ The accuracy is 0.02%(ET2710A); 0.05%(2710B).
¤ Battery box cover to facilitate battery replacement.
¤ Thermocouple measurement and output provide two kinds of cold end temperature compensation automatically and manually.
¤ New thermocouple and thermal resistance type can be added according to customers' needs.
¤ Support customer self calibration.

Measurement Index

Function	Range	Accuracy (% of reading + counts)	
		ET2710A	ET2710B
DC V	0~30.000V	0.02%+2	0.05%+2
DC mV	-15.000mV~80.000mV	0.02%+2	0.05%+2
	80.00mV~125.00mV		
Resistance (2 wire, 3 wire)	0.00Ω~440.00Ω	0.15Ω	0.25Ω
	400.00Ω~3200.00Ω	1.0Ω	1.5Ω
Resistance (4wire)	0.00Ω~440.00Ω	0.10Ω	0.15Ω
	400.00Ω~3200.00Ω	0.5Ω	1.0Ω
TC	J、K、T、E、R、S、B、N		
RTD	Pt100、Pt1000、Cu50、Cu100		

Output Index

Function	Range	Accuracy (% of reading + counts)	
		ET2710A	ET2710B
DC mV	-15.000mV~99.999mV	0.02%+10	0.05%+10
	100.00mV~125.00mV	0.02%+2	0.05%+2
Resistance	10.00Ω~440.00Ω	0.15Ω	0.25Ω
	400.0Ω~3200.0Ω	0.50Ω	1.0Ω
TC	J、K、T、E、R、S、B、N		
RTD	Pt100、Pt1000、Cu50、Cu100		

General technical specifications

use temperature ：-10℃~55℃
Storage temperature: -20℃~60℃
relative humidity: 0-90%RH，Non-condensed dew
Weight: 650 g
outline dimension: 185mm×93mm×47mm
power supply mode : 6 sections of 7# Ni MH battery orAC adapters
communication mode: RS232

Standard accessories

Form pen: watch pen*1;
Power adapter: charger*1

Selected accessories

Rs232 communication line:18P02

Enclosure

The power adapter

Watch pen

7# Ni MH battery

Process Calibration Instrument

East Tester®

ET2712A Thermal resistance calibrator
ET2712B Thermal resistance calibrator

ET2712A, ET2712B Thermal Resistance (RTD) Calibrator is a handheld tool used to calibrate RTD (Thermometric Resistor) transmitters. It can simulate and measure many different types of RTD, and it can also simulate and test resistance.

Product Features

¤ Super protection function: waterproof grade IP67, any signal end is mistakenly connected with 220V automatic protection.
¤ Measure RTD temperature.
¤ Analog RTD output.
¤ The accuracy is ET2712A(0.02%); ET2712B (0.05%).
¤ It can provide manual step, automatic step, 0~100% step and ramp output function.
¤ With white LED backlight and automatic backlight closure and automatic power off function, it is suitable for field use.
¤ It supports thermal resistance of Pt100, Pt1000, Cu50 and Cu100.
¤ Unique automatic identification of three wire and four wire connection mode.
¤ Battery box cover, easy to replace.
¤ New types of thermal resistance can be added to customers' needs.

Measurement Index

Function	Range	Accuracy (% of reading + counts)	
		ET2712A	ET2712B
DC V	0~30.000V	0.02%+2	0.05%+2
Resistance (2 wire, 3 wire)	0.00Ω~440.00Ω	0.15Ω	0.25Ω
	440.00Ω~3200.0Ω	1.0Ω	1.5Ω
Resistance (4wire)	0.00Ω~440.00Ω	0.10Ω	0.15Ω
	440.00Ω~3200.0Ω	0.5Ω	1.0Ω
RTD	Pt100、Pt1000、Cu50、Cu100		

Output Index

Function	Range	Accuracy (% of reading + counts)	
		ET2712A	ET2712B
Resistance	10.00Ω~440.00Ω	0.15Ω	0.25Ω
	400.00Ω~3200.00Ω	0.50Ω	1.0Ω
RTD	Pt100、Pt1000、Cu50、Cu100		

General technical specifications

use temperature ：-10℃~55℃
Storage temperature: -20℃~60℃
relative humidity: 0-90%RH，Non-condensed dew
Weight: 650 g
outline dimension: 185mm×93mm×47mm
power supply mode : 6 sections of 7# Ni MH battery orAC adapters
communication mode: RS232

Standard accessories

Form pen: watch pen*1;
Power adapter: charger*1

Selected accessories

Rs232 communication line:18P02

Enclosure

The power adapter

Watch pen

7# Ni MH battery

East Tester®

Process Calibration Instrument

ET2714A Thermocouple calibrator
ET2714B Thermocouple calibrator

ET2714A, ET2714B thermocouple calibrator is a hand-held calibrator which integrates measurement and output thermocouple, voltage and millivolt signals. It has LED backlight for use in dim lighting.

Product Features

- Super protection function: waterproof grade IP67, any signal end is mistakenly connected with 220V automatic protection.
- Simulate thermocouple in the form of temperature.
- The accuracy is ET2714A (0.02%); ET2714B (0.05%).
- It can provide manual step, automatic step, 0~100% step and slope output function.
- With white LED backlight and manual backlighting and automatic power off function, it is suitable for field use.
- Battery box cover, easy to replace.
- Thermocouple measurement and output provide two kinds of cold end temperature compensation automatically and manually.
- New types of thermocouples can be added according to customer needs.

Measurement Index

Function	Range	Accuracy (% of reading + counts)	
		ET2714A	ET2714B
DC V	0~30.000V	0.02%+2	0.05%+2
DC mA	-15.000mV~80.000mV	0.02%+2	0.05%+2
	80.00mV~125.00mV		
TC	J、K、T、E、R、S、B、N		

Output Index

Function	Range	Accuracy (% of reading + counts)	
		ET2714A	ET2714B
DC mV	-15.000mV~99.999mV	0.02%+2	0.05%+2
	100.00mV~125.00mV		
TC	J、K、T、E、R、S、B、N		

General technical specifications

use temperature ：-10℃~55℃
Storage temperature: -20℃~60℃
relative humidity: 0-90%RH，Non-condensed dew
Weight: 650 g
outline dimension: 185mm×93mm×47mm
power supply mode : 6 sections of 7# Ni MH battery orAC adapters
communication mode: RS232

Standard accessories

Form pen: watch pen*1;
Power adapter: charger*1

Selected accessories

Rs232 communication line:18P02

Enclosure

The power adapter

Watch pen

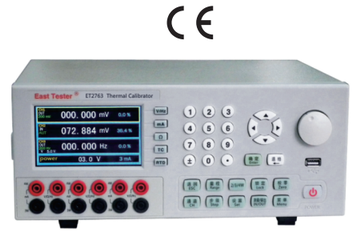
7# Ni MH battery

ET276X Series Benchtop Thermol Process Calibrator

Desktop Thermal Calibrator ET276X Series is a high precision, full function and high reliability desktop calibration instrument. The instrument uses 4.3 inch wide color screen display, combines friendly man-machine interaction interface and convenient and flexible operation mode, bringing the fastest and easiest calibration, calibration and maintenance of thermal instruments to our customers.

Product Features

- All signals are completely isolated and do not interfere with each other.
- Output mode: support input value, cursor shift and knob adjustment at the same time.
- Measure and output DC voltage, current, resistance and frequency signals.
- Supports the measurement of thermocouple and thermocouple signals, and can also simulate thermocouple and thermocouple signals.
- Pt100 external sensor is used to provide reliable, fast and accurate cold-end compensation. It supports manual and automatic compensation. The compensation accuracy is 0.5 ℃, and the effective range is -40 ℃ ~ 60 ℃.
- When mA signal is output, it supports mA source output and transmitter simulation.
- Supporting two, three and four-wire system with resistance and thermal resistance measurement function.
- Any two ports can withstand 220V AC mis-entry and 36V DC mis-entry (except the power output port).
- Short-circuit self-recovery under all output functions.
- APSL type high precision intelligent pressure module can be selected according to need to realize pressure measurement function.
- Communication mode: RS232, LAN and USB Host are standard configurations, and communication protocols are provided free of charge. The protocols conform to SCPI specifications.
- Data memory function: up to 5000 points/signal data storage and memory function.
- Power supply mode: 220V.AC±10%, 50Hz.
- Product size: 310 mm x 140 mm x 265 mm (wide x high x deep).



Model Description

Model	ET2761	ET2762	ET2763
Measurement/Output Channel Number	1	2	3

Product Parameter

function	Measurement Range (Resolution)	Accuracy (reading%+range%)	Output range (resolution)	Accuracy (reading%+range%)
Voltage	-200~200mV (0.001mV)	0.02+0.005	-15~200mV (0.001mV)	0.02+0.005
	-2~2V (0.00001V)		0~10V (0.0001V)	
	-10~10V(0.0001V)		/	
	-100~100V(0.001V)		/	
Electric current	-24~24mA(0.0001mA)		0~24mA (0.0001mA)	
	0~24mA(0.0001mA)		/	
resistance	0~450Ω (0.001Ω)		1~450Ω (0.001Ω)	0.02+0.005
	420~4500Ω (0.01Ω)		420~4500Ω (0.01Ω)	0.02+0.01
frequency	1~100Hz (0.0001Hz)	0.01+0.005	0~200Hz (0.001Hz)	0.01+0.005
	100~1000Hz (0.001Hz)		0~2kHz (0.00001kHz)	
	1k~10kHz (0.00001kHz)		0~20kHz (0.0001kHz)	
	10k~100kHz (0.0001kHz)		/	
Thermocouple	J、K、T、E、R、S、B、N、WRe325、WRe526			
Thermal resistance	Pt100、Pt1000、Cu50、Cu100			

East Tester®

Process Calibration Instrument

ET2780 Combined multichannel Calibrator

ET2780 combined multi-channel calibrator is an open and innovative desktop calibration instrument. It adopts the working mode of a host + signal sampling board (up to 8 channels), and the signals are completely isolated and can be used at the same time. Effective realization of customer on-demand selection, avoid waste and expansion of functions at any time, can maximize the satisfaction of customer needs. Various communication modes (support RS232, LAN, USB) can meet different application needs of customers.With the advent of this product, the problem of fixed function and great limitation of calibration instruments on the market has been effectively solved. Users can choose different signal modules according to their own needs, and can freely assemble a product in line with practical application.

Product Features

¤ Display screen: 4.3 inch color screen (resolution 480*272).
¤ Number of signal modules supported: 8 channels, totally isolated from each other.
¤ Display mode: 1 way, 2 way, 4 way and 8 way are optional, supporting circular display (interval time can be set).
¤ Output mode: support input value, cursor shift and knob adjustment at the same time.
¤ Support step, step, slope, fixed-point output, etc.
¤ Provide a variety of interface functions to support customer secondary development.
¤ Supporting graphical display of historical data, data storage and memory function of up to 5000 points/signal.
¤ Support logical conditional response between modules, response speed: 100ms, response speed with external I/O port: 20s.
¤ APSL type high precision intelligent pressure module can be selected according to need to realize pressure measurement function.
¤ Communication mode: RS232, LAN, USB are standard configuration, GPIB is optional configuration, and communication protocol is provided free of charge.
¤ Power supply mode: 220 V.AC+10%, 50 HZ, 100/110 V.AC+10% (instructions when ordering).
¤ Product size:310mm x 140mm x 265mm(Wide x High x Deep) .

Product Parameter

Module name	Model	brief introduction	function
Current Measurement Output Module	30P01	Supports current signal measurement and output with accuracy of 0.05%	3W
Current Measurement Output Module	30P02	Supports current signal measurement and output with accuracy of 0.02%	3W
Voltage Resistance Measurement Output Module	30P03	Support voltage and resistance signal measurement and output, accuracy 0.05%	3W
Voltage Resistance Measurement Output Module	30P04	Support voltage and resistance signal measurement and output, accuracy 0.02%	3W
Frequency module	30P05	Support frequency signal measurement and output, accuracy 0.01%	1.5W
Multi-signal output module	30P06	Supports output of current, voltage, resistance and frequency with accuracy of 0.05%	3.5W
Multi-signal measurement module	30P07	Supports current, voltage, resistance and frequency measurements with accuracy of 0.05%	3.5W
Thermal Multi-signal Output Module	30P08	Supports the output of current, voltage, resistance, frequency, thermal resistance (4 kinds) and thermocouple (8 kinds). Accuracy is 0.05%	3.5W
Thermal Multi-signal Measurement Module	30P10	Supports the measurement of current, voltage, resistance, frequency, thermal resistance (4 kinds)and thermocouple (8 kinds). Accuracy is 0.05%	3.5W
I/O module	30P12	Supporting 8-way switching input and output	1.5W
Power output module	30P13	Support the output of 3~60V adjustable voltage, output power 3W, accuracy 1%	5W
Multi-signal measurement output module	30P14	All functional combinations of 30P06 and 30P07	3.5W
Thermal multi-signal measurement output module	30P16	All functional combinations of 30P08 and 30P10	3.5W
Functional Signal Generator Module	30P18	Output of Sinusoidal, Square, Triangular, Pulse and Noise Signals	10W

Note: The total power consumption of all signal modules on a single computer should be ≤ 25W.

Technical Indicators of Signal Module

Function (SCOPE)		Module type										
		30P01	30P02	30P03	30P04	30P05	30P06	30P07	30P08	30P10	30P14	30P16
measure	-24~24mA	●	●					●		●	●	●
	-100~100V			●	●			●		●	●	●
	0~4500Ω			●	●			●		●	●	●
	1~100kHz					●		●		●	●	●
output	0~24mA	●	●				●		●		●	●
	-15mV~10V			●	●		●		●		●	●
	1~4500Ω			●	●		●		●		●	●
	0~20kHz					●	●		●		●	●

Note: '●'Represents having this function, '' represents not having it.

East Tester®

Process Calibration Instrument

ET-AY30 Precision Pressure Calibrator
ET-AY31 Precision Pressure Calibrator

The pressure calibrator has the measurement function of pressure, current, voltage and resistance, and has high measurement accuracy. It can calibrate pressure transmitter, pressure switch and pressure gauge. Built-in HART function, instead of HART hand-operated device, is used to set or calibrate the range of HART transmitter, force the output current of HART transmitter to set the value, set the linear or square-opening function, can carry out HART zero clearance for pressure sensor, and it is more convenient to use than HART hand-operated device.

It is suitable for field and laboratory use. It can be connected with the full automatic pressure calibration platform. It can be used as an external pressure module of te pressure calibration platform. It can also be connected with various pressure sources to form a pressure calibration system.

It can communicate with computer through RS232 to realize remote control, data processing and printing verification records.

The display screen adopts a 2.8 inch color screen, which has a clear display interface and rich display content, and its interface content is still clear and visible in the dark environment.

Product Features

¤ Pressure measuring range: -100kpa ~ 60MPa.
¤ It has the measurement function of pressure, current, voltage and resistance.
¤ Built-in 24VDC power supply for transmitter.
¤ Built-in HART function, instead of HART handheld, Chinese and English can be switched.
¤ Automatic temperature compensation.
¤ Data Storage: supports the storage of 30 verification files at the same time, each file stores up to 110 data.
¤ Built-in lithium battery power supply.

Product Parameter

¤ Pressure measuring range: -100kpa ~ 60MPa; accuracy: level 0.02, level 0.05, level 0.1, level 0.2.
¤ Pressure unit: there are 12 kinds of pressure units including kPa, psi, inHg, inH2O, mmHg,mmH2O,MPa, bar, mbar, atm, kg/cm^2 and Pa.
¤ Too small or too large a pressure unit may result in abnormal data display.
¤ Pressure overload: When the pressure measurement value exceeds 110%FS, overpressure is displayed and an alarm is given.
¤ Temperature measurement: (0~50) ℃; resolution 0.1℃; accuracy: ±0.5℃.
¤ Operating environment:
a. Ambient temperature :(-5~50)℃.
b. Relative humidity: <95% (no condensation).
c.Atmospheric pressure :(86 ~ 106) kPa.
¤ Storage temperature :(-30 ~ 80) ℃.
¤ Display: 2.8-inch color screen, 5-digit display, Chinese and English can be switched.
¤ Power supply: built-in 3.7v lithium battery power supply, with 5V power adapter.
¤ Auto power-off function: turn off the auto power-off function and set the auto power-off time in the system information.
¤ Communication serial port configuration: baud rate: 9600; check bit: none; data bit: 8; stop bit: 1.
¤ Dimension: header Φ 115 mm x 45 mm; total length: 185 mm.
¤ Weight: about 0.5kg.
¤ Pressure connection: M20×1.5 (can be customized according to user needs).

ET-BY20 Digital Pressure Guage
ET-BY21 Digital Pressure Guage

The high-precision digital piezometer has the function of pressure measurement and high accuracy. It can verify pressure transmitter, pressure switch and pressure gauge. It can communicate with computer through RS232 to realize remote control, data processing and printing verification record.

It is suitable for field and laboratory use. It can be connected with the full automatic pressure calibration platform. It can be used as an external pressure module of the pressure calibration platform. It can also be connected with various pressure sources to form a pressure calibration system.

The display screen adopts a 2.8 inch color screen, which has a clear display interface and rich display content, and its interface content is still clear and visible in the dark environment.

Product Features

¤ Pressure measuring range: -100kpa ~ 60MPa.
¤ Pressure measurement function.
¤ 2.8 inch color screen, Chinese and English can be switched.
¤ Automatic temperature compensation.
¤ Data Storage: supports the storage of 30 verification files at the same time, each file stores up to 110 data.
¤ Built-in lithium battery power supply.

Product Parameter

¤ Pressure measuring range: -100kpa ~ 60MPa; accuracy: level 0.02, level 0.05, level 0.1, level 0.2.
¤ Pressure unit: there are 12 kinds of pressure units including kPa, psi, inHg, inH_2O, mmHg, mmH_2O, MPa, bar, mbar, atm, kg/cm^2 and Pa.
¤ Too small or too large a pressure unit may result in abnormal data display.
¤ Pressure overload: When the pressure measurement value exceeds 110%FS, overpressure is displayed and an alarm is given.
¤ Temperature measurement: (0~50) ℃; resolution 0.1℃; accuracy: ±0.5℃.
¤ Operating environment:
a. Ambient temperature :(-5~50)℃.
b. Relative humidity: <95% (no condensation).
c.Atmospheric pressure :(86 ~ 106) kPa.
¤ Storage temperature :(-30 ~ 80) ℃.
¤ Display: 2.8-inch color screen, 5-digit display, Chinese and English can be switched.
¤ Power supply: built-in 3.7v lithium battery power supply, with 5V power adapter.
¤ Auto power-off function: turn off the auto power-off function and set the auto power-off time in the system information.
¤ Communication serial port configuration: baud rate: 9600; check bit: none; data bit: 8; stop bit: 1.
¤ Dimension: header Φ 115 mm x 45 mm; total length: 185 mm.
¤ Weight: about 0.5kg.
¤ Pressure connection: M20×1.5 (can be customized according to user needs).

HART375 Handheld Communicator
HART475 Handheld Communicator

HART375 Handheld Communicator

Performance

Fully compliant with the general orders of standard HART® protocol products, three sections of No. 5 alkaline batteries or nickel separators, nickel-hydrogen rechargeable batteries are powered, and work continuously for 13 hours.

HART® handset can connect any HART® compatible device through a 4-20 mA current loop, which must have a load resistance of 250_minimum. HART handset adopts high frequency digital signal Bell202 frequency shift keying (FSK) technology, which can be superimposed on 4-20 mA current signal for transmission. The communication between handset and HART® compatible device does not affect the 4-20mA analog signal.

Product Parameter

¤ HART® Interface complies with HCF (HART Communication Foundation) protocol and works in a bidirectional half-duplex 120bit/s mode.
¤ Receivable common-mode voltage of HART® interface is ±40V.
¤ The typical value of leakage current is less than 1 uA@20℃.
¤ HART® Interface Communication Distance < 1500m.
¤ Isolation mode: isolation between HART communication interface and power supply.
¤ Isolation Voltage: 500Vrms.
¤ LCD screen: 8 lines, 21 words per line.

Physical Size

¤ 228 mm * 98 mm * 60 mm (hand-held Part 70 mm wide * 37 mm thick)

Environmental Requirements

¤ Working temperature range: 0℃~50℃.
¤ Storage temperature range: -20℃~55℃.

HART475 Handheld Communicator

Performance

¤ Fully compliant with the general orders of standard HART® protocol products.
¤ Power supply battery: 5V lithium battery, 3100mAh; continuous working time: more than 100 hours.
¤ Power consumption: 4.5VDC, 30mA (typical value of working state), 0.5μA (typical value of shutdown state).
¤ With Bluetooth communication function; Display: 3.5 inch TFT color screen (resolution 480*320).

Product Parameter

¤ HART® Interface complies with HCF (HART® Communication Foundation) protocol and works in a bidirectional half-duplex 1200bit/s mode.
¤ Receivable common-mode voltage of HART® interface is ±40V.
¤ The typical value of leakage current is less than 1 uA@20℃.
¤ HART® Interface Communication Distance < 1500m.
¤ HART® Communication Interface with EMI Resistance Measures.
¤ HART® Communication Interface with Automatic Amplitude Multiplication Function.

Physical Size

¤ 165 mm X80 mm X32 mm (without protective jacket).
¤ 170mm X86mm X42mm (with protective cover).

Environmental Requirements

¤ Working temperature range: 0℃~50℃.
¤ Storage temperature range: -20℃~55℃.

Types of Transmitters Supported

HK-H3151, HK-H1151, HK-H990-CT1, HK-H610, YOKOKAWA EJA, Rosemount 1151, Rosemount 3051, HK-H990M, HK-H991M, HK-H3351M, WT-2000, WT-2000, MV-2000, S IPART_PS2 (SIMENS valve positioner), SITRANS_FM_MAG (SIMENS mass flowmeter), SITRANS_TH300 (SIMENS thermometer).

East Tester®

Process Calibration Instrument

ET2501 Dry Block Temperature Calibrator

This product is easy to carry, easy to use, easy to fast and reliable temperature accuracy, widely used in machinery, chemical industry, food, pharmaceuticals and other industries. The problems of slow heating and slow constant temperature commonly exist in the existing dry calibration furnaces in China, which lead to a long time for users to calibrate each time. The latest generation of dry shaft furnace in our company adopts the most advanced heating principle design in the world. It has the characteristics of fast heating, fast constant temperature and fast cooling, which greatly improves the existing calibration efficiency.

Through reliable high-precision temperature control circuit and high-precision sensor, the accuracy is higher than that of other domestic manufacturers, and the technology meets international standards; the touch operation, which is the first in the world, is simple and fast to use.

Product Features

- ¤ Small size, light weight, easy to carry.
- ¤ Various types of insertion tubes can meet the test and calibration of sensors of different sizes and quantities. It can also be customized according to the special needs of users.
- ¤ Horizontal temperature field and vertical temperature field are good.
- ¤ Deep Insertion Degree Leads the Industry.
- ¤ 5.7 inch TFT color LCD display, full touch operation, using intuitive and eye-catching.
- ¤ Chinese-English interface.
- ¤ With the upper management software (only supporting ET2501 series), the verification data can be easily read.
- ¤ Quick cooling, convenient setting, good stability of temperature control.
- ¤ The soaking block can be replaced.
- ¤ Protective functions such as short circuit with load, load circuit breaking, sensor protection, etc.

Product Parameter

model	ET2501-150A	ET2501-150B	ET2501-650	ET2501-1200	ET3801-1200B
temperature range	-20℃~150℃	-30℃~150℃	50℃~650℃	300℃~1200℃	100℃~1200℃
heating rate	30~100:20min	30~100:20min	30~300:7min	30~1200:75min	
	30~150:40min	30~150:40min	30-400:12min		
			30~650:25min		
Display accuracy	≤±0.1℃	≤±0.1℃	Below 400℃：≤±0.35℃	≤±1.2℃	
			400-650℃：≤±0.5℃		
Insertion depth	160mm		150mm	135mm	
Average heat block diameter	36mm	32mm	32mm	39mm	
Temperature field stability	≤±0.02℃	≤±0.02℃	≤±0.05℃	≤±0.2℃	
Horizontal temperature field	≤±0.05℃	≤±0.05℃	≤±0.05℃	≤±0.25℃	
Vertical temperature field	The deviation in the range of 50mm calculated from the bottom of the hole of the soaking block is 1 degree				
Temperature unit	℃ or ℉				
Temp Accuracy	0.10%				
Display resolution	0.01℃				
maximum power	Negative temperature type: 300W, medium temperature type: 1200W, high temperature type: 3000W				
weight(Net weight)	Negative temperature type: 13kg, medium temperature type: 11kg, high temperature type: 11kg				
weight (Containing packaging)	Negative temperature type: 23kg, medium temperature type: 18kg, high temperature type:20kg Packaging includes aluminium box and transport wooden box				
Outline size	Negative temperature type and high temperature type: 310*190*340mm, medium temperature type: 250*150*310mm				
Use environment	Ambient temperature 0-50℃, relative humidity less than 95% (no condensation)				
Power supply	220VAC ± 10%, 45 ~ 60Hz				
Selection function	Verification Data Recording and Exporting, up to 250 sensors, 2500 records,USB Device Communication Interface (optional funtion)				

① Other temperature ranges should be specified when ordering.

② The negative temperature type of -20℃~150℃ has 4 holes,are φ6/φ8/φ10/φ12 mm .The negative temperature type of -30℃~150℃ has 4 holes,are φ6/φ8/φ10/φ12 mm.The medium temperature type of 50℃~650℃ has 2 kinds (2 choices 1 at the time of ordering), one is 3 holes of φ8/φ10/φ12mm, the other is 4 holes of φ6mm*2, φ8mm*2.The high temperature type of 300℃~1200℃ has 4 holes, are φ6/φ8/φ10/φ12mm.

Special specification aperture can be customized and should be specified when ordering.

Process Calibration Instrument

East Tester®

ET3804 Intelligent Dry Block Temperature Calibrator

This product is easy to carry, easy to use, easy to fast and reliable temperature calibration. Its widely used in machinery, chemical, food, medicine and other industries.

The problems of slow heating and slow constant temperature of the existing domestic on-site dry block temperature calibrators cost more time for users to calibrate each time.Our latest generation of dry well furnace adopts the most advanced heating principle design in the world, with the characteristics of fast heating, constant temperature and cooling, which greatly improves the existing calibration efficiency.

Through the reliable high precision temperature control circuit and high precision sensor which ensure the high precision which is superior to others, the technology of our dry block temperature calibrator has reached the international standard.

Product Features

- ¤ Small size, light weight, easy to carry.
- ¤ Various types of insertion tubes can meet the test and calibration of sensors of different sizes and quantities. It can also be customized according to customer's requirement.
- ¤ Horizontal temperature field and vertical temperature field are good.
- ¤ Insert depth stays the leading role in this industry.
- ¤ 5.7 inch TFT color LCD display, full touch operation, using intuitive and eye-catching.
- ¤ Chinese-English interface.
- ¤ With the management software, the calibration data can be easily read.
- ¤ Quick cooling, convenient setting, good stability of temperature control.
- ¤ The soaking block can be replaced.
- ¤ Protective functions such as short circuit with load, load circuit breaking, sensor protection, etc.
- ¤ Measurement signal: 3 channels , 1 channel as standard,2 channel as detected channel(Multifunctional Measurement). Measurement Signal : mA/mV/V/Ω measure, DC24V output, on-off measurement and so on.
- ¤ Temperature Compensation: automatic (build-in AA grade Pt100 platinum resistance)or manual.
- ¤ Communication port: Usb Device、Usb Host、Tcp/IP(LAN).

Product Parameter

Model / Index	Low Temp			Medium Temp	High Temp
	ET3804-150A	ET3804-150B	ET3804-150C	ET3804-650	ET3804-1200
Temp Range①	-20℃~150℃	-30℃~150℃	-45℃~150℃	50℃~650℃	300~1200℃
Heating Speed	30~100:20min 30~150:40min			30~300:7min 30~400:12min 30~650:25min	30~1200:75min
Display Accuracy	≤±0.1℃			≤400℃：≤±0.35℃ 400-650℃：≤±0.5℃	≤±1.2℃
Insert Depth	160mm			150mm	135mm
Diameter of Soaking Block	A 36mm，B、C 32mm			32mm	39mm
Stability of Temp Field	≤±0.02℃			≤±0.05℃	≤±0.2℃
Horizontal Temp Field	≤±0.05℃			≤±0.05℃	≤±0.25℃
Vertical Temp Field	≤ 1℃within 30mm from bottom of soaking block				≤1℃within 10mm from bottom of soaking block
Temp Unit	℃ or ℉				
Temp Accuracy	0.10%				
Display Accuracy	0.1、0.01、0.001℃ for option				
Measurement Parameter(standard channel)	The standard channel of ET3804-150 and ET3804-650is RTD signla ，ragne：0～400Ω，accuracy：±0.002Ω @ (0～50) Ω，±40ppm reading @ (50～400) Ω，resolution rate :1mΩ ； The standard channel of ET3804-1200 is TC signal ,range：-18~18mV，accuracy：±(0.005%rdg + 2μV),resolution rate: 1μV				
Measurement Parameter(detected 2 channels)	¤ mV：-75～75mV，accuracy ±(0.01%rdg + 8uV)，resolution rate 1μV ； ¤ TC：S/R/K/B/N/E/J/T/C/D/G/L/U ,total 13 types ； ¤ Ω：0～400Ω、0～4000Ω，accuracy：±0.002Ω @ (0～25) Ω，±80ppm reading @ (25～4000) Ω ； ¤ RTD：PT10、PT25、PT50、PT100、PT200、PT500、PT1000、CU10、CU50、CU100、NI100、NI120,etc ； ¤ current：30~30mA,accuracy ±(0.01%rdg + 2uA) ； ¤ voltage：-30~30V、-12~12V(auto range),accuracy±(0.01%rdg + 0.6mV) ； ¤ Temperature Switch: ；support mechanical switch and electric switch ； ¤ Temperature Transmitter: support current and voltage transmitter ； ¤ Loop power：DC24V±0.5V，biggest load current :60mA。				
Max Power	Low temp：300W，Medium temp：1200W，High temp：3000W				
Net Weight	Low temp：13kg，Medium temp：11kg，High temp：11kg				
Gross Weight	Low temp：23kg，Medium temp：18kg，High temp：18kg，including Aluminum box and carton packing box				
Dimension	Low temp：310*190*340mm，Medium,High temp：250*150*310mm				
Working Environmental	·Environmental temp :0~50℃、related humidity ≤95% (no frozen) ； The electrical measurement parameters shall be guaranteed within the range of 20±5℃				
Power Supply	220VAC±10%，45~60Hz，110VAC±10% for option				
Data storage	Verification data recording and export, supporting up to 250 sensors and 2500 records				
Communication port	Usb Device、Usb Host、Tcp/IP(LAN)				

This product is easy to carry, easy to use, easy to fast and reliable temperature calibration. Its widely used in machinery, chemical, food, medicine and other industries.

The problems of slow heating and slow constant temperature of the existing domestic on-site dry block temperature calibrators cost more time for users to calibrate each time.Our latest generation of dry well furnace adopts the most advanced heating principle design in the world, with the characteristics of fast heating, constant temperature and cooling, which greatly improves the existing calibration efficiency.

Through the reliable high precision temperature control circuit and high precision sensor which ensure the high precision which is superior to others, the technology of our dry block temperature calibrator has reached the international standard.

Product Features

- Small size, light weight, easy to carry.
- Various types of insertion tubes can meet the test and calibration of sensors of different sizes and quantities. It can also be customized according to customer’ s requirement.
- Horizontal temperature field and vertical temperature field are good.
- Insert depth stays the leading role in this industry.
- 5.7 inch TFT color LCD display, full touch operation, using intuitive and eye-catching.
- Chinese-English interface.
- With the management software, the calibration data can be easily read.
- Quick cooling, convenient setting, good stability of temperature control.
- The soaking block can be replaced.
- Protective functions such as short circuit with load, load circuit breaking, sensor protection, etc.
- Circuit number and type of electrical measurement signal: 5 channels for electrical measurement, 2 standard channels (one for standard RTD and one for standard thermocouple), 3 channels for multi-function measurement channels ;Multi-function measurement includes: mA/mV/V / Ω measurement, DC24V output HART transmitter (*) , switch measurement, and other functions.
- Self-calibration function of temperature parameters (*) : By connecting the external standard thermal resistance to the electrical measurement standard thermal resistance channel, the measurement deviation value of the built-in temperature control sensor can be corrected and the automatic calibration function of temperature parameters of the equipment can be realized.
- Support external standard temperature control method (*).
- Support one-key self-calibration function of internal temperature sensor (*).
- Temperature compensation: automatic (built-in AA Pt100 platinum resistance) or manual.
- supports HART type temperature transducer calibration (*).
- Automatic verification function (*) : it only needs to set parameters to carry out the automatic verification task of the inspected equipment, automatically calculate the data out-of-tolerance, automatically save the verification results, and support the export and generate records andcertificates.
- Built-in step test, switch test, temperature control data recording (*), thermal calculator, screen capture, drying dehumidification and other application tools.
- Data storage: verify data recording and exporting, support up to 250 sensors, 2500 records.
- Communication port: Standard Usb Device, Usb Host, Tcp/IP(LAN), optional Wifi, Bluetooth.
- Selected function: temperature verification and calibration system software (can be automatically calibrated, the process and results are in accordance with the calibration specifications;Support field data import;User rights management, instrument management, custom certificate template, automatic generation of records and certificates, etc.

Product Parameter

Model / Index	Low Temp			Medium Temp	High Temp	
	ET3805-150A	ET3805-150B	ET3805-150C	ET3805-650	ET3805-1200A	ET3805-1200B
Temp Range ①	-20℃~150℃	-30℃~150℃	-45℃~150℃	50℃~650℃	300~1200℃(A)	100~1210℃(B)
Heating Speed	30~100:20min 30~150:40min			30~300:7min 30~400:12min 30~650:25min	30~1200:75min	
Display accuracy	≤±0.1℃			≤400℃ : ≤±0.35℃ 400-650℃ : ≤±0.5℃	≤±1.2℃	
Inserted depth	160mm			150mm	135mm	
Diameter of soaking block	A 36mm , B、C 32mm			32mm	39mm	
Stability of temperature field	≤±0.02℃			≤±0.05℃	≤±0.2℃	
Horizontal temperature field	≤±0.05℃			≤±0.05℃	≤±0.25℃	
Vertical temperature field	≤1℃ within 30mm from bottom of soaking block					
Temperature unit	℃ or ℉					
Accuracy	0.10%					
Resolution rate	0.1/0.01/0.001℃					
Max Power	Low Temp ：300W , Medium Temp ：1200W; High Temp:3000W					
Net Weight	Low Temp：13kg , Medium Temp：11kg, High Temp:11kg					
Gross Weight	Low Temp：23kg ;Medium Temp：18kg High Temp:18kg, including aluminum box and carton box					
Dimension	Low Temp：310*190*340mm , Medium Temp：250*150*310mm, High Temp:250*150*310mm					
Working Environment	Environment Temp 0~50℃、related humidity ≤95% (no frozen)					
Power supply	220VAC±10% , 45~60Hz , or 110VAC±10%					
Communication port	Usb Device、Usb Host、Tcp/IP(LAN),optionWifi、bluetooth					

Process Calibration Instrument
ET3805 Ingelligent Dry Block Temperature Calibrator
East Tester®

(Note: The function with "*" is an optional function. Ifyou need such functions, please provide the corresponding code when ordering)
① Other temperature ranges should be specified when ordering.
The negative temperature type of -20℃~150℃ has 4 holes,are φ6/ 8/ 10/ 12 mm .The negative temperature type of -30 ~150 and -40~ 150 has 4 holes,are 6/ 8/ 8/10 mm.
The medium temperature type of has 2 kinds (choose 1 at one time when ordering), one is 3 holes of 8/ 10/ 12mm, the other is 4 holes of 6mm*2, 8mm*2.
The high temperature type of 300 ~1200 has 4 holes,are 6/ 8/ 10/ 12mm.
The soaking blaock with Special specification could be customized.

Product Parameter

Model / Index	Low Temperature	Medium Temperature	High Temperature
	ET3805-150A/B/C	ET3805-650	ET3805-1200 /B
Channels and Signal types	5 electric measurement channels,2 standard channels(standard RTD*1,standard thermocouple*1) 、3 multifunctional measurement channels		6 electric measurement channels,2 standard channels(standard RTD*1,standard thermocouple*1) 、2 multifunctional measurement channels、2 detected thermocouple + current measurement channel
multifunctional measurement channels' function	mA/mV/V/Ω (2、3、4wires) measurement , DC24Voutput , HART transmitter (*) , switch measurement, etc		mA/mV/V/Ω (2、3、4wires) /RTD/TC measurement , DC24V output , HART transmitter (*) , switch measurement, etc
Standard TC channel's parameter	TC types：S、R、B , Measurement range：-18~18mV , temp measurement accuracy ：±(0.005%rdg + 2uV) , temp coefficient：5PPM.FS/℃		TC types：S、R、B , Measurement range：-18~18mV , measurement accuracy ：±(0.005%rdg + 2uV) , temp coefficient：5PPM.FS/℃
Standard RTD channel's parameter ?	Measurement types: 4 -wires RTD constant current commutator true ohm measurement ; RTD types: ITS-90、CVD、IEC-751; Resistance measurement range ： (0 ~ 400) Ω ; accuracy ：±0.002Ω @ (0 ~ 50) Ω , ±40ppm reading @ (50 ~ 400) Ω ; resolution rate：1mΩ ; temperature?coefficient：±1ppmreadking/℃ (0 ~ 8℃ or 38 ~ 50℃) ；		Measurement types: 4 -wires RTD constant current commutator true ohm measurement ; RTD types: ITS-90、CVD、IEC-751;Resistance measurement range ： (0 ~ 400) Ω ; accuracy ：±0.002Ω @ (0 ~ 50) Ω , ±40ppm reading @ (50 ~ 400) Ω ; resolution rate：1mΩ ; temperature?coefficient：±1ppm reading/℃(0 ~ 8℃ or 38 ~ 50℃) ；
built-in cold junction index	Measurement range：0~50℃ , accuracy ：±0.2℃ , sensor type ：PT100		Measurement range：0~50℃ , accuracy ：±0.2℃ , sensor type ：PT100
Detected channel mV/TC index	TC type：MINI-TC interface , S/R/K/B/N/E/J/T/C/D/G/L/U,total 13 types ; signal range ： (-75 ~ 75) mV ; accuracy ：±(0.01%rdg + 8uV) ; resolution rate：1μV ; temperature coefficient ：±5ppm reading/℃ (0℃ ~ 8℃ or 38℃ ~ 50℃) ; Cold junction measurement range and acuracy ：±0.35℃ @ (0 ~ 50) ℃ ;		TC type：MINI-TC interface , S/R/K/B/N/E/J/T/C/D/G/L/U,total 13 types ; signal range ： (-75 ~ 75) mV ; accuracy ：±(0.01%rdg + 8uV) ; resolution rate：1μV ; temperature coefficient ：±5ppm reading/℃ (0℃ ~ 8℃ or 38℃ ~ 50℃) ; Cold junction measurement range and accuracy ：±0.35℃ @ (0 ~ 50) ℃ ;
Detected channel Ω /RTD index	Measurement types：2 wires /3 wires/4 wires RTD constant current commutator true ohm measurement ; RTD types：PT10、PT25、PT50、PT100、PT200、PT500、PT1000、CU10、CU50、CU100 、NI100、NI120,etc ; Resistance measurement range ： (0 ~ 400) Ω、 (0 ~ 4000) Ω ; accuracy ：±0.002Ω @ (0 ~ 25) Ω , ±80ppm reading @ (25 ~ 4000) Ω ; 2 wires measurement adds 50 mΩ ; measurement resolution rate：1mΩ (400Ω) , 10mΩ(4000Ω) ; temperature coefficient ：±1ppm reading/℃(0 ~ 8℃ or 38 ~ 50℃) ；		Measurement types：2 wires /3 wires/4 wires RTD constant current commutator true ohm measurement ; RTD types：PT10、PT25、PT50、PT100、PT200、PT500、PT1000、CU10、CU50、CU100、NI100、NI120,etc ; Resistance measurement range ： (0 ~ 400) Ω、(0 ~ 4000) Ω ; accuracy ：±0.002Ω @ (0 ~ 25) Ω , ±80ppm reading @ (25 ~ 4000) Ω ; 2 wires measurement adds 50 mΩ ; measurement resolution rate：1mΩ (400Ω) , 10mΩ(4000Ω) ; temperature coefficient ：±1ppm reading/℃(0 ~ 8℃ or 38 ~ 50℃) ；
Detected channel mA index	Measurement range：-30~30mA,measurement accuracy：±(0.01%rdg + 2uA), input impedance ： < 10Ω,temperature coefficient :5ppm.FS/℃		Measurement range：-30~30mA,measurement accuracy：±(0.01%rdg + 2uA), input impedance ： < 10Ω,temperature coefficient :5ppm.FS/℃
Detected channel V index	Measurement range：-30~30V、-12~12V(auto range),measurement accuracy ：±(0.01%rdg + 0.6mV),input impedance ： > 1MΩ,temperature coefficient:5ppm.FS/℃		Measurement range：-30~30V、-12~12V(auto range),measurement accuracy ：±(0.01%rdg + 0.6mV),input impedance ： > 1MΩ,temperature coefficient:5ppm.FS/℃
Detected channel-other index	·?temperature switch：Supports mechanical and electronic switches ; temperature transmitter: support current、voltage and HART transmitter (*) ; Loop power ：DC24V±0.5V , max load current 60mA		temperature switch：Supports mechanical and electronic switches ; temperature transmitter: support current、voltage and HART transmitter (*) ; Loop power ：DC24V±0.5V , max load current 60mA
Working temperature range(ensure its index)	23±5℃		23±5℃

ET252 Dry body temperature calibrator

Purpose

The design principle of dry trap temperature calibration furnace is easy to carry, eas to use, easy to fast and reliable temperature calibration. It is widely used in machiner chemical industry, food, medicine and other industries.

Product Features

¤ Various types of insertion tubes can meet the test and calibration of sensors of different sizes and quantities.
¤ The heating rate can be adjusted according to the user's needs.

Product Parameter

Model	ET252-140	ET252-650	ET252-1200
Temperature range	-20～140℃	50～650℃	300～1200℃
Heat source	semiconductor refrigeration	electric heat	electric heat
Instrument accuracy	0.20%	0.20%	0.20%
Display resolution	0.1℃	0.1℃	0.1℃
Horizontal temperature field	≤±0.1℃	≤±0.1℃	≤±0.1℃
Vertical temperature field	Within 30 mm from the bottom of the well≤ ±1℃	Within 30 mm from the bottom of the well≤ ±1℃	Within 10 mm from the bottom of the well≤ ±1℃
Well depth	160mm	160mm	160mm
power	400W	300W	600W
Power Supply	220V50Hz	220V50Hz	220V50Hz
Size	385×185×325mm	325×165×325mm	385×185× 325mm
Net weight	11Kg	8Kg	11Kg
Gross wight	19kg	16kg	19kg

ET251 Zero Thermostat(Cold Junction Compensation)

ET251 zero thermostat is a device for providing stable and accurate zero-degree temperature at the thermocouple reference end. It replaces the traditional method of providing zero-degree temperature at the thermocouple reference end with ice-water mixture. It has the characteristics of stable working temperature, high precision and easy to use. It can be used for the indexing test of various thermocouples.

Product Parameter

¤ Accuracy:0 ℃ ± 0.1 ℃.
¤ Stability: ± 0.02 ℃.
¤ Evenness: < 0.05 ℃.
¤ Resolution of temperature controller:0.01 ℃.
¤ Number and aperture of socket:10- ¢9.
¤ Power Supply:One-way AC 220v, maximum power 200W.
¤Working environment condition:The ambient temperature is 5℃~30 ℃ and the relative humidity is 10% - 80%.
¤ Zero thermostat has been calibrated with standard platinum resistance thermometer before leaving factory. Users can also calibrate themselves according to their needs.

ET3860 Digital Thermometer

ET3860 standard digital thermometer is the new selection in field of industrial temperature calibration and high
precision measurement. Its accuracy and repeatability can be achieved better than 0.05 ℃ / year. Lithium batteries(don't need to replace) 's life is lasting, intuitive readings, strong and durable.

Product Features

¤ The accuracy and repeatability is better than 0.05 ℃ / year, electricity float is less than 1 PPM / ℃.
¤ Wireless Communication: real-data can be transmitted to computer through wireless communication.
¤ Curve display: can display the real time curve in the same time as many as 32 sets thermometer.
¤ Data record : can save 16,000 strip temperature measurements.
¤ Intelligent indication: the trend indicator shows the trend of temperature change.
¤ zero mark: arbitrary point zero mark, volatility, deviation value visual display.
¤ Intelligent processing: maximum, minimum and average values are directly calculated and displayed.
¤ Unit : K, ℃, and ℉ can be switched arbitrarily.
¤ Resistance value display: sensor resistance value and temperature value synchronous corresponding display.
¤ Scheduled shutdown: the shutdown time can be set from 1 minute to 48 hours.
¤ Ultra-low power consumption: No need to do battery replacement.
¤ Sampling rate can be adjusted: the sampling period from 1S to 2H can be customized to facilitate timing sampling.

Product Parameter

Product Name	ET3860 DIGITAL THERMOMETER	
Model	ET3860 B/C	
Temperature Range	-60~160℃	-80~320℃
Accuracy	I: better than 0.05℃ II: better than 0.1 ℃	
Resolution rate	0.001℃	
Calibration Period	1 Year	
Sensor Length	500mm (19.68 in)	
Sensor Diameter	6mm	
Sensor Material	316s stainless steel (medical and food grade)	
Sensor Specification	RTD	PRT
Sampling rate	0.5、1S、2S	
Data Storage	16000 data	
Connect	USB or wireless communication for option	
Wireless communication range	No shelter160m	
Battery Type	High temperature resistant lithium battery	
Battery's lifetime	No less than 1000 charge and discharge cycles	
Warm Up Time	Be valid after 1 min's warm up time	
Battery' charge time	2.5 hours	
Main operating environment	−10℃ ~ 50℃ (14℉ ~122℉)	
Main engine protection class	IP50	
Sensor protection class	IP68	
Dimension	106(L)X48 (W) X37 (H) mm	
Weight	210g	
Storage	−20℃ ~60℃ (−4℉ ~140℉) 5%RH-80%RH	

ET385-050 Blackbody Calibration Furnace

Products Overview

The portable black body furnace calibrator is independently developed by our company and is mainly used for the calibration temperature instrument .

Product Features

¤ Novel design, touch screen operation, simple operation.
¤ The isothermal blackbody cavity has only one cavity mouth. The cavity mouth radiation is uniformly distributed with the spectrum, and the cavity mouth emissivity is above 0.99.
¤ The automatic heating temperature control method is adopted, which is safe and reliable, the heating speed is fast, and the temperature stability is good.
¤ Easy to use, small size, light weight, and easy to carry, not only suitable for laboratory calibration, but also for on-site calibration work.
¤ Double-row digital display of measured value and set value parameter setting and other new technologies, high precision, high function, and strong anti-interference ability.

Product Parameter

Model name	ET385-050
Temperature range	30-50C°Adjustable
Display and operation	5 inch TFT color LCD display, 800 x 480 resolution, the touch operation
Temperature resolution	0.01℃
Cavity diameter	Φ60mm
Cavity depth	25mm
Cavity Emissivity	≥0.99
Temperature stability	±(0.1~0.2)℃/10min
Temperature uniformity	±0.15C°
power	220V AC 50HZ
weight	about 5.0Kg
Outside size	300mm*350mm*150mm(lonth*width*height)
Using the environment	0 ~ 50 ℃ environment temperature and relative humidity of 95% or less (no condensation)

ET3871 Standard Thermostatic Bath

Thermostatic bath is a high-precision, self-controlling temperature verification device.The fully enclosed cascade imported compressor refrigeration system is used to achieve high temperature control accuracy, uniform temperature field, and safe and convenient operation.

Products are widely used in petroleum, chemical, electronic instrumentation, physics, chemistry, biological engineering, medicine and health, life sciences, light industry food, physical property testing and chemical analysis and other research departments, colleges and universities, enterprise quality inspection and production departments.

Product Features

¤ High stability and uniformity.
¤ Refrigeration system is of one-key control, highly intelligence and more convenient operation.
¤ Adopting sensor dual channel testing over temperature protection to ensure higher safety.
¤ Reasonable protective measures are added to the motor part to prevent the occurrence of accidents.
¤ Four-wire temperature control platinum resistance, temperature controller with HD four-wire chip, high precision level measurement technology.

Product Parameter

Product	Cooling Thermostatic Bath				Thermostatic Water Bath	Thermostatic Oil Bath
Model	ET3871-80	ET3871-60	ET3871-40	ET3871-10	ET3871-95	ET3871-300
Temp Range	-80℃~ +95℃	-60℃~+95℃	-40℃~+95℃	-10℃~+95℃	10℃~+95℃	80℃~300℃
Temp Fluctuation	≤0.01℃	≤0.01℃	≤0.01℃	≤0.01℃	≤0.01℃	≤0.01℃
Temp Uniformity	≤0.005~0.01℃	≤0.005~0.01℃	≤0.005~0.01℃	≤0.005~0.01℃	≤0.005~0.01℃	≤0.005~0.01℃
Working Area Size	Φ130 ×480mm	Φ130 ×480mm	Φ130 ×480mm	Φ130 ×480mm	Φ130 ×480mm	Φ150 ×480mm
Cooling Method	Overlapping double machine	Overlapping double machine	Single stage refrigeration	Single stage refrigeration	/	/
Working Medium	Soft water /Anhydrous ethanol	Soft water /Anhydrous ethanol	Soft water /Anhydrous ethanol	Soft water /Anhydrous ethanol	Soft water	silicone?oil
Power Supply	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
Working Environmental Temp	≤ 30℃	≤ 30℃	≤ 30℃	≤ 30℃	≤ 35℃	≤ 35℃
Power	4kW	3kW	2kW	2kW	1.5kW	3kW
freezing?medium	R404 R23	R404 R23	R404	R406a	/	/
Size	800×580×1180	800×580×1180	640×580×1180	640×580×1180	640×580×1180	640×580×1180

ET3131X High Precision Thermometer

Products Overview

ET313X series high precision thermometer is available in two types,which are divided into four models .With better measurement accuracy and resolution, ET313 series provides a full range of measurement functions and reasonable price,;This equipment is with 5 inches' TFT LCD display, clear reading, simple and generous display. Its convenient for users to choose the models according to their demand.

Product Features

¤ Clear graphic interface with 5.0 inches 800x480TFT touch screen ; adjustable brightness.
¤ Support English and Chinese; Real-time clock display.
¤ Support mV measurement, measurement range -78mV~78mV.
¤ Support2 wires/ 4 wires resistance measurement, measurement range: 0~1600Ω.
¤ Supporting RTD measurement,including standard Pt100, Pt25 and conventional Pt100, Pt25, Pt50, Pt200, Pt500, Pt1000, Pt100-392, Pt100-JIS, Cu10, Cu50, Cu100, Ni120. Users can define name of sensor's type by their own.
¤ Support TC measurement, including standard S-type thermocouple, and conventional S、R、K、J、B、T、E、N、L、U、XK、BP. Users can define name of sensor's type by their own. (ET3131 and 3132 don't support this function).
¤ Standard Pt100, Pt25 and S-type thermocpuple, each can store 5 sets of probe parameter . (ET3131 and 3132 don't support standard S-type thermocouple).
¤ Provide communication port: RS485 and USB Device.

General Specification

¤ Power Supply: AC 110/220V, 50~60Hz.
¤ Power: <10W.
¤ Display: 5 -inches TFTLCD touch screen , resolution rate 800×480, color 16M.
¤ Dimension : 350mm×340mm×55mm (L×W×H).
¤ Communication port : RS485and USB.

Product Parameter

Model		ET3131	ET3132	ET3131B	ET3132B
Channels		Single Channel	Double Channels	Single Channel	Double Channels
Resistance Measurement	Highest Resolution	10μΩ		10μΩ	
	Measurement Range	0~1600Ω		0~1600Ω	
	Accuracy (only including Meter's accuracy)	±(0.003%+50)		±(0.003%+50)	
RTD Measurement	Highest Resolution	0.0001℃		0.0001℃	
	Measurement Range	-200~850℃		-200~850℃	
	Accuracy (only including Meter's accuracy)	±0.004℃@-100℃ ±0.006℃@0℃		±0.004℃@-100℃ ±0.006℃@0℃	
		±0.009℃@100℃ ±0.012℃@200℃		±0.009℃@100℃ ±0.012℃@200℃	
		±0.018℃@400℃±0.024℃@600℃		±0.018℃@400℃±0.024℃@600℃	
mV Measurement	Highest Resolution	–		10nV	
	Measurement Range			-78mV~+78mV	
	Accuracy (only including Meter's accuracy)			±(0.0018%+30)	
Thermocouple Measurement	Highest Resolution	–		0.001℃	
	Measurement Range	–		-250~2500℃	
	Accuracy (only including Meter's accuracy)	–		S : ±0.5℃R : ±0.4℃K : ±0.15℃ J : ±0.1℃	
				B : ±0.6℃T : ±0.1℃ E : ±0.1℃ N : ±0.15℃	
				L : ±0.15℃ U : ±0.15℃ XK : ±0.1℃ BP : ±0.5℃	
Current Measurement	Highest Resolution	–		1nA	
	Measurement Range	–		-24mA~24mA	
	Accuracy (only including Meter's accuracy)	–		±(0.04%+20)	
Other Functions					
Resistance Measurement		Supporting 2 wires/ 4 wires			
RTD Measurement		Supporting 3wires/ 4 wires			
RTD Sensor's type		Supporting conventional sensor types: Pt10、Pt25、Pt50、Pt100、Pt200、Pt500、Pt1000、Pt100-392、Pt100-JIS、Cu10、Cu50、Cu100、Ni120 and 2 standard sensors' type : Pt25、Pt100 , Users can define name of sensor's type by their own.			
Thermocouple's Cold Junction (only support ET3131B and 3132B)		The temperature of cold junction can be adjusted automatically or by manual			
Thermocouple's type (only support ET3131B and 3132B)		Supporting conventional thermocouples:S、R、K、J、B、T、E、N、L、U、XK、BP and 1 standard S-type thermocouple Users can define name of sensor's type by their own.			
Temperature Curve Display		Support temperature curve display;Save 10 sets of historical data and curves;Read historical data and curves			
Temperature Unit		℃、℉、K			
Display Screen		5 -inches TFTLCD touch screen , resolution rate 800×480 , color 16M			
Communication Port		Supporting RS485and USB			

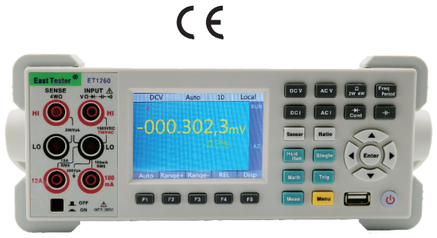
Accessories List

Standard Accessories:
¤ two-headed 4mm Banana Plug's wiring 50cm* 2.
¤ Power Line *1.
¤ User Manual *1.

Optional Accessories:
¤ RS485Communication Line.
¤ USB Communication Line.

ET1260A 6 1/2 Digital multimeter
ET1260B 6 1/2 Digital multimeter

As one of the indispensable products in the field of electronic testing, digital multimeter has a wide range of applications. Modern digital multimeter has many advantages, such as high precision, high speed, high input impedance, digital display, accurate reading, strong anti-interference ability, high automation of measurement, so it is widely used and favored by engineers. The application requirements of digital multimeter have also changed greatly. ET12 series multimeter is equipped with 3.5 inch high-resolution color display screen and embedded intelligent operating system. It can provide more information, more functions, simple operation, wider test range, more flexible and convenient system construction. It is a new type of digital multimeter that leads the development trend.



Model Description

Model	Explain
ET1260A	6 1/2 bit precision digital multimeter, no GPIB interface, no back panel signal input terminal.
ET1260B	6 1/2 bit precision digital multimeter, GPIB interface, back panel signal input terminal.

Product Features

¤ 6 ½ bit resolution (ET1260A/ET1260B) , over range display, range 120%.
¤ The display adopts 3.5 inch color screen (resolution 320*480), which is rich in content, flexible in displaying various graphical interfaces, and has good display effect. According to your needs, customize the display interface, optional graphics, numbers, mathematics and other functions are displayed on the interface at the same time.
¤ Two-parameter display can display two parameters of the same input signal (for example, AC voltage value and AC frequency value can be displayed simultaneously under AC voltage measurement).
¤ Remote operation is carried out through GPIB interface (ET1260B), RS-232 interface, LAN interface and USB Device interface.
¤ It has the function of triggering input and measuring output.
¤ Front panel with U disk port for data storage, program upgrade and configuration.
¤ Host software can be upgraded by customers themselves.
¤ Resistance two-wire and four-wire measurement, 10Ω and 1GΩ extended range.
¤ The frequency can reach 1 MHz by measuring the period and frequency.
¤ Capacitance measurement.
¤ Temperature measurement, user can set sensor measurement.
¤ Maximum current measurement capacity up to 12A.
¤ Various mathematical functions: statistics (maximum, minimum, average), zero elimination, dB, dBm, limit.
¤ Graphic display: trend chart, histogram, historical curve, list and other display methods.
¤ Support SCPI programming language, support a variety of command sets (Agilent 34401A, Fluke 45).
¤ The front and rear panels of the instrument provide input terminals (ET1260B).
¤ It has internal and external calibration functions.
¤ Measuring speed: 0.02NPLC~100NPLC, 7 gears.

General Technical Specifications

¤ Power supply voltage: 220V.AC±10%, 45~65Hz, or 110V.AC±10%, 45~65Hz.
¤ Function: <20W.
¤ Display: 3.5 inch TFT LCD screen, resolution 480 *320, color 16M.
¤ Temperature Range: -5℃~+45℃.
¤ Humidity range: 5%~85% relative humidity.
¤ Interfaces: RS232, USB Host, USB Device, LAN, GPIB (only 1260B support), Wifi, Bluetooth.
¤ Size and weight: 265mm *105mm *335mm (width *height *depth), weight 2.7Kg.

ET1260A 6 1/2 Digital multimeter
ET1260B 6 1/2 Digital multimeter

Product Parameter

Model		ET1260B	ET1260A
Display		3.5-inch color screen (resolution 320*480)	
Display digit		6 1/2	
Signal terminal		Front / rear end	Front end
Fastest measuring speed		2500 readings / sec	
function	Item	Uncertainty, ±(% measurement value +% range)	
DCV	Uncertainty	0.0035+ 0.0005	
	measuring range	0 mV~1000 V	
	Maximum resolution	100nV	
ACV	Uncertainty	0.06 + 0.03	
	measuring range	1 mV~750 V	
	Maximum resolution	100nV	
	frequency range	3 Hz ~ 300 kHz	
DCI	Uncertainty	0.05 + 0.006	
	measuring range	0 uA ~ 12 A	
	Maximum resolution	10 pA	
ACI	Uncertainty	0.10 + 0.04	
	measuring range	1 uA ~ 12 A	
	Maximum resolution	100 pA	
	frequency range	3 Hz ~ 10 kHz	
resistance	Uncertainty	0.01 + 0.001	
	measuring range	0 Ω ~ 1 GΩ	
	Maximum resolution	10 uΩ	
Frequency / cycle	Uncertainty	0.01%	
	measuring range	3 Hz ~ 1 MHz	
	Maximum resolution	1 uHz	
Capacitance	Uncertainty	1 + 0.3	
	measuring range	0 nF ~ 100 mF	
	Maximum resolution	1 pF	
On-off / diode		On	
Ratio (DC:DC)	Reference end range	100mV ~ 10 V	
	Input range	100mV ~ 1000 V	
temperature	type	Platinum Resistor, Thermistor, Custom Sensor	
	Maximum resolution	0.001℃	
Mathematical function		Relative (ax + b), maximum / minimum / average, standard deviation, dB, dBm, reading retention, limit test	
Graphical		Histogram, Trend Map	
Interface		RS-232、IEEE 488、LAN、USB Device、USB Host、Trig IN/OUT	
Programing language		SCPI Compatible Agilent 34401A, 34410 and Fluke 45	
Data storage size		512K	

Standard Accessories

¤ Three core Power Supply Wire*1(30A51);
¤ Three core pen*1(32A52);
¤ Backup Power Fuse*2(32A52).

Optional Accessories

¤ GPIB cable (32P01);
¤ Cabinet Installation Kit (32P02);
¤ Pt100 temperature probe (32P03);
¤ Rs232 Serial Port Line (32P04);
¤ USB data line (32P05).

Enclosure


Rs232 Serial Port Line (32P04)


Pt100 temperature probe (32P03)


GPIB cable (32P01)


USB data line (32P05)

ET124X Series Digital Multimeter
ET125X Series Digital Multimeter

ET124X/ET125X Series is a fully functional and stable TRV digital multimeter, which provides powerful functions, excellent performance and good user experience; 3.5 inch TFT LCD screen display, clear reading, rich content, has good display effect. This table is driven by municipal power supply to make it a high reliability digital table. Full-function, full-range overload protection and unique appearance design make it the first choice for electricians and University laboratories. There are 9 models in the whole series (see table below).

Model Description

	Conventional model		ET124X Series Enhanced Model				ET125X Series Enhanced Model		
Model	ET1240	ET1255	ET1241A	ET1241B	ET1241C	ET1241D	ET1256A	ET1256B	ET1256C
Reading display	4 1/2	5 1/2	4 1/2	4 3/4	4 4/5	4 5/6	5 1/2	5 4/5	5 5/6

Product Features

¤ Using 3.5 inch TFT LCD display (resolution 320*480), the brightness of the screen can be adjusted.
¤ Language switching between Chinese and English.
¤ Two-parameter display can display two parameters of the same input signal (for example, AC voltage value and AC frequency value can be displayed simultaneously under AC voltage measurement).
¤ Overrange display: 120% of range.
¤ The measuring and displaying speed can be adjusted, which can be divided into three kinds: fast, medium and slow.
¤ Measurement of AC/DC Voltage, AC/DC Current and 2/4 Line Resistance.
¤ The maximum DC current is 12A and the maximum DC voltage is 1100V..
¤ Periodic and frequency measurements, maximum frequency 20 MHZ.
¤ Capacitance measurement, maximum 10 mF.
¤ True RMS AC voltage and AC current measurements, bandwidth up to 100 kHz.
¤ Provide automatic, external, single trigger three trigger measurement methods.
¤ With AC+DC measurement.
¤ Optional manual or automatic range.
¤ Function of square wave output and duty cycle measurement.
¤ Setting function: Language, buzzer, screen brightness, etc. can be set.
¤ Twelve Mathematical Functions: MX+B, MAX, MIN, Average, dB, dBm, REL, Hold,%, Limit Comparison, Statistics, Reciprocal.
¤ External calibration function to support user self-calibration.
¤ Supporting a variety of sensors: 10 thermocouples, 4 thermal resistors.
¤ Support for custom sensors.
¤ Graphic display: real-time curve, histogram, bar graph, etc.
¤ With reading retention function.
¤ Supporting SCPI protocol and providing programming documentation.
¤ Data Memory Storage and Reading Function for Easy Viewing of Data Information.
¤ Multiple communication modes: RS232, USB Device, GPIB, USB Host, LAN, WIFI, Bluetooth.
¤ Built-in temperature sensor for cold-end compensation, support automatic and manual compensation.

CE

General Technical Specifications

¤ Power supply voltage: 220V AC ± 10%, 110V AC ±10%, 45-65Hz;
¤ Display: 3.5 inch TFT LCD screen, resolution 480x320, color 16M;
¤ Operating Temperature: 0~40 ℃;
¤ Storage environment: - 10~50 ℃;
¤ Relative humidity <80%;
¤ Interface: ET124X Standard - USB Device, ET125X Standard - USB Device, RS232, other optional - GPIB, USB Host, LAN, Wifi, Bluetooth;
¤ Shape size: 265 mm * 105 mm * 305 mm (width * height * depth);
¤ Weight: 2.3kg.

Standard Accessories

¤ Three core power cord*1(30A51)
¤ Three core pen*1(32A52)
¤ Backup power fuse*2(32A52)

Optional Accessories

¤ GPIB cable
¤ Cabinet installation kit
¤ Rs232 serial port line
¤ USB data line

Product Parameter Table 1（ET1240、ET1255）

Model		ET1240	ET1255
Reading display		24000(4 1/2)	240000(5 1/2)
Display rate		Slow: 2 seconds per second; Medium: 5 times per second; Fast: 7 times per second	
DCV	Measuring range	10μV~1000V	1μV~1000V
	Maximum resolution	10μV	1μV
	Uncertainty	±(0.03%+3)	±(0.01%+3)
DCI	Measuring range	10nA~10A	1nA~10A
	Maximum resolution	10nA	1nA
	Uncertainty	±(0.08%+10)	±(0.05%+10)
ACV	Measuring range	10μV~750V	1μV~750V
	Frequency range	20Hz~100kHz	20Hz~100kHz
	Maximum resolution	10μV	1μV
	Uncertainty	±(0.3%+20)	±(0.2%+100)
ACI	Measuring range	10nA~10A	1nA~10A
	Frequency range	20Hz~10kHz	20Hz~10kHz
	Maximum resolution	10nA	1nA
	Uncertainty	±(0.3%+20)	±(0.2%+100)
Resistance	Measuring range	10mΩ~200MΩ	1mΩ~200MΩ
	Maximum resolution	10mΩ	1mΩ
	Uncertainty	±(0.05%+5)	±(0.015%+3)
Capacitance	Measuring range	1pF~10mF	1pF~10mF
	Maximum resolution	1pF	1pF
	Uncertainty	±(1%+5)	±(1%+5)
Frequency	Measuring range	1Hz~20MHz	1Hz~20MHz
	Maximum resolution	0.001Hz	0.0001Hz
	Uncertainty	±(0.01%+10)	±(0.005%+3)
Other functions			
Mathematical function		MX+B / MAX / MIN / Average / dB / dBm / Rel / Limits Compare/ Hold / Statistics / % / 1/X	
Resistance measurement		Supporting 2-line and 4-line	
On-off measurement		The buzzer sounds when the measured value is below the threshold. Threshold resistance can be set in the range of 0~2kΩ, default is 30Ω	
Diode measurement		Measurement range: 0-2V	
AC+DC measurement		Support	
Trigger mode		Automatic Trigger, Single Trigger, External Trigger (ET1240 is optional)	
Duty cycle measurement		5.0%-95.0%(error within 10 words)	
Square wave output		Frequency: 1Hz-100kHz, Amplitude: 3V	
Limit test		Support	
Calibration function		Support	
Temperature measurement		Thermocouple: K / N / R / S / T / B / E / J / WRe325 / WRe526; Thermal resistance: PT100 / PT50 / Cu100 / Cu50	
Cold end compensation		Built-in temperature sensor to support automatic and manual temperature compensation	
Communication interface		ET1240: Standard: USB Device; Matching: RS232、USB Host、GPIB、LAN、WIFI、Bluetooth	
		ET1255: Standard: USB Device、RS232; Matching: USB Host、GPIB、LAN、WIFI、Bluetooth	
Additional functions		Data retention, data storage, data readback	

Product Parameter Table 2（ET1241A、ET1241B、ET1241C、ET1241D）

Model		ET1241A	ET1241B	ET1241C	ET1241D
Reading display		24000(4 1/2)	44000(4 3/4)	55000(4 4/5)	66000(4 5/6)
Display rate		Slow: 2 seconds per second; Medium: 5 times per second; Fast: 7 times per second			
DCV	Measuring range	10μV~1100V			
	Maximum resolution	10μV			
	Uncertainty	±(0.02%+3)	±(0.02%+3)	±(0.02%+3)	±(0.02%+3)
DCI	Measuring range	10nA~12A			
	Maximum resolution	10nA			
	Uncertainty	±(0.08%+3)	±(0.05%+3)	±(0.05%+3)	±(0.05%+3)
ACV	Measuring range	10μV~800V			
	Frequency range	20Hz~100kHz			
	Maximum resolution	10μV			
	Uncertainty	±(0.2%+20)	±(0.2%+20)	±(0.2%+20)	±(0.2%+20)
ACI	Measuring range	10nA~12A			
	Frequency range	20Hz~10kHz			
	Maximum resolution	10nA			
	Uncertainty	±(0.2%+10)	±(0.2%+10)	±(0.2%+10)	±(0.2%+10)
Resistance	Measuring range	10mΩ~1GΩ			
	Maximum resolution	10mΩ			
	Uncertainty	±(0.05%+5)	±(0.04%+5)	±(0.03%+5)	±(0.03%+5)
Capacitance	Measuring range	1pF~10mF			
	Maximum resolution	1pF			
	Uncertainty	±(1%+5)	±(1%+5)	±(1%+5)	±(1%+5)

East Tester®
Electric Measurement and Instrument
ET124X Series Digital Multimeter
ET125X Series Digital Multimeter

Frequency	Measuring range	1Hz~20MHz			
	Maximum resolution	0.001Hz			
	Uncertainty	±(0.01%+3)	±(0.01%+3)	±(0.01%+3)	±(0.01%+3)
Other functions					
Mathematical function		MX+B / MAX / MIN / Average / dB / dBm / Rel / Limits Compare/ Hold / Statistics / % / 1/X			
Resistance measurement		Supporting 2-line and 4-line			
On-off measurement		The buzzer sounds when the measured value is below the threshold. Threshold resistance can be set in the range of 0~2kΩ, default is 30Ω			
Diode measurement		Measurement range: 0-2V			
AC+DC measurement		Support			
Trigger mode		Automatic Trigger, Single Trigger, External Trigger (optional)			
Duty cycle measurement		5.0%-95.0%(error within 10 words)			
Square wave output		Frequency: 1Hz-100kHz, Amplitude: 3V			
Limit test		Support			
Calibration function		Support			
graphic display		Bar/Trend/Histogram			
temperature measurement		Thermocouple: K / N / R / S / T / B / E / J / WRe325 / WRe526; Thermal resistance: PT100 / PT50 / Cu100 / Cu50			
Custom sensor		Users can set the corresponding curve by themselves and download it through U disk or USB communication port, which can support up to 20 kinds.			
Cold end compensation		Built-in temperature sensor to support automatic and manual temperature compensation			
communication interface		Standard: USB Device; Matching: RS232、USB Host、GPIB、LAN、WIFI、Bluetooth			
Additional functions		Data retention, data storage, data readback			

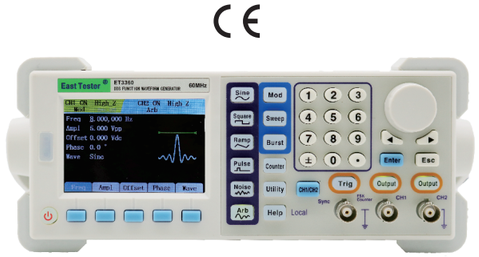
Product Parameter Table 3（ET1256A、ET1256B、ET1256C）

Model		ET1256A	ET1256B	ET1256C
Reading display		240000(5 1/2)	550000(5 4/5)	660000(5 5/6)
Display rate		Slow: 2 seconds per second; Medium: 5 times per second; Fast: 7 times per second		
DCV	Measuring range	1μV~1100V		
	Maximum resolution	1μV		
	Uncertainty	±(0.01%+3)		
DCI	Measuring range	1nA~12A		
	Maximum resolution	1nA		
	Uncertainty	±(0.03%+10)		
ACV	Measuring range	1μV~800V		
	Frequency range	20Hz~100kHz		
	Maximum resolution	1μV		
	Uncertainty	±(0.1%+100)		
ACI	Measuring range	1nA~12A		
	Frequency range	20Hz~10kHz		
	Maximum resolution	1nA		
	Uncertainty	±(0.1%+100)		
Resistance	Measuring range	1mΩ~1GΩ		
	Maximum resolution	1mΩ		
	Uncertainty	±(0.01%+5)		
Capacitance	Measuring range	1pF~10mF		
	Maximum resolution	1pF		
	Uncertainty	±(1%+5)		
Frequency	Measuring range	1Hz~20MHz		
	Maximum resolution	0.0001Hz		
	Uncertainty	±(0.005%+3)		
Other functions				
Mathematical function		MX+B / MAX / MIN / Average / dB / dBm / Rel / Limits Compare/ Hold / Statistics / % / 1/X		
Resistance measurement		Supporting 2-line and 4-line		
On-off measurement		The buzzer sounds when the measured value is below the threshold. Threshold resistance can be set in the range of 0~2kΩ, default is		
Diode measurement		Measurement range: 0-2V		
AC+DC measurement		Support		
Trigger mode		Automatic Trigger, Single Trigger, External Trigger		
Duty cycle measurement		5.0%-95.0%(error within 10 words)		
Square wave output		Frequency: 1Hz-100kHz, Amplitude: 3V		
Limit test		Support		
Calibration function		Support		
graphic display		Bar/Trend/Histogram		
temperature measurement		Thermocouple: K / N / R / S / T / B / E / J / WRe325 / WRe526; Thermal resistance: PT100 / PT50 / Cu100 / Cu50		
Custom sensor		Users can set the corresponding curve by themselves and download it through U disk or USB communication port, which can support up to 20 kinds.		
Cold end compensation		Built-in temperature sensor to support automatic and manual temperature compensation		
communication interface		Standard: USB Device、RS232; Matching: USB Host、GPIB、LAN、WIFI、Bluetooth		
Additional functions		Data retention, data storage, data readback		

ET33 series dual-channel function/arbitrary wave generator is designed by direct digital synthesis (DDS) technology, which can produce accurate, stable and low distortion output signal.

Product Features

- The 3.5 inch 480x320TFT LCD screen has a clear graphical interface.
- Support menu in Chinese and English.
- Dual channel output, maximum output frequency 70MHz.
- The two channels are independent of each other and have phase synchronization function.
- 160MSa/S sampling rate, 12 bit vertical resolution, 16K storage depth.
- Built in 5 basic waveforms and 60 arbitrary waveforms.
- Waveform storage: supporting 10 sets of user defined editing waveforms.
- The pulse wave output at the edge time can be set.
- Internal / external AM, FM, FSK, PM, ASK, PSK modulation function.
- Output of linear / logarithmic sweep and pulse train waveform.
- High precision frequency meter with 200MHz.
- It has RS232 interface, USB Device, USB Host interface, GPIB (optional), supports U disk storage.
- Equipped with multi-function arbitrary waveform editing software.



General Technical Specifications

- Supply voltage: 220V.AC±10%, or 110V.AC ±10% (optional), 45~65Hz.
- Power consumption: <40W.
- Display: 3.5 inch TFT LCD screen, resolution 480 x 320, color 16M color.
- Temperature range: operating state 10℃ ~+40℃ , non operating -10℃ ~+60℃ .
- Chumidity range: 0~40℃, less than 90% relative humidity.
- Interface: RS232, USB Host, USB Device, GPIB (matching).
- Size: 265 x 105 x 305mm (wide * high * Deep).
- Weight:2.6kg.

Matching Accessories

- One three-core power cord.
- Two power fuses.
- 1 user manual.

Optional Accessories

- CD.
- USB cable.
- RS232/485 cable.
- The output line.

Product Parameter

Frequency Characteristics					
Model	ET3310	ET3325	ET3340	ET3360	ET3370
Waveform types	Sine, square, triangle, pulse, noise and arbitrary waves (including DC)				
Sine	1uHz ~ 10MHz	1uHz ~ 25MHz	1uHz ~ 40MHz	1uHz ~ 60MHz	1uHz ~ 70MHz
Square	1uHz ~ 5MHz	1uHz ~ 5MHz	1uHz ~ 10MHz	1uHz ~ 10MHz	1uHz ~ 10MHz
Triangle	1uHz ~ 500kHz	1uHz ~ 500kHz	1uHz ~ 1MHz	1uHz ~ 2MHz	1uHz ~ 2MHz
Noise (-3dB)	7MHz Bandwidth				
Pulse	100uHz ~ 5MHz	100uHz ~ 10MHz			
Arbitrary wave	1uHz ~ 5MHz		1uHz ~ 10MHz		
Frequency Resolution	1uHz				
Frequency Accuracy	±5ppm				
Sine Wave Characteristics	CH1			CH2	
Harmonic distortion(>1Vpp)	0~1MHz: <-45dBc;1MHz~10MHz: <-40dBc;10MHz~20MHz: <-30dBc 20MHz~40MHz: <-25dBc;40MHz~70MHz: <-20dBc			0~1MHz: <-45dBc 1MHz~40MHz: <-40dBc;40MHz~70MHz: <-35dBc	
Total harmonic distortion	<0.2% (20Hz-20kHz, 1Vpp)				
Square Wave Signal Characteristics					
Rise/fall Time	<20ns				
Overshoot	<5%				
Duty cycle	≤100kHz: 1%~99%;≤5MHz: 20%~80%;≤10MHz: 40%~60% (0.1% resolution)				
Dissymmetry(50% duty cycle)	1% Period + 5ns				
Jitter	6ns +0.1% Period				
Ramp Wave Characteristics					
Linearity degree	≤0.1% Peak output				
Symmetry	0.0~100.0%(resolution 0.1%)				
Pulse Wave Characteristics					
Pulse width	Min 20ns;1ns resolution				
Edge transition time	Min 20ns				
Overshoot	<5%				
Jitter	6ns +0.1% Period				

East Tester®
Electric Measurement and Instrument
ET33 Series Arbitrary Waveorm Function Signal Generator

Arbitrary Wave Characteristics	CH1	CH2
Sampling speed	160MSa/S	160MSa/S
Waveform amplitude resolution	12bits	10bits
Waveform length	16k	4k
Minimum rise/fall time	<20ns	<20ns
Jitter	6ns+30ppm	6ns+30ppm
Storage quantity	10 waveforms	10 waveforms
Output Characteristics		
Amplitude (50Ω)		
Range	1mVpp~10Vpp ≤20MHz;1mVpp~5Vpp >20MHz	1mVpp~3Vpp ≤20MHz
Accuracy	±1% set value ±1mVpp(1kHz Sine,0 offset,>10mVpp)	
Resolution	1mV or 3 bit	
Flatness(relative to 1K Sine, 1 Vpp)	±0.1dB,≤100kHz;±0.3dB,≤5MHz;±0.4dB,≤40MHz;±1dB,≤70MHz	±0.1dB,≤100kHz;±0.2dB,≤5MHz;±2dB,≤40MHz;±5dB,≤70MHz
Offset (50Ω)		
Range	±5Vpk ,ac + dc	±1.5Vpk ,ac + dc
Accuracy	±(1% set value +5mV+0.5% amplitude)	
Output impedance	50Ω	
Protection	Short circuit protection, automatically disables the waveform output when overloading	
SYNC Output		
Level	TTL compatibility	
Impedance	50Ω	
Rise/fall time	<25ns;	
Maximum frequency	25MHz	
AM Modulation (CH1)		
Carrier wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)	
Source	Internal/external	
Modulation wave	Sine, square, triangle and ramp	
Modulation frequency	2mHz~20kHz	
Modulation depth	0%~120%	
FM Modulation (CH1)		
Carrier wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)	
Source	Internal/external	
Modulation wave	Sine, square, triangle and ramp	
Modulation frequency	2mHz~20kHz	
Frequency offset	0~Maximum carrier frequency	
FSK Modulation (CH1)		
Carrier wave	Sine, square, ramp, pulse or arbitrary waveforms (excluding DC)	
Source	Internal/external	
Modulation wave	Square wave of 50% duty ratio	
Keying frequency	2mHz~1MHz	
Frequency Sweep (CH1)		
Carrier wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)	
Types	Linearity/Logarithm	
Start/Stop Frequency	1uHz~Maximum carrier frequency	
Sweep frequency time	1ms~500s	
Trigger source	Manual operating, internal, external	
Burst characteristics (CH1)		
Carrier wave	Sine, square, ramp, pulse, noise and arbitrary waveforms (excluding DC)	
Pulse count	1~65535 or infinite, gated	
Start/stop phase	0~360°	
Internal period	1us~500s	
Gating source	External	
Trigger source	Internal, external, manual operating	
Frequency Meter		
Frequency range	1Hz~160MHz	
Frequency resolution	6 bit/s	
Voltage range and sensitivity	100mVpp~5Vpp	
Input adjustment	input impedance:1MΩ	
	coupled modes:AC	
Trigger Input		
Level	TTL compatibility	
Slope	Rise/Fall	
Pulse width	>100ns	
Reaction time	<500ns(burst)	
	<10us(sweep frequency)	
Modulation Input		
Impedance	1MΩ	
Signal range	±5V ac + dc	

ET1092 series LCR digital bridge is a high precision component parameter analyzer designed based on the principle of automatic balance bridge. Its 10Hz~1MHz test bandwidth, frequency continuous adjustable, 0.05% basic measurement accuracy, automatic level control function, list scanning and file counting function provided by the instrument provide most components and materials. Accurate and complete measurement and analysis are widely used in product development, component inspection, product on-line inspection and other applications.

Product Features

¤ 0.05% basic accuracy.
¤ Measuring speed up to 200 times per second.
¤ 10Hz-1MHz Frequency Measurement Range, Continuous Adjustable, 1mHz Step.
¤ Test signal level 10 mV-2 V adjustable, 1 mV step-by-step.
¤ Internal Programmable DC Bias Voltage-2V~+2V.
¤ Supporting external DC bias voltage-60V~+60V.
¤ Supporting external current source.
¤ Automatic Level Adjustment of Voltage or Current.
¤ V, I and other test signal monitoring functions.
¤ 10-Point List Scanning Test Function.
¤ 10-grade sorting and counting function.
¤ 100 sets of self-calibration data.
¤ Automatic and manual range.
¤ 7 inch LCD display, Chinese and English interface.
¤ USB, LAN, RS232, GPIB, HANDLER interfaces.

CE

Measurement Object

¤ Passive components: capacitors, inductors, magnetic cores, resistors, piezoelectric devices, transformers, chip components and network components impedance parameter evaluation and performance analysis.
¤ Semiconductor components: C-VDC characteristics of varactor diodes; parasitic parameter analysis of transistors or integrated circuits.
¤ Other Components: Impedance Evaluation of Printed Circuit Board, Relay, Switch, Cable, Battery, etc.
¤ Dielectric materials: dielectric constant and loss angle of plastics, ceramics and other materials evaluation of magnetic materials: permeability and loss angle evaluation of ferrites, amorphous and other magnetic materials.
¤ Semiconductor Materials: Dielectric Constants, Conductivity and C-V Properties of Semiconductor Materials.
¤ Liquid Crystal Materials: C-V Characteristics of Dielectric Constants and Elastic Constants of Liquid Crystal Units.

Application Area

¤ Electronic capacitors, substrates, PCB, antennas, ferrites, shock absorbers, SAR phantom materials.
¤ Aerospace/National Defense Stealth, RAM (Radar Wave Absorbing Material), Radome.
¤ Industrial Material Ceramics and Composites Automotive Parts and Coatings.
¤ Polymers and Plastic Fibers, Films, Insulating Materials.
¤ Hydrogel disposable diapers and soft contact lenses.
¤ Liquid crystal display.
¤ Other products containing such materials such as tyres, coatings, adhesives, etc.
¤ Study on Fresh Preservation (Deterioration) of Food and Agricultural Food, Microwave Food Development, Packaging and Moisture Content Measurement.
¤ Water Content Measurement and Oil Content Analysis of Wood/Paper Products in Forestry and Mining Industry.
¤ Pharmaceutical and medical drug research and production, biological implants, human tissue characterization, biomass, fermentation.

Electric Measurement and Instrument
ET1092 Series Benchtop High-Precision LCR Meter
East Tester®

Product Parameter

Model	ET1092E	ET1092D	ET1092C	ET1092B	ET1092A
Test signal frequency range	10Hz-1MHz	10Hz-500kHz	10Hz-300kHz	10Hz-200kHz	10Hz-100kHz
Frequency Resolution and Accuracy	Resolution 1 mHz, accuracy 0.01%				
Test parameters	Cp-D, Cp-Q, Cp-G, Cp-Rp, Cs-D, Cs-Q, Cs-Rs, Lp-D, Lp-Q, Lp-G, Lp-Rp, Ls-D, Ls-Q, Ls-Rs, Rs-Xs, |Z|-θr, |Z|-θd, |Y|-θr, |Y|-θd, G-B				
Measuring display speed (> 100Hz)	Fast 50 times per second (20ms), moderate 10 times per second (100ms), slow 1.25 times per second (800ms)				
Customized measurement speed (> 1kHz)	It can be set between 0.5 times per second and 200 times per second				
LCR parameter display range	Cp、Cs：0.001000pF~99.9999F Lp、Ls：0.001000nH~99.9999kH Rp、Rs、|Z|、Xs：0.001000mΩ~999.999MΩ G、B、|Y|：0.001000μS~999.999kS θr：±0.000001rad~3.14159rad θd：±0.000001deg~179.9999deg D：±0.000001~9.99999 Q：±0.001~99999.9				
Test signal voltage range	0~2Vrms				
Voltage Resolution and Accuracy	Resolution 1 mV, accuracy 5%+5 mV				
Test signal current range	100μArms~20mArms				
Current Resolution and Accuracy	Resolution 10 μA, Accuracy 5%+50 μA				
DC bias voltage source	Internal: - 2V ~+2V voltage bias, - 20mA ~+20mA current bias				
	External: - 60V ~+60V Voltage Bias				
Internal resistance of signal source	30 ohms, 100 ohms optional				
Basic accuracy	0.05%				
Display resolution	6 1/2 digit				
comparator	8 combination, 1 unqualified and 1 subsidiary				
Trigger mode	Internal, manual, external, bus				
Mathematical operations	Delta (absolute value), Delta (percentage), direct reading				
Calibration function	Self-Calibration, Open Circuit, Short Circuit, Load, 100 Sets of Self-Setting Frequency Points				
List scanning	10-Point List Scanning Test				
Storage device	Internal /USB memory				
Interface	GPIB、LAN、RS232、USB Host、USB Device、Handler，(3501 GPIB is the choice)				

General Technical Specifications

¤ Power voltage: 220V.AC ±10%, 50Hz,Optional 110V.AC ±10%, 50Hz;
¤ Power consumption: <20W;
¤ Display: 7" TFT LCD, with a resolution of 800*480;
¤ Interfaces: Ethernet, RS232, GPIB, USB and Handler interfaces;
¤ Service environment: 0°C-40°C;
¤ Sizes: 330mm*285mm*136mm (L*W*H);
¤ Weight: 3.6kg.

Standard Accessories

¤ Three core power cord(30P04);
¤ Kelvin test clip(35P04).

Optional Accessories

¤ GPIB Cable (32P01);
¤ Rs232 Serial Port Line (32P04);
¤ USB Data Line (32P05);
¤ 2m/4m test cable (35P01);
¤ SMD patch element test fixture (35P02);
¤ LCR test pen/four-wire patch element test clamp (35P03);
¤ Kelvin Test Clamp (35P04).

Enclosure


Kelvin test clip(35P04)


Four-End-to-Kelvin Test Cable(35A51)


Lead type test fixture(35A52)


SMD patch element test fixture(35P02)

ET1090 Benchtop Digital LCR METER
ET1091 Benchtop Digital LCR METER

ET1090, ET1091 series LCR digital bridge is a component parameter analyzer based on the principle of automatic balancing bridge. Its 10Hz-100kHz test bandwidth, frequency continuous adjustable, 0.2% basic measurement accuracy and the file classification function provided by the instrument provide accurate and complete measurement and analysis for most components and materials, which are widely suitable. Used in product development, component inspection, product on-line inspection and other applications.

Product Features

¤ The highest measuring frequency is 100kHz, and the stepping; frequency is continuously adjustable at 1Hz.
¤ Test level 10~2000 mV, 1 mV step continuously adjustable.
¤ Supporting DC Resistance (DCR) and Electrolytic Capacitance Measurement.
¤ Internal bias voltage output 10mV~1500mV.
¤ 3.5-inch TFT display, 5-bit display.
¤ Communication:USB Device, RS232 (or 485), Handle, GPIB (optional), USB Host (optional).
¤ Data recording function (maximum, minimum, average).
¤ Supporting SCPI Communication Protocol.
¤ Provide system settings to configure Chinese or English, buzzer, screen brightness, etc.
¤ The basic measurement accuracy is 0.1%.
¤ Manual and automatic range.
¤ With open circuit and short circuit calibration function.
¤ Comparator sorting (5 gears), alarm function.

Product Parameter

Model	ET1090A	ET1090B	ET1090C	ET1091A	ET1091B	ET1091C
Test Frequency (Hz)	10 points (100, 120, 200, 400, 800, 1K, 2K, 4K, 8K, 10K)	12 points (100, 120, 200, 400, 800, 1K, 2K, 4K, 8K, 10K, 15K, 20K)	16 points (100, 120, 200, 400, 800, 1K, 2K, 4K, 8K, 10K, 15K, 20K, 40K, 50K, 80K, 100K)	10-10KHz continuous adjustable, 1Hz stepping	10-20KHz continuous adjustable, 1Hz stepping	10-100KHz continuous adjustable, 1Hz stepping
Digits	Main parameter: 5 digits; secondary parameter: 5 digits					
Measurement Parameter	Main parameter: L/C/R/Z; secondary parameter: X/D/Q/θ/ESR					
Measurement Range(L)	0.001μH - 9999H					
Measurement Range(C)	0.001pF - 99999mF					
Measurement Range(R)	0.0001Ω - 99.99MΩ					
Basic Accuracy	0.10%					
Measurement Display Speed	2 times/second (slow), 4 times/second (medium speed), 8 times/sec (fast)					
Internal Bias	0-1500mV adjustable, 1mV stepping					
Test Level	6 fixed level(0.1V、0.3V、0.6V、1V、1.5V、2V)			0.1V~2V adjustable ,1mV Stepping		
Signal source output impedance	30Ω、100Ω					
Correction Function	Open circuit correction, short circuit correction					
Filter function	The filter limit can be set from -50% to + 50% with fixed points of 1%, 5%, 10% and 20%					
comparator Selection	5 groups sorting,3 groups of qualified setting, one group of unqualified setting, one group of auxiliary setting					
Communication Interface	Standard : USB, RS232 (or 485), Handle interface; Optional: GPIB, USB Host					
Others	Support DCR, electrolytic capacitor measurement mode, adjustable backlight brightness, optional in English and Chinese					

General Technical Specifications

¤ Power supply voltage: 220V.AC±10%, or 110V.AC±10%, 45~65Hz;
¤ Power consumption: <10W;
¤ Display: 3.5 inch TFT LCD screen, resolution 480 *320, color 16M;
¤ Temperature range: Operating state 10℃~+40℃, non-operating state -10℃ ~+60℃;
¤ Humidity range: 0 ~ 40 C, < 90% relative humidity;
¤ Interface: RS232 (or 485), USB Device, Handle, GPIB, USB Host.

Standard Accessories

¤ Three core power cord(30A51)
¤ 4-terminals of kelvin testing cable(35A51)

ET1080 Series Handheld Digital LCR Meter

ET1080 series hand-held bridge sets 2.8 inch TFT display, flexible and convenient button operation and full speed USB communication in one; large capacity lithium battery can ensure long-term work. Functionally, it has not only comprehensive measurement parameters, but also deviation measurement and screening. The output frequency can be continuously adjusted. In terms of performance, the basic accuracy is up to 0.2%.

Product Features

¤ The highest measuring frequency is 100kHz, and the stepping frequency is continuously adjustable at 1Hz.
¤ Supporting DC Resistance and Electrolytic Capacitance Measurement.
¤ Internal bias voltage output (10mV-500mV).
¤ Automatic Recognition of Component Measurement.
¤ Support screening and deviation measurement.
¤ 2.8-inch TFT display, 4-bit semi-display.
¤ USB communication interface.
¤ Large capacity lithium battery power supply.
¤ Support SCPI protocol.
¤ Provide system settings, can configure language, buzzer, screen brightness and so on according to their own requirements.
¤ The basic measurement accuracy is 0.2%.
¤ Adjustable measuring speed, manual and automatic range.
¤ Short circuit correction with open circuit.
¤ Provide multiple test ports.

Product Parameter

Model	ET1080A	ET1080B	ET1080C	ET1080D	ET1080E
Testing frequency	100Hz, 120Hz, 1KHz, 10KHz	100Hz, 120Hz, 1KHz, 10KHz 40kHz 100kHz	100Hz, 120Hz, 1KHz, 10KHz	100Hz, 120Hz, 1KHz, 10KHz, 40kHz, 100KHz	100Hz-100KHz Continuously adjustable, a step of 1 Hz
Basic accuracy	0.30%	0.30%	0.20%	0.20%	0.20%
Display screen	2.8” TFT LCD screen				
Number of display digits	Principal parameter: 5 digit Secondary parameter: 5 digit				
Measured parameter:	Principal parameter: L/C/R/Z Secondary parameter: X/D/Q/θ/ESR				
Electrolytic capacitor mode	×	√	√	√	√
DCR mode	×	×	√	√	√
Measurement range	L：0.000μH～2000H，C：0.000pF～20.000mF，R：0.0001Ω～20.000MΩ				
Measuring display speed	1 time/s (slow), 2 times/s (medium), 4 time/s (fast)				
Internal bias	×		0-500mV adjustable, at a step of 1mV.		
Testing level	0.6Vrms	0.3Vrms, 0.6Vrms	0.1Vrms, 0.3Vrms, 0.6Vrms,1Vrms		0-1.1V adjustable
Calibration function	Open circuit calibration, short circuit calibration				
Screening function	The limit range of screening can be set to 1%-50%, and the fixed points are 1%, 5%, 10% and 20%.				
Deviation measurement	Used for comparing and displaying deviation percentage of component and the set nominal value				
Others	Adjustment of backlight brightness, Chinese and English are optional,USB device and automatic power-off time				

Standard Accessories

¤ Mini-USB data Wires;
¤ power adapter;
¤ short circuit chip;
¤ red&black rubber plug;
¤ large capacity lithium battery
¤ Kelvin test clip(Except ET1080A, 1080B)

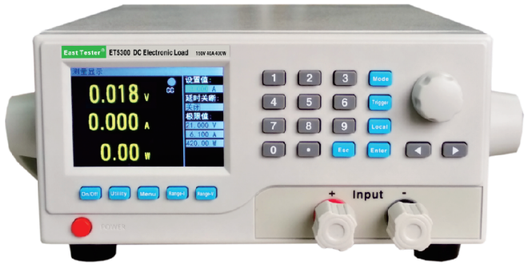
Optional Accessories

¤ Kelvin test clip(ET1080A, 1080B)
¤ SMD testing clamp

ET13 series DC programmable electronic load provides 1mV/10mV, 1mA/10mA high resolution and precision with superior performance. It is equipped with 12 common modes and complete test functions, which can be widely used in charger, switching power supply, linear power supply, battery and other production line testing.

Product Features

¤ User-friendly Design:
It adopts 3.5-inch TFT LCD screen with rich display contents and supports Chinese and English display.
The operation process is simple and convenient, and with visual interface display system, it is easy to get started.
Key lock function to prevent misoperation.
¤ High-performance load.
It provides CC, CV, CR, CP and CC+CV, CR+CV several basic measurement modes.
It provides professional battery test.
It provides professional LED test.
The Tran test mode can test the dynamic output performance of the power supply.
The scan test mode can test the continuity of power output within a certain range.
Support 4-wire measurement.
The list test mode can simulate a variety of loading status changes.
The short circuit test can be used to simulate load short circuit.
Support external trigger input.
Built-in buzzer alarm.
Maintain data storage in case of power failure.
Remote operation via USB, RS-232or 485 (optional) interfaces.
¤ Multiple safety protection:
It provides overcurrent, overvoltage, overpower, over temperature protection. The overvoltage and overcurrent parameters can be set flexibly, so as to effectively protect the load;
It has intelligent fan speed control function, which can effectively reduce the fan noise when it is working.
With input polarity reverse prompt;



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Product Parameter Table 1（ET1300、ET1301）

Model		ET1300	ET1301
Rated input	Power	400W	
	Input voltage	0-150V	
	Input current	0-40A	0-60A
CV mode	Range	0.1~19.999V,0.1~150.00V	
	Resolution	1mV,10mV	
	Accuracy	±(0.05%+0.02%FS)	
CC mode	Range	0~3.000A,0~40.00A	0~6.00A,0~60.00A
	Resolution	1mA,10mA	
	Accuracy	±(0.05%+0.05%FS)	
CR mode	Range	0.05Ω~1 kΩ，1 kΩ~4.5kΩ	
	Resolution	10mΩ，100mΩ	
	Accuracy	±(0.1%+0.5%FS)	
CP mode	Range	0~400W	
	Resolution	10mW	
	Accuracy	±(0.1%+0.5%FS)	
Tran Test	Mode	CC，CV	
	T1&T2	50ms~60s；	
Battery Test	Accuracy	CC，CR	
	Discharge mode	9999Ah	
	Maximum?discharge capacity	1mA，10mA，10mΩ，100mΩ	
Range of measurement			
Voltage read-back value	Range	0~19.999V,0 ~150.00V	
	Resolution	1mV,10mV	
	Accuracy	±(0.05%+0.1%FS)	
Current read-back value	Range	0~3.000A,0~40.00A	0~6.00A,0~60.00A
	Resolution	1mA,10mA	
	Accuracy	±(0.05%+0.1%FS)	
Power read-back value	Range	400W	
	Resolution	10mW	
	Accuracy	±(0.1%+0.5%FS)	
Scope of protection			
Overvoltage protection		> 21V or 155V overvoltage protection	
Overcurrent protection		> 3.1A or 41A input cut off	> 6.1A or 61A input cut off
Overpower protection		410W	
Over-temperature protection		85℃	

Product Parameter Table 2（ET1302、ET1303）

Model		ET1302	ET1303
Rated input	Power	400W	
	Input voltage	0-500V	
	Input current	0-15A	0-30A
CV mode	Range	0.1~19.999V,0.1~500.00V	
	Resolution	1mV,10mV	
	Accuracy	±(0.05%+0.02%FS)	
CC mode	Range	0~3.000A,0~15.00A	0~3.000A,0~30.00A
	Resolution	1mA,10mA	
	Accuracy	±(0.05%+0.05%FS)	
CR mode	Range	0.05Ω~1 kΩ，1 kΩ~4.5kΩ	
	Resolution	10mΩ，100mΩ	
	Accuracy	±(0.1%+0.5%FS)	
CP mode	Range	0~400W	
	Resolution	10mW	
	Accuracy	±(0.1%+0.5%FS)	
Tran Test	Mode	CC，CV	
	T1&T2	50ms~60s；	
Battery Test	Accuracy	CC，CR	
	Discharge mode	9999Ah	
	Maximum discharge capacity	1mA，10mA，10mΩ，100mΩ	
Range of measurement			
Voltage read-back value	Range	0~19.999V,0 ~500.00V	
	Resolution	1mV,10mV	
	Accuracy	±(0.05%+0.1%FS)	
Current read-back value	Range	0~3.000A,0~15.00A	0~3.00A,0~30.00A
	Resolution	1mA,10mA	
	Accuracy	±(0.05%+0.1%FS)	
Power read-back value	Range	400W	
	Resolution	10mW	
	Accuracy	±(0.1%+0.5%FS)	
Scope of protection			
Overvoltage protection		> 21V or 510V overvoltage protection	
Overcurrent protection		> 3.1A or 16A input cut off	> 3.1A or 31A input cut off
Overpower protection		410W	
Over-temperature protection		85℃	

Electric Measurement and Instrument
ET13 Series Programmable DC Electronic Load
East Tester®

Product Parameter Table 3（ET1304）

Model		ET1304
Rated input	Power	400W (200W*2)
	Input voltage	0-150V
	Input current	0-60A(30A*2)
CV mode	Range	0.1~19.999V，0.1~150.00V
	Resolution	1mV，10mV
	Accuracy	±(0.05%+0.02%FS)
CC mode	Range	0~3.000A，0~30.00A
	Resolution	1mA，10mA
	Accuracy	±(0.05%+0.05%FS)
CR mode	Range	0.05Ω~1 kΩ，1 kΩ~4.5kΩ
	Resolution	10mΩ，100mΩ
	Accuracy	±(0.1%+0.5%FS)
CP mode	Range	0~200W
	Resolution	10mW
	Accuracy	±(0.1%+0.5%FS)
Tran Test	Mode	CC，CV
	T1&T2	50ms~60s；
Battery Test	Accuracy	CC，CR
	Discharge mode	9999Ah
	Maximum discharge capacity	1mA，10mA，10mΩ，100mΩ
Range of measurement		
Voltage read-back value	Range	0~19.999V,0 ~150.00V
	Resolution	1mV,10mV
	Accuracy	±(0.05%+0.1%FS)
Current read-back value	Range	0~3.000A,0~30.00A
	Resolution	1mA,10mA
	Accuracy	±(0.05%+0.1%FS)
Power read-back value	Range	200W
	Resolution	10mW
	Accuracy	±(0.1%+0.5%FS)
Scope of protection		
Overvoltage protection		> 21V or 155V overvoltage protection
Overcurrent protection		> 3.1A or 31A input cut off
Overpower protection		210W
Over-temperature protection		85℃

ET54 series single/double channel programmable dc electronic load, USES the high performance chip, high speed, high precision design, provide 1mV、1mA resolution, superior performance, can be widely applied to the charger, switching power supply, linear power supply, production test of all kinds of batteries and other industries, scientific research institutions such asthe test research and development.

Product Features

humanized design:

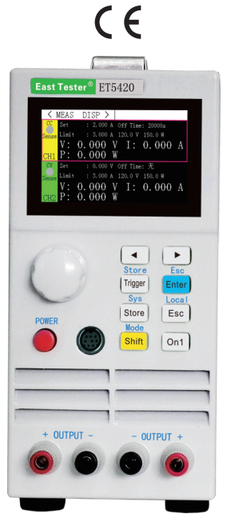
¤ 2.8-inch TFT LCD display, rich display content, support Chinese and English display.
¤ Simple and convenient operation process, with intuitive interface display system, easy to use.
¤ It has the function of key lock to prevent misoperation.

high-performance load:

¤ The basic measurement modes of CC, CV, CR, CP, CC+CV, CR+CV are provided.
¤ Provide professional battery test and LED test.
¤ Dynamic test mode, can test the dynamic power output performance.
¤ Scanning test mode can test the continuity of power output within a certain range.
¤ List mode, which can simulate various loaded state changes.
¤ Short circuit test for simulating load short circuit.
¤ The measurement model of the far end can improve the measurement accuracy when the current is high.
¤ Support external trigger input.
¤ Built-in buzzer alarm.
¤ Power off to maintain data storage function.
¤ Remote operation can be carried out through RS-232 interface and USB Device interface.
¤ With PS2 interface, support external keypad to set data values.

safety protection:

¤ With overvoltage, overcurrent and overpower protection functions, overvoltage and overcurrent parameters can be set flexibly to effectively protect the load.
¤ It has the function of secondary over-temperature protection to realize the double over-temperature protection of software and hardware.
¤ It has the function of intelligent fan speed control, which can effectively reduce the working fan noise.
¤ With output polarity reverse protection.



General Technical Specifications

¤ Power voltage: 220Vac±10%, optional 110Vac±10%, 45-65hz.
¤ Display: 2.8-inch TFT LCD, resolution 320 x 240.
¤ Operating temperature: 0 ℃ to 40 ℃.
¤ Storage temperature: - 10 ℃ to 70 ℃.
¤ Relative humidity: < 80%.
¤ Interface: standard USB Device, RS232(or 485).
¤ Size: 90mm * 190mm * 300mm (width * height * depth).

Standard Accessories:

¤ One three-core power cord;
¤ Two power fuses;
¤ 1 user manual.

Optional Accessories:

¤ CD;
¤ USB cable;
¤ RS232/485 cable;
¤ The output line.

East Tester®
Electric Measurement and Instrument
ET54 Series Programmable Electronic Load

Product Parameter

Model		ET5410	ET5411	ET5420
channel NO.		Single channel		Double channel
Rated input	Power	400W		400W
	Input voltage	0-150V	0-500V	0-150V
	Input current	0-40A	0-15A	0-20A*2
Constant voltage	Range	0.1~19.999V, 0.1~150.00V	0.1~19.999V , 0.1~500.00V	0.1~19.999V, 0.1~150.00V
	Resolution	1mV, 10mV		
	Accuracy	±(0.05%+0.02%FS)		
Constant current	Range	0~3.000A, 0~40.00A	0~3.000A, 0~15.00A	0~3.000A, 0~20.00A
	Resolution	1mA, 10mA		
	Accuracy	±(0.05%+0.05%FS)		
Constant resistance	Range	0.05Ω~1kΩ，1kΩ~4.5kΩ		
	Resolution	10mΩ，100mΩ		
	Accuracy	±(0.1%+0.5%FS)		
Constant power	Range	0~400W	0~400W	0-200W
	Resolution	10mW		
	Accuracy	±(0.1%+0.5%FS)		
Dynamic test function	Model	CC， CV		
Battery test function	Discharge mode	CC, CR		
	Discharge capacity	9999Ah		
	Resolution	1mA,10mA,10mΩ，100mΩ		
Measuring range				
Voltage read-back	Range	0~19.999V, 0 ~150.00V	0~19.999V , 0 ~500.00V	0~19.999V, 0 ~150.00V
	Resolution	1mV, 10mV		
	Accuracy	±(0.05%+0.1%FS)		
Current read-back	Range	0~3.000A, 0~40.00A	0~3.000A , 0~15.00A	0~3.000A, 0~20.00A
	Resolution	1mA, 10mA		
	Accuracy	±(0.05%+0.1%FS)		
Power read-back	Range	0~400W		0~200W
	Resolution	10mW		
	Accuracy	±(0.1%+0.5%FS)		
Scope of protection				
Over voltage protection		> 155V Cut off	> 510V Cut off	> 155V Cut off
Over current protection		> 42A Cut off	> 16A Cut off	> 22A Cut off
Overpower protection		420W	420W	220W
Over temperature protection		85℃		
Short circuit protection	Current (CC)	≒3A, ≒40A	≒3A ≒15A	≒3A ≒20A
	Voltage (CV)	0V		
	Resistance (CR)	≒40mΩ		

ET37 series linear DC power supply is wildly used in R&D testing and design verification, due to its features such as highly stable output voltage and low noise. ET37 series programmable linear DC power supplies are equipped with a 4.3" TFT color screen, with a straight-forward and simple interface, rich content and easy operation. It enjoys advantages such as stable output, low noise, high definition, high precision, etc. There are 4 output modes, providing a wide output range.

Product Features

User-friendly design:

¤ Using 4.3 inch TFT LCD, the resolution is 480*272.
¤ Support waveform display, real-time display of channel output voltage and current curve.
¤ Operating system is simple and convenient, with intuitive interface display system, easy to use.

High performance output:

¤ Independent adjustable output: 1 (ET372X)/2 (ET373X) adjustable output 30V/3A (30V/5A), 1 (2.5V/3.3V/5V) adjustable fixed output; maximum total output power can reach 305W.
¤ Four output modes: vertical/positive/negative/parallel/series, providing a wider output range. The maximum output voltage can reach 60V, and the maximum output current can reach 10A.
¤ High precision and high resolution.
¤ Low output ripple and noise.
¤ It has excellent load regulation rate and linear regulation rate.
¤ Support timing output function, maximum set 112 groups.
¤ It has the function of storage and invocation, and can save up to 10 sets of parameter settings.
¤ Standardized USB Device interface, RS232 interface, support SCPI remote command control.

Multiple security protection:

¤ With over-voltage/over-current protection function, it can flexibly set over-voltage and over-current parameters to achieve effective load protection.
¤ It has two-level over-temperature protection function, realizing double over-temperature protection of software and hardware.
¤ It has the function of intelligent fan speed control, adjusts the fan speed according to the working conditions, and effectively reduces the fan noise.
¤ Connecting and Counter-protection with Output Polarity.
¤ It has key lock function to prevent misoperation.

Electric Measurement and Instrument
ET37 Series Programmable DC Power Supply
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Product Parameter

Model		ET3721 ET3728	ET3722 ET3729	ET3731 ET3738	ET3732 ET3739
Maximum power		105W(ET3721、3722) 155W(ET3728、3729)		195W(ET3721、3722) 305W(ET3738、3739)	
Channel number		2 (CH1 variable, CH2 fixed)		3 (CH1, CH2 variable, CH3 fixed)	
DC output (0℃-40℃)	Voltage/current (Rated value)	CH1: 0~30V, 0~3A(ET3721、3722) CH1: 0~30V, 0~5A (ET3728、3729)		CH1、CH2: 0~30V, 0~3A(ET3731、3732) CH1、CH2: 0~30V,0~5A(ET3738、3739)	
	Over-voltage/over-current protection	CH1: 10mV~33V, 10mA~3.3A CH1: 10mV~33V,10mA~5.5A		CH1、CH2: 10mV~33V, 10mA~3.3A CH1、CH2: 10mV~33V, 10mA~5.5A	
	2.5V/3.3V/5V Fixed output	Current output 0~3A(ET3721、3722、3731、3732), Or 0~1A (ET3728、3729、3738、3739) ; Output precision: <5%; Load regulation: ≤15*minimum scale interval; Linear regulation: ≤5*minimum scale interval; Ripple and noise (20Hz~7MHz): ≤2mVrms; Overload: 3A(ET3721、3722、3731、3732), or 0~1A (ET3728、3729、3738、3739) ; (Parameters of the fixed position are all listed. The parameters below apply to the variable positions of the voltage.)			
Linear regulation rate (±output percentage + quantity of minimum scale interval(s))					
Voltage		≤0.01%+2	≤0.005%+2	≤0.01%+2	≤0.005%+2
Current		≤0.01%+3	≤0.005%+3	≤0.01%+3	≤0.005%+3
Load regulation rate (±output percentage + quantity of minimum scale interval(s))					
Voltage		≤0.01%+2	≤0.006%+2	≤0.01%+2	≤0.006%+2
Current		≤0.05%+3	≤0.01%+3	≤0.05%+3	≤0.01%+3
Tracking operation (±output percentage + quantity of minimum scale interval(s))					
Tracking error		/		≤0.5%+10 of Master (no-load)	
Parallel regulation rate	Linear	/		≤0.01%+5	
	Load	/		≤0.01%+5	
Series regulation rate	Linear	/		≤0.01%+10	
	Load	/		≤0.02%+10	
Ripple and noise (20Hz~~7MHz)					
Voltage		≤1mVrms	≤600μVrms	≤1mVrms	≤600μVrms
Current		≤1.5mArms	≤1mArms	≤1.5mArms	≤1mArms
Programming/backward reading resolution					
Voltage		1mV	1mV	1mV	1mV
Current		1mA	1mA	1mA	1mA
Programming/backward reading accuracy (±output percentage + quantity of minimum scale interval(s))					
Programming	Voltage	0.03%+10	0.02%+5	0.03%+10	0.02%+5
	Current	0.3%+10	0.3%+5	0.3%+10	0.3%+5
Backward reading	Voltage	0.03% +10	0.03% +5	0.03% +10	0.03% +5
	Current	0.3% +10	0.2% +5	0.3% +10	0.2% +5
Load transient response time					
It takes less than 50 μs for the output current to change from full load to half load, or from half load to full load and for the output voltage to recover to 15mV.					
Stability (±output percentage + quantity of minimum scale interval(s))					
Voltage		≤0.02%+10		≤0.02%+10	
Current		≤0.1%+1		≤0.1%+1	
Temperature coefficient (±output percentage + quantity of minimum scale interval(s))					
Voltage		≤0.02%+10		≤0.02%+10	
Current		≤0.02%+10		≤0.02%+10	
Other					
Command processing time		<200ms			
Cooling method		Fan cooling			

General Technical Specifications

¤ Power voltage: 220V.AC±10%, 110V.AC±10%, 45~65Hz
¤ Display: 4.3" TFT LCD, with a resolution of 480x272, and 16 M colors
¤ Operating temperature: 0°C-40°C
¤ Storage temperature: -10°C-70°C
¤ Relative humidity: <80%
¤ Interface: USB DEVICE, RS232 (optional)
¤ Sizes: 230mm x 380mm x 150mm (WxDxH)
¤ Weight: 11kg

Standard Accessories:

¤ Three core power cord: 1
¤ User manual: 1

Optional Accessories:

¤ Output line: 1
¤ USB data line: 1
¤ RS232 data line: 1