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MATRIX



MATRIX TECHNOLOGY INC.

PRODUCT MANUAL



COMPANY INTRODUCTION

MATRIX TECHNOLOGY INC. is a professional manufacturer of electronic measuring instruments and meters with enormous potentiality and advanced equipment. Starting from the establishment of the factory, the company insists on the policy of seeking development by science and technology and seeking survival by quality. Our goal is to provide high quality products to global customers with attractive price and excellent service. The company strictly integrates the standard of ISO quality management system into all aspects of enterprise R & D, production and after-sale service. Enhancing our innovation ability, revitalizing the instrument industry and reversing the passive situation of China's instrumentation industry are the direction of our efforts and our long-term development strategy. The company will consistently provide high quality and cost-effective products to users, and constantly improve product quality, after-sales service, as well as create a new situation in the instrumentation manufacturing industry.

MATRIX TECHNOLOGY INC. will provide users with excellent products and services to achieve a win-win situation with customers.

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Single-channel Adjustable DC Power Supply

MPS-3005D/3003D/6003D



- Two digital header display
- Constant voltage and constant current mode
- High efficiency, light weight, small volume
- High power density
- Output turn off function
- Overload and reverse polarity protection

Model	MPS-3005D(30V/5A)	MPS-3003D(30V/3A)	MPS-6003D(60V/3A)
Voltage stability			
Source effect	CV \leq 0.01%+2mV	\leq 0.01%+2mV	\leq 0.01%+2mV
Load effect	CV \leq 0.01%+2mV	\leq 0.01%+2mV	\leq 0.01%+2mV
Ripple and noise	CV \leq 1mV(rms)	\leq 1mV(rms)	\leq 1mV(rms)
Voltage temperature coefficient	150ppm/°C		
Current stability			
Source effect	CC \leq 0.2%+2mA		
Load effect	CC \leq 0.2%+5mA		
Current temperature coefficient	500ppm/°C		
Fixed 5V/1A output characteristics			
Output voltage accuracy	\pm 1%		
Ripple and noise	CV \leq 2mV(rms)		
Display precision			
Display	3 digit display \leq 0.4%+1d		
Recovery time	\leq 100 μ s		
Weight and size			
Net weight (kg)	4.8	4.3	4.9
Gross weight (kg)	5.3	4.8	5.4
Instrument size (W*H*D)	135*160*300		
Packing size (W*H*D)	250*210*365		

Single-channel Adjustable DC Power Supply

MPS-3010L-1/6005L-1



- Two digital header display
- Constant voltage and constant current mode
- High efficiency, light weight, small volume
- Preset limit current points
- Low pipple and noise
- Overload and reverse polarity protection

Model	MPS-3010L-1 (30V/10A)	MPS-6005L-1 (60V/5A)
Voltage stability		
Source effect	CV \leq 0.01%+5mV	\leq 0.01%+5mV
Load effect	CV \leq 0.02%+5mV	\leq 0.02%+5mV
Ripple and noise	CV \leq 2mV(rms)	\leq 2mV(rms)
Voltage temperature coefficient	300ppm/°C	
Current stability		
Source effect	CC \leq 0.2%+3mA	
Load effect	CC \leq 0.2%+5mA	
Ripple current	\leq 3mA rms	
Current temperature coefficient	500ppm/°C	
Display precision		
Display	3 digit display \leq 0.4%+1d	
Recovery time	\leq 100 μ s	
Weight and size		
Net weight (kg)	9.2	8.3
Gross weight (kg)	10	9.2
Instrument size (W*H*D)	250*135*360	
Packing size (W*H*D)	355*245*430	

Single-channel Adjustable DC Power Supply

MPS-3020



- Two digital header display
- Constant voltage and constant current mode
- High efficiency, light weight, small volume
- Preset limit current points
- Low pipple and noise
- Overload and reverse polarity protection

Model	MPS-3020(0-30V/20A)
Voltage stability	
Source effect	CV \leq 0.3%+5mV
Load effect	CV \leq 0.02%+5mV
Voltage temperature coefficient	300ppm/°C
Current stability	
Source effect	CC \leq 0.3%+3mA
Load effect	CC \leq 0.2%+5mA
Current temperature coefficient	500ppm/°C
Display precision	
Voltage display	3 LED display \leq ±0.5%+1d
Current display	3 LED display \leq ±1%+2d
Weight and size	
Net weight (kg)	13
Gross weight (kg)	13.9
Instrument size (W*H*D)	255*150*430
Packing size (W*H*D)	360*240*545

Dual-channel Linear DC Power Supply

MPS-6005L-2/3010L-2



- Series parallel (tracking function)
- Constant voltage and constant current mode
- High efficiency, light weight, small volume
- Preset limit current points
- Low pipple and noise
- Overload and reverse polarity protection

Model	PMPS-6005L-2 (0-60V/5A Dual-channel)	MPS-3010L-2 (0-30V/10A Dual-channel)
Voltage stability		
Source effect	CV \leq 0.01%+5mV	\leq 0.01%+5mV
Load effect	CV \leq 0.01%+5mV	\leq 0.01%+5mV
Voltage temperature coefficient	300ppm/°C	
Current stability		
Source effect	CC \leq 0.3%+3mA	
Load effect	CC \leq 0.3%+5mA	
Current temperature coefficient	500ppm/°C	
Display precision		
Voltage display	3 LED display \leq ±0.5%+2d	
Current display	3 LED display \leq ±1%+2d	
Series parallel (tracking)	√	
Weight and size		
Net weight (kg)	15.3	
Gross weight (kg)	16.3	
Instrument size (W*H*D)	250*150*415	
Packing size (W*H*D)	355*245*540	

Tri-channel Linear DC Power Supply

MPS-3003L-3/3005L-3



- Over current protection
- Constant voltage and constant current mode
- No external attachment
- High efficiency, light weight, small volume
- The two channels are automatically connected in series or parallel mode by the switch inside the machine
- Preset limit current points
- Low ripple and noise
- In series mode, the positive and negative power output can be formed
- It is easier to set voltage values by multi-loop potentiometers
- Two color four LED digit display voltage, current

Model	MPS-3003L-3	MPS-3005L-3
Technical parameters		
Input voltage	220VAC±10% 50Hz±2Hz	
Rated output voltage	0-30V*2 / 5V*1	0-30V*2 / 5V*1
Rated output current	0-3A*2 / 3A*1	0-5A*2 / 3A*1
Working mode	Two independent output + fixed 5V/3A output	
Series	0-60V/3A/5A	
Parallel	0-30V/6A/10A	
Voltage characteristics		
Power effect	CV≤0.01%+3mV	CC≤0.2%+3mA
Effect of load	CV≤0.01%+3mV (I≤3A) CV≤0.02%+5mV (I>3A)	CC≤0.2%+3mA (I≤3A) CC≤0.2%+5mA (I>3A)
Ripple and noise	CV≤1.0mVr.m.s (I≤3A) CV≤2.0mVr.m.s (I>3A)	CC≤3mAr.m.s (I≤3A) CC≤6mAr.m.s (I>3A)
Current stability		
Power effect	≤0.2%+3mA	
Effect of load	≤0.2%+3mA	
Ripple and noise	≤3mAr.m.s	
In parallel mode		
Power effect	≤0.01%+3mV	
Effect of load	≤0.01%+3mV (I≤3A)	≤0.02%+5mV (I>3A)
Series model		
Power effect	≤0.01%+5mV	
Effect of load	≤300mV	
Positive and negative power supply	The road error is less than 0.5%+10mV main road (no load, load time is required to load less than 300mV)	
Display		
Voltage display	3 digit display ±0.5%+2d	
Current display	3 digit display ±1%+2d	
Fixed output power		
Rated output voltage	5V±0.25V	
Rated output current	3A	
Power effect	≤5mV	
Effect of load	≤15mV	
Ripple and noise	≤2.0mVr.m.s	
Protection	Current display and short circuit protection	
Using environment	0~+40°C	Relative humidity < 80%
Working time	Full load continuous working time >8 hours	
Weight and size		
Net weight (kg)	8.5	9.5
Gross weight (kg)	9.2	10.3
Instrument size (W*H*D)	250*150*380	
Packing size (W*H*D)	350*250*450	

Programmable Single-channel DC Power Supply

MPS-3603LP/3605LP/3610LP/6003LP/6005LP



MPS3600LP series is a new generation of programmable DC power supply with high quality. Both desktop and system characteristics are available, it can be arbitrarily collocation with other instruments to integrate a test system for special functions, to complete the measurement requirements of different occasions, to store and retrieve voltage and current data quickly through panel keyboard, which brings great convenience for users, is a good replacement of the ordinary programmable power supply, high cost performance advantages.

- The digital keyboard and knob adjust the voltage and current in two ways
- Voltage 10mV, current 1mA resolution
- 9 groups voltage current storage call function
- The upper and lower limits of current setting function bring alarm
- Stylish and small, affordable and cost-effective
- Linear power supply, low ripple and noise
- Standard computer interface RS-232

Model	MPS-3603LP	MPS-3605LP	MPS-3610LP	MPS-6003LP	MPS-6005LP	
Rated output voltage	0~36V	0~36V	0~36V	0~60V	0~60V	
Rated output current	0~3A	0~5A	0~10A	0~3A	0~5A	
Voltage transforming way						
Linear power supply						
Load regulation rate	Voltage	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV
	Current	0.1%+5mA	0.1%+5mA	0.1%+8mA	0.1%+5mA	0.1%+5mA
Power regulation	Voltage	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV
	Current	0.1%+5mA	0.1%+5mA	0.1%+8mA	0.1%+5mA	0.1%+5mA
Setting value resolution	Voltage	10mV				
	Current	1mA				
Accuracy of set points	Voltage	≤0.1%+2 byte				
	Current	≤0.2%+3byte	≤0.2%+3byte	≤0.2%+6byte	≤0.2%+2byte	≤0.2%+3byte
Readback value resolution	Voltage	10mV				
	Current	1mA				
Readback value accuracy	Voltage	≤0.1%+2byte	≤0.1%+2byte	≤0.1%+2byte	≤0.1%+2byte	≤0.1%+2byte
	Current	≤0.2%+3byte	≤0.2%+3byte	≤0.2%+6byte	≤0.2%+3byte	≤0.2%+3byte
Ripple	Voltage	1mVr.m.s				
	Current	3mAr.m.s				
Temperature environment	Operation	0 to 40°C≤85RH				
	Storage	-15to70°C≤85RH				
Net weight	kg	4.5	6.7	7.5	7.5	7
Gross weight	kg	5.6	7.8	8.6	8.6	8
Instrument size (W*H*D)	mm	215*95*300	215*95*300	215*95*355	215*95*355	215*95*355
Packing size (W*H*D)	mm	310*200*420				

Programmable Single-channel DC Power Supply

PDS-2030/3020/6010



PDS series is a new generation of high quality programmable DC power supply. Both desktop and system are available, it can be arbitrary collocation with other instruments, integrate to the multi-functional test system to complete the measurement requirements of different occasions. It is also a replacement of the ordinary programmable power supply, with high cost-effective performance.

- The digital keyboard and knob adjust the voltage and current in two ways
- Voltage 1mV, current 1mA resolution
- 100 sets of voltage and current storage call

- Rear panel remote measuring terminal is used to compensate online voltage drop
- Over voltage, current limit, over current and over-temperature protection.
- Linear power supply, low ripple and noise
- Standard computer interface RS-232

Model	PDS-2030	PDS-3020	PDS-6010
Rated dc output (0°C~40°C)			
Voltage	0~20V	0~30V	0~60V
Current	0~30A	0~20A	0~10A
Over voltage protection	0.1~24V	0.1~34V	0.1~64 V
Over current protection	0.1~34A	0.1~24A	0.1~12A
Voltage output			
Power effect	≤0.01%+4mV		
Load effect	≤0.1%+5mV		
Recovery time	≤1.5ms(50% loadchange)		
Ripple and noise	2mVrms,30mVpp		
Temperature coefficient	≤300ppm/°C		
Setting precision	±(0.03%of reading+10mV)(25±5°C)		
Setting resolution	1mV		
Current output			
Power effect	≤0.2%+3mA		
Load effect	≤0.2%+5mA		
Ripple and noise	≤10mA rms		
Setting precision	±(0.3% of reading+10mA)(25±5°C)		
Setting resolution	1mA		
Display			
Voltage	5 digits display		
Current	5 digits display		
Voltage resolution	1mV		
Current resolution	1mA		
Accuracy of reading	±(0.02% of reading+5mV)(25±5°C) ; ±(0.05% of reading+5mV)(25±5°C)		
Protection	Overload protection, polarity reverse protection, overvoltage protection, overcurrent protection, overheat protection		
Keypad	√		
Interface	Standard RS-232, support SCPI instruction set, analog control interface (optional)		
Storage redeployment	100 groups		
Insulation degree	Output terminals with the chassis or other terminals : ≤60VDC		
Operating environment	Indoor use , altitude : ≤2000m , ambient temperature : 0~40°C Relative humidity : ≤80% , Install level : II , Degree of pollution : 2		
Storage environment	ambient temperature : -10~70°C , relative humidity : ≤70%		
Power input	AC 220V±10%,50/60Hz		
Accessories	user manual*1pc, power cord*1pc		
Net weight (kg)	4.6		
Gross weight (kg)	5.6		
Instrument size (W*H*D)	220*150*400		
Packing size (W*H*D)	310*200*480		

Programmable Single-channel DC Power Supply

PDS-1560/3030/6015/8011



PDS serie is a new generation of high quality programmable DC power supply. Both desktop and system are available, can be arbitrary collocation with other instruments, integrate to the multi- functional test system, to complete the measurement requirements in different occasions, is also a good replacement of the ordinary programmable power supply, with high cost performance advantages.

- The digital keyboard and knob adjust the voltage and current in two ways
- Voltage 1mV, current 1mA resolution
- 100 sets of voltage and current storage call

- Rear panel remote measuring terminal is used to compensate online voltage drop
- Overvoltage, current limit, overcurrent and overheat protection.
- Linear power supply, low ripple and noise
- Standard computer interface RS-232

Model	PDS-1560	PDS-3030	PDS-6015	PDS-8010
Rated DC output (0°C~40°C)				
Voltage	0~15V	0~30V	0~60V	0~80V
Current	0~60A	0~30A	0~15A	0~10A
Over voltage protection	0.1~18V	0.1~34V	0.1~64V	0.1~88V
Over current protection	0.1~62A	0.1~34A	0.1~17A	0.1~12A
Voltage output				
Power effect	≤0.01%+4mV			
Load effect	≤0.1%+5mV			
Recovery time	≤1.5ms(50% loadchange)			
Ripple and noise	2mVrms,30mVpp			
Temperature coefficient	≤300ppm/°C			
Setting precision	±(0.03%of reading+10mV)(25±5°C)			
Setting resolution	1mV			
Current output				
Power effect	≤0.2%+3mA			
Load effect	≤0.2%+5mA			
Ripple and noise	≤10mA rms			
Setting precision	±(0.3% of reading+10mA)(25±5°C)			
Setting resolution	1mA			
Display				
Voltage	5 digits display			
Current	5 digits display			
Voltage resolution	1mV			
Current resolution	1mA			
Accuracy of reading	±(0.02% of reading+5mV)(25±5°C) ; ±(0.05% of reading+5mV)(25±5°C)			
Protection	Overload protection, polarity reverse protection, overvoltage protection, overcurrent protection, over-temperature protection			
Keypad	√			
Interface	Standard RS-232, support SCPI instruction set, analog control interface (optional)			
Storage redeployment	100 groups			
Insulation degree	Output terminals with the chassis or other terminals : ≤60VDC			
Operating environment	Indoor use , At an altitude of : ≤2000m , ambient temperature : 0~40°C Relative humidity : ≤80% , Install the level : II , Degree of pollution : 2			
Storage environment	ambient temperature : -10~70°C , relative humidity : ≤70%			
Power input	AC 220V±10%,50/60Hz			
Accessories	user manual*1pc, power cord*1pc			
Net weight (kg)	4.6			
Gross weight (kg)	5.6			
Instrument size (W*H*D)	220*150*400			
Packing size (W*H*D)	310*200*480			

Programmable Tri-channel DC Power Supply

MPS-6003LP-3/3006LP-3



Tri-channel programmable DC power supply with high resolution, high accuracy and high stability, and has the function of overvoltage and overheating protection, provide the operation mode of the series and parallel, resolution up to 1 mV / 1 mA.

- Three sets of voltage and current can be adjusted
- Series, parallel or synchronous use are optional
- The three channel can display voltage and current value at the same time
- 1 / 2U 2U is super small
- Vacuum fluorescent display (VFD)
- Switch control output
- Intelligent temperature control fan to reduce noise
- Interface:USB/RS-232
- Low ripple and noise
- Memory maintain function while power off
- Software can be monitored by computer
- Can be calibrated by software

Model	MPS-6003LP-3			MPS-3006LP-3		
Parameter	CH1	CH2	CH3	CH1	CH2	CH3
Rated output	Voltage	0~60V	0~60V	0~5V	0~30V	0~5V
	Voltage limiting	61V	61V	6V	31V	31V
	Current	0~3A	0~3A	0~3A	0~6A	0~6A
Load regulation	Voltage	≤0.01%+3mV				
	Current	≤0.01%+3mA				
Power regulation	Voltage	≤0.01%+3mV				
	Current	≤0.01%+3mA				
Setting resolution	Voltage	1mV				
	Current	1mA				
Readback value resolution	Voltage	1mV				
	Current	1mA				
Accuracy of set points	Voltage	≤0.03%+10mV				
	Current	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA	≤0.1%+5mA	≤0.1%+8mA
Readback value accuracy	Voltage	≤0.03%+10mV				
	Current	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA	≤0.1%+5mA	≤0.1%+8mA
Ripple and noise	Voltage (Vp-p)	≤4mVp-p	≤3mVp-p	≤4mVp-p	≤3mVp-p	≤3mVp-p
	Voltage (rms)	≤1mVrms				
Output temperature coefficient	(rms)	≤5mArms				
	Voltage	≤0.03%+10mV				
Readback temperature coefficient	Current	≤0.1%+5mA				
	Voltage	≤0.03%+10mV				
Series setting value resolution	Current	≤0.1%+5mA				
	Voltage	0-99V	1mV	0-49V	1mV	1mV
Series readback value resolution	Current	100-120V	10mV	50-60V	10mV	10mV
	Current	1mA				
Parallel setting value Precision	Voltage	≤0.02%+10mV			≤0.02%+5mV	
	Current	≤0.1%+30mA				
Memory	Store/Call	40 groups				
The timer	Function	timed output off				
	Set the time	0.1s~99999.9s				
	Resolution	0.1s				
Working temperature		0~40°C				
Net weight	kg	12.4				
Gross weight	kg	13.5				
Instrument size (W*H*D)	mm	250*100*455				
Packing size (W*H*D)	mm	335*215*600				

DC Power Supply

MPS-3206



- Voltage and current simultaneously display, double four-digit LED display
- High power up to 192W with small volume
- Ultra lightweight design, bare machine weight only 1.4kg
- Smart fan, unique air duct design keeps normal temperature for long time full load working
- Five sets of storage functions, greatly convenient for users
- OVP/OCV setting function
- Encoder sets voltage and current. Fast and longer life
- Output power switch function;

Rated operation condition

Operation voltage: AC 110V/220V ± 10% 50Hz

Operation condition:

Temperature 0~40°C

Relative humidity ≤80%RH

Storage condition

Temperature -15°C~60°C

Relative humidity ≤80%RH

Model	MPS-3206
Output Voltage	0~32V
Output Current	0~6.1A
Voltage	
Load regulation	≤0.1%+5mV
Line regulation	≤0.01%+5mV
Setting resolution	10mV
Setting accuracy	≤0.1%+1 digits
Recall resolution	10mV
Recall accuracy	≤0.1%+1 digits
Ripple	10mVrms
Current	
Load regulation rate	≤0.2%+3mA
Load regulation	≤0.2%+3mA
Line regulation	≤0.2%+3mA
Setting resolution	1mA
Setting accuracy	≤0.2%+3mA
Recall resolution	1mA
Recall accuracy	≤0.2%+3 digits
Ripple	5mArms
OVP	0-32V±0.2%FS
Max. voltage	32V±0.2%
OCP	0-6.1A±0.2%FS
Max. current	0-6.1A±0.2%
Operating	0°C~40°C, ≤80%RH
Storage	-15°C~60°C, ≤80%RH
Cooling mode	Air cooling
Temperature	23°C±5°C
Net weight (kg)	1.5
Gross weight (kg)	1.9
Instrument size (W*H*D)	115*96*261
Packing size (W*H*D)	167*153*317

Programmable AC Power Source

APS-7105/7100/7200/7300/7500



APS-7105/7100



APS-7200/7300/7500

- The advanced direct digital frequency synthesizer (DDS) waveform is used to achieve high frequency stability, good continuity and accurate measurement
- Keyboard shortcuts: 110V, 220V, 50Hz, 60Hz shortcuts self-assembly
- Key lock function prevents inadvertent touch
- With key lock M1, M2 and M3 three sets of memory, can store the commonly used voltage V and frequency F, easy to recall them by one key
- Five display windows: voltage V, frequency F, current I, power P/power factor PF, display more accurately
- Overload capacity, 300% overload 2S
- Intelligent analysis function: automatically determine the cause of failure ,status and display the code when the alarm is reported
- With 100% loading and unloading, the stabilizing reaction time is within 20ms
- RS485, RS232, Ethernet communication interface or simulation control mode (optional)
- Adopt input and output isolation mode
- Has soft start function to avoid the damage to power supply caused by the instantaneous impulse current of the load (such as motor) when power on.

Model	APS-7105	APS-7100	APS-7200	APS-7300	APS-7500	
Capacity	500VA	1KVA	2KVA	3KVA	5KVA	
Working mode	SPWM					
The input						
Number of phase	1Φ2W					
Voltage	220V±10%					
Frequency	47Hz-63Hz					
The output						
Number of phase	1Φ2W					
Voltage	1-150VAC/0-300VAC AUTO					
Frequency	45-500Hz (0.1Step)					
Maximum current	L=120V	4.2A	8.4A	16.8A	25A	42A
	H=240V	2.1A	4.2A	8.4A	12.5A	21A
Load regulation	1%					
T.H.D	2% Low grade 120V, high grade 240V, with pure resistive load					
Frequency stability	0.01%					
Display	Vrms, Arms, Fre, Wattage, PF					
Voltage resolution	0.01V					
Frequency resolution	0.01Hz					
Current resolution	0.001A					
Storage	M1(V_F_A), M2(V_F_A), M3(V_F_A)					
Communication interface	RS-232 standard, RS485 optional					
Set the current limit	0-MaxCurrent(P/240 Maximum current is: maximum capacity /240V is P/240)					
The output protection	OverCurrent OverTemp OverLoad ShortCircuit					
Operation environment	0-40°C 20-80%RH					
Net weight (kg)	20.6	20.6	30.5	33.3	48	
Gross weight (kg)	23.1	23.1	33.2	36	50.8	
Instrument size (W*H*D)	480*135*515	480*135*515	480*225*535	480*225*535	480*240*590	
Packing size (W*H*D)	575*255*645	575*255*645	575*255*645	575*255*645	575*255*645	

Storage AC Power Source

APS-4000 Series



- The advanced direct digital frequency synthesizer (DDS) waveform is used to achieve high frequency stability, good continuity and accurate measurement
- Keyboard shortcuts: 110V, 220V, 50Hz, 60Hz shortcuts self-assembly
- Key LOCK function prevents inadvertent touch
- With key lock M1, M2,M3,M4 and M5 five sets of memory, can store the commonly used voltage V and frequency F, easy to recall them by one key
- Push-down infinite coding knob switch, adjusting cursor position by pressing the knob.
- Four window five digit display, display voltage V, frequency F, current I, power P, power factor PF simultaneously, and more accurate.
- Measuring function: voltage, current, frequency, power, power factor
- Strong overload capacity, 300% overload 2s;
- Intelligent analyzing function: automatically judge the cause of failure and situation, as well as display the code when alarming is reported;
- Equipped with 100% load and unload function, the voltage stabilizing reaction time is within 20ms
- Output voltage 0-150.00V, 0-300.00V
- Input frequency 45.00-250.00Hz
- Input and output are isolated
- Has soft start function to avoid the damage to power supply caused by the instantaneous impulse current of the load (such as motor) when power on.

Model	APS-4000A	APS-4000B	APS-4000C	
Capacity	350VA	700VA	1200VA	
Working mode	SPWM			
The input				
Number of phase	1Φ2W			
Voltage	220V±10%			
Frequency	45Hz-250Hz			
The output				
Number of phase	1Φ2W			
Voltage	0-150VAC/0-300VAC AUTO			
Frequency	45-250Hz (0.1Step)			
Maximum current	L=120V	3A	6A	10A
	H=240V	1.5A	3A	5A
Load regulation	1%			
T.H.D	2% Low grade 120V, high grade 240V, with pure resistive load			
Frequency stability	0.01%			
Display	Vrms, Arms, Fre, Wattage, PF			
Voltage resolution	0.01V			
Frequency resolution	0.01Hz			
Current resolution	0.001A			
Storage	M1(V_F_A), M2(V_F_A), M3(V_F_A)			
Communication interface	RS-232C			
Set the current limit	0-MaxCurrent(P/240 Maximum current is: maximum capacity /240V is P/240)			
The output protection	OverCurrent OverTemp OverLoad ShortCircuit			
Operation environment	0-40°C 20-80%RH			
Net weight (kg)	12.7	15	18.5	
Gross weight (kg)	14.5	16.7	20	
Instrument size (W*H*D)	365*150*430	365*150*430	365*150*430	
Packing size (W*H*D)	510*255*550	510*255*550	510*255*550	

High Power Programmable AC Power Source

APS5000A Series



- Advanced direct digital frequency synthesizer (DDS) waveform generation technology, high frequency stability, good continuity
- Measurement precision is high, suitable for current half-sinusoid and its similar waveforms with DC component measurement
- Provide embedded intelligent PC monitoring system
- Adjustable output voltage from 0 to 150V, 0 to 300V, step distance 0.1V
- Output frequency 45-120Hz (40-500 Hz optional) , step distance 0.1 Hz
- Output current limiting function
- With 9 sets of memory, you can store commonly used parameters for easy invocation when using them
- With RS232 communication interface [IEEE488.2(GPIB) optional] , Instruction execution time is less than 10mS
- Protection mode: over voltage, over current, overload, short circuit, current limit, etc

- Provide RMS voltage, RMS current, active power, frequency, power factor, etc
- For 100% load removal, voltage stabilizing reaction time within 20ms, strong overload capacity, instantaneous current can withstand 3 times of rated current
- Voltage, frequency, time, digital key input, high precision
- The machine can set 30 sets of different voltage, frequency, rising time and running time at one time, and can test continuously for 999999 times

Single phase series						
Model	APS5010A	APS5015A	APS5020A	APS5030A	APS5050A	APS5100A
Output capacity	10KVA	15KVA	20KVA	30KVA	50KVA	100KVA
Working mode	SPWM					
Input power	1Φ2W 220V±10%		3Φ4W 380V±10%			
Output Frequency	45-200Hz(40-500Hz)10Hz-1000Hz Need to be customized) , 0.1Step					
Frequency stability	0.01%					
Output Voltage	0-150VAC / 0-300VAC AUTO					
Output Current	84A/42A	125A/62.5A	168A/84A	250A/125A	420A/210A	840A/420A
Load Regulation	1%					
Total waveform distortion THD	2% (pure resistive load)					
Ammeter LCD Module	Vrms, Arms, Fre, Wattage, PF					
Protective device	Over Current, Over Temp, Over Load, Short Circuit					
Operation environment	0-40°C 20-80%RH					
Size (W*H*D)	430*700*550mm		550*700*700mm	700*1350*1418mm		
Weight	80Kg	120Kg	150Kg	250Kg	400Kg	600Kg

Three phase series (higher power can be customized)						
Model	APS5315A	APS5320A	APS5330A	APS5360A	APS53100A	APS53150A
Output capacity	15KVA	20KVA	30KVA	60KVA	100KVA	150KVA
Working mode	SPWM					
Input power	3Φ4W 380V±10%					
Output Frequency	45-200Hz(40-500Hz)10Hz-1000Hz Need to be customized) , 0.01Step					
Frequency stability	0.01%					
Output Voltage	0-150VAC / 0-300VAC AUTO					
Output Current	42A/21A	56A/28A	84A/42A	168A/84A	278A/139A	420A/210A
Load Regulation	1%					
Total waveform distortion THD	2% (pure resistive load)					
Ammeter LCD Module	Vrms, Arms, Fre, Wattage, PF					
Protective device	Over Current, Over Temp, Over Load, Short Circuit					
Operation environment	0-40°C 20-80%RH					
Size (W*H*D)	430*700*700mm	610*1030*1050mm		700*1350*1400mm		900*1730*161mm
Weight	80Kg	120Kg	150Kg	250Kg	400Kg	600Kg

Adjustable AC Power Meter

APS-6100/6200/6100B



- Output voltage AC 0-300v adjustable and power 1000VA
- A/P/PF upper and lower limit Settings, with voice alarm function
- The four Windows display V, A, P, Apk/PF/F switching
- Easy to use, safe and reliable

Model	APS-6100	APS-6200	APS-6100B
The input voltage	AC 220V		
The output voltage	AC 0-300V Adjustable		
The output current	3.3A	6.6A	3.3A
Power	1kw	2kw	1kw
Display	V / A / P / PF / F / Apk		
Display precision	0.5%+2 byte		
Upper limit setting	√		
Output switch	√		
Sound alarming	√		
Isolate the output	×	×	√
Net weight (kg)	10	10	10
Gross weight (kg)	11	11	11.8
Instrument size (W*H*D)	323*180*250	323*180*250	323*180*250
Packing size (W*H*D)	406*295*305	406*295*305	406*295*305

Programmable DC Electronic Load

PEL-8150/8300



PEL series product is a new generation of DC electronic load, adopt new chip to achieve high speed and high precision design, provide 0.1 mV and 0.01 mA resolution (basic accuracy is 0.03%, the current rise of 2.5 A/us), with novel appearance, scientific and rigorous production technology, this one is more cost-effective compare to similar products. It can be widely used in the production line (phone charger, cell phone batteries, electric vehicle batteries, switch power supply, linear power supply), scientific research institutions, automotive electronics, aerospace, marine, solar batteries, fuel cells and other industries.

- CC , CV , CR , CP , short circuit, dynamic and other working modes
- Over voltage, overcurrent, overpower, overheat, polarity reverse protection
- High brightness vacuum VFD screen and display V,A,P simultaneously
- Accuracy of 0.1%
- Support external trigger input, output
- Automatic test function setting, more convenient operation
- RS - 232 interface. Optional special communication line connecting computer

Model	PEL-8150		PEL-8300		
Input Rating	Power	150W		300W	
	Current	0~30A		0~60A	
	Voltage	150V			
CC mode	Range	0-3A	0-30A	0-6A	0-60A
	Resolution	0.1mA		1mA	
	Accuracy	0.03%+0.05%			
CV mode	Range	0.1-19.999V		0.1-150V	
	Resolution	1mV	10mV	1mV	10mV
	Accuracy	0.03%+0.05%			
CR mode	Range	0.3Ω-10k	0.3Ω-5k	0.3Ω-10k	0.3Ω-5k
	Resolution	16 bits			
	Accuracy	0.2%+0.2%		0.1%+0.1%	
CW mode	Range	0-150W	0-150W	0-300W	0-300W
	Resolution	1mW	10mW	1mW	10mW
	Accuracy	0.2%+0.2%		0.1%+0.1%	
V Measurement	Voltage	0-19.999V	0-150V	0-19.999V	0-150V
	Resolution	1mV	10mV	0.1mV	1mV
	Accuracy	0.015%0.05%FS	0.015%0.05%FS	0.015%0.03%FS	0.015%0.02%FS
C Measurement	Current	0-3A	0-30A	0-6A	0-60A
	Resolution	0.1mA	1mA	0.01mA	0.1mA
	Accuracy	0.03%+0.05%FS	0.03%+0.08%FS	0.03%+0.05%FS	0.03%+0.08%FS
W Measurement	Watt	100W	150W	100W	300W
	Resolution	1mW	10mW	1mW	10mW
	Accuracy	0.2%+0.2%		0.1%+0.1%	
Battery Measurement Battery Input : 0.5-150V Max.Measurement capacity=999/H;Resolution=0.1mA;Time=Range=1S-16HS					
Dynamic Measurement TransitionList:0-25KHz;2.5A/us ; T1&T2:60Us-999S;Accuracy:±15%offset+10%FS					
1mS;2mS;5mS;10mS;20mS;50mS;100mS;200mS;Accuracy:±15%offset+10%FS					
Short circuit	Current(CC)	3A	30A	6A	60A
	Voltage(CV)	0V			
	Resistance(CR)	55mΩ	25mΩ	300mΩ	
Temperature	Operating	0-40°C			
	Environment	-10°C~70°C			
Net weight	kg	4.1		4.9	
Gross weight	kg	5		5.8	
Instrument size (W*H*D)	mm	215*100*355			
Packing size (W*H*D)	mm	310*200*480			

High Power Meter

MPM-1010



MPM-1010 high-precision power meter applies direct plug mode instead of traditional terminal posts according to customers suggestion, to improve safety and convenience. The voltage and current sampling section uses precision resistance direct sampling instead of traditional transformer sampling, which ensures the original data is undistorted and improves the accuracy of the instrument. And this machine is especially adapted to some half wave and other various waveform measurement of DC component, testing full wave resistance, the distorted wave, half wave, symmetrical and unsymmetrical square wave, triangle wave, sawtooth wave and other special waveform under AC mode. It is a high cost-effective product with novel appearance and scientific design. It is widely used in mobile phone charger, adapter, switch power, household appliance, transformer and other industries.

- The six test parameters V, A, P, PF/F/Apk
- The upper and lower limit of power factor, current and power, and there is a sound light alarm, suitable for production line batch test
- The standard RS-232 interface is suitable for system integration
- The wider frequency response is 15Hz-650Hz, exceeding all products at the same level
- The direct way saves the wiring trouble, enhance the security and convenience
- Precision resistance sampling technology, suitable for a wider range of products

Model	MPM-1010
4 window display	V, A, P, Apk/PF/F
The input voltage	1V~300V
Input current	2mA-10A
Power range	0.3W-3000W
Precision	0.4%RD+0.1%FS+1d
Switch range	automatic
Power factor	-1.000/+1.000
Frequency response	AC:15Hz~650Hz
Hi - Low setting	A, P
Sound and light alarm	√
The key lock	√
The machine electricity	110V/220V Switchable
Communication methods	RS-232(Optional)
Net weight (kg)	2.5
Gross weight (kg)	3.6
Instrument size (W*H*D)	225*100*305
Packing size (W*H*D)	300*210*420

High Power Meter

MPM-1010B



MPM-1010B high-precision power meter applies direct plug mode instead of traditional terminal posts according to customers suggestion, to improve safety and convenience. The voltage and current sampling section uses precision resistance direct sampling instead of traditional transformer sampling, which ensures the original data is undistorted and improves the accuracy of the instrument. And this machine is especially adapted to some half wave and other various waveform measurement of DC component, testing full wave resistance, the distorted wave, half wave, symmetrical and unsymmetrical square wave, triangle wave, sawtooth wave and other special waveform under AC mode. It is a high cost-effective product with novel appearance and scientific design. It is widely used in mobile phone charger, adapter, switch power, household appliance, transformer and other industries.

- The six test parameters V, A, P, PF/F, Apk
- The upper and lower limit of power factor, current and power, and there is a sound light alarm, suitable for production line batch test
- The wider frequency response is 15Hz-650Hz, exceeding all products at the same level
- Direct way saves the wiring trouble, enhance the security and convenience
- Precision resistance sampling technology, suitable for a wider range of products

Model	MPM-1010B
4 window display	V, A, P, Apk/PF/F
The input voltage	1V~300V
Input current	2mA-10A
Power range	0.3W-3000W
Precision	0.4%RD+0.1%FS+1d
Switch range	automatic
Power factor	-1.000/+1.000
Frequency response	AC:15Hz~650Hz
Hi - Low setting	A, P
Sound and light alarm	√
The key lock	√
The machine electricity	110V/220V Switchable
Communication methods	RS-232(Optional)
Net weight (kg)	2.5
Gross weight (kg)	3.6
Instrument size (W*H*D)	225*100*305
Packing size (W*H*D)	300*210*420

Function Arbitrary Waveform Generator

MFG-2125/2140/ 2160



- Use 3.5 inch 480x320TFT LCD, with a clear graphical interface
- Dual channel output
- Two channels are independent and have phase synchronization function
- Build-in 5 sets of basic waveform and 32 types of arbitrary waveform
- Edge time adjustable pulse wave output
- Output of linear/logarithmic sweep frequency and pulse string waveform
- Equipped with multi-function arbitrary waveform editing software
- Support Chinese and English menu
- File management, support USB drives and local storage
- 160MSa/S sampling rate, 12bits vertical resolution, 16k storage depth
- Waveform storage: supports 10 groups of user-defined editing waveforms
- Internal/external AM, FM, FSK modulation function
- with 160MHz high precision frequency meter
- RS232 interface, USB Device, USB Host interface

Model	MFG-2125	MFG-2140	MFG-2160
Frequency characteristics			
Waveform types	Sine wave, square wave, triangle wave, pulse, noise, arbitrary wave (including DC)		
Sine wave	1uHz ~ 25MHz	1uHz ~ 40MHz	1uHz-60MHz
Square wave	1uHz ~ 5MHz	1uHz ~ 10MHz	1uHz-10MHz
Triangle wave	1uHz ~ 500kHz	1uHz ~ 1MHz	1uHz-2MHz
Noise (-3db)	7MHz	7MHz	7MHz
Pulse	1uHz ~ 5MHz	1uHz ~ 10MHz	1uHz-10MHz
Arbitrary wave	1uHz ~ 5MHz	1uHz ~ 10MHz	1uHz-10MHz
Frequency resolution	1uHz		
Frequency accuracy	±5ppm		
Sine wave properties			
CH1 Harmonic distortion > 1Vpp	0-1MHz < -45dBc ; 1MHz-10MHz < -40dBc ; 10MHz-20MHz < -30dBc ; 20MHz-40MHz < -25dBc ; 40MHz-70MHz < -20dBc ;		
CH2 Harmonic distortion > 1Vpp	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	1%~99%≤100kHz ; 20%~80%≤5MHz ; 40%~60%≤10MHz (resolution 0.1%)		
Asymmetry(50% duty cycle)	1% period + 5ns		
Serration			
Linearity	Less than 0.5% of the peak output (typical values, 1kHz, 1Vpp, symmetry 100%)		
Symmetry	0.0~100.0% (resolution 0.1%)		
Impulse wave characteristics			
The pulse width	≥20ns		
Edge jump time	≥20ns		
Overshoot	< 5%		
Arbitrariness	CH1	CH2	
Sampling rate	160MSa/S	160MSa/S	
Wave amplitude resolution	12bits	10bits	
The wave length	16k	4k	
Minimum rise / fall time	< 20ns		
Storage quantity	10 waveforms	10 waveforms	

Digital Multimeter

MDM8145A/8146A/8155A



- Double - parameter display can display two parameters of one input signal
- Has duty ratio measurement function /capacitance measurement
- With manual/automatic range setting function
- Supports SCPI protocol and provides programming documentation
- Periodic and frequency measurements frequency can reach up to 20MHz
- With keyboard lock function, and provide system settings, customized setting of language, buzzer, screen brightness
- Maximum 10A current and 1000V DC voltage measurement capability
- Use 3.5-inch screen with clear reading
- Speed of measurement: FAST (6 times/second), MID (4 times/second), SLOW (1 time/second)
- Square wave output function (MDM8145A and MDM8146A are optional)
- Communication interface: USB Device, RS232(MDM8145A and MDM8146A are optional)
- AC DC voltage, AC DC current, two wire/ four-wire resistance measurement
- Provide automatic trigger, external trigger and single trigger
- It has simple external calibration function

Technical indicators					
DC voltage measurement					
Range	Measuring range	Resolution	Error limit		
			MDM8145A (4 ½)	MDM8146A (4 ½)	MDM8155A (5½)
200mV	1uV~220.000mV	1uV	± (0.05%+4)	±(0.03%+10)	± (0.015%+4)
2V	10uV~2.20000V	10uV	± (0.05%+3)	±(0.03%+6)	± (0.015%+3)
20V	100uV~22.0000V	100uV	± (0.05%+4)	±(0.03%+6)	± (0.015%+4)
200V	1mV~220.000V	1mV	± (0.05%+3)	±(0.03%+6)	± (0.015%+3)
1000V	10mV~1000V	10mV	± (0.1%+3)	±(0.03%+6)	± (0.015%+3)
AC voltage measurement (true value of validity)					
Range	Resolution	Error limit (MDM8155A)			
		40Hz~5kHz	5~30kHz	30~50kHz	50~100kHz
200mV	1uV	±(0.2%+100)	±(0.2%+100)	±(0.5%+200)	±(0.8%+200)
2V	10uV	±(0.2%+100)	±(0.2%+100)	±(0.5%+200)	±(0.8%+200)
20V	100uV	±(0.2%+100)	±(0.8%+300)	±(2.5%+500)	±(5%+500)
200V	1mV	±(0.2%+200)	±(0.8%+450)		
750V	10mV	40Hz~1kHz ±(0.3%+200)	1~2kHz ±(0.4%+200)		
Range	Resolution	Error limit (MDM8145A frequency range : 50Hz~1kHz)			
200mV	10uV	± (0.8%+80)			
2V	100uV	± (0.8%+80)			
20V	1000uV	± (0.8%+80)			
200V	10mV	± (0.8%+80)			
750V	100mV	± (1%+50)			
Range	Resolution	Error limit (MDM8146A)			
200mV	10uV	40Hz~1kHz ±(0.5%+40)	1kHz~10kHz ±(1%+40)	10kHz~20kHz ±(2.5%+40)	
2V	100uV	±(0.5%+40)	±(1%+40)	±(2.5%+40)	
20V	1000uV	±(0.5%+40)	±(1%+40)	±(2.5%+40)	
200V	10mV	±(0.5%+40)	±(1%+40)	Unspecified	
750V	100mV	±(0.5%+40)	Unspecified	Unspecified	

Model	MFG-2125	MFG-2140	MFG-2160
Output characteristic			
Amplitude	50Ω		
Range	1mVpp~10Vpp ≤20MHz	1mVpp~3Vpp ≤20MHz	
	1mVpp~5Vpp >20MHz	1mVpp~1.5Vpp >20MHz	
Accuracy	±1% setting ±1mVpp (1kHz sine wave, 0 offset, >10mVpp)		
Resolution	1mV or 3 digits		
Flatness (relative to 1k sine wave, 1Vpp)	±0.1dB, ≤100kHz;	±0.3dB, ≤5MHz;	±0.4dB, ≤25MHz
Offset	50Ω		
Range	±5Vpk, AC + DC		±1.5Vpk, AC + DC
Accuracy	± (2% setting + 5mV + 0.5% amplitude)		
Output impedance	50Ω		
Protect	short-circuit protection, automatically disable waveform output when overload		
SYNC output			
level	TTL compatible		
Impedance	50Ω		
AM modulation (CH1)			
Carrier	Sine wave, square wave, sawtooth wave, pulse wave, arbitrary wave (except DC)		
Source	Internal / external		
Modulation wave	Sine wave, square wave, triangle wave, Xie Bo		
Modulation frequency	2mHz~20kHz		
Modulation depth	0%~120%		
FM modulation (CH1)			
Carrier	Sine wave, square wave, sawtooth wave, pulse wave, arbitrary wave (except DC)		
Source	Internal / external		
Modulation wave	Sine wave, square wave, triangle wave, Xie Bo		
Modulation frequency	2mHz~20kHz		
Frequency offset	0~Maximum carrier frequency		
FSK modulation (CH1)			
Carrier	Sine wave, square wave, sawtooth wave, pulse wave, arbitrary wave (except DC)		
Source	Internal / external		
Modulation wave	square wave with 50% duty ratio		
Keying frequency	2mHz~1MHz		
Sweep (CH1)			
Carrier	Sine wave, square wave, sawtooth wave, pulse wave, arbitrary wave (except DC)		
Type	Linear / logarithm		
Starting / cut-off frequency	1uHz~ maximum carrier frequency		
Scavenging time	1ms~500s		
Trigger source	Manual, internal, and external		
Pulse string characteristics (CH1)			
Carrier	Sine wave, square wave, sawtooth wave, pulse wave, noise, arbitrary wave (except DC)		
Pulse count	1~65535 or infinity, gate control		
Start / stop phase	0~360°		
Internal cycle	1us~500s		
Gate control source	External		
Trigger source	Manual, internal, and external		
Frequency meter			
Frequency range	1Hz~160MHz		
Frequency resolution	6 bits / s		
Voltage range	100mVpp~5Vpp		
Input impedance	1MΩ		
Trigger input			
Level	TTL compatible		
Slope	rise/fall		
Pulse width	> 100ns		
Input impedance	> 10kΩ, DC coupling		
Reaction time	< 500ns (pulse string) ; < 10us (sweep)		
General technical specifications			
Supply voltage	100~240V, 45~65Hz		
Power waste	<40W		
Interface	RS232, USB Host, USB Device		
Net weight (kg)	2.6		
Gross weight (kg)	3.8		
Instrument size (W*H*D)	265*105*305		
Packing size (W*H*D)	335*210*435		

Digital Multimeter

MDM8165/8165A



- 6 1/2 resolution (MDM8165A/MDM8165)
- 3.5-inch color display screen (resolution ratio 320*480)
- Graphic display
- Double parameter display
- GPIB,RS-232, LAN ,USB interface are optional. functions of trigger input and output of measuring completion.
- Software could be updated by customers
- two-wire and four-wire resistance measurement ,temperature measurement
- 10Ω and 1GΩ 's extension range current measurement capacity reaches up to 12A
- Many math functions
- Measuring speed: 0.02NPLC- 100NPLC
- Support SCPI language

Model	MDM8165 (6 ½)	MDM8165A (6 ½)
Display	3.5-inch color screen (resolution 320*480)	
Signal terminal	Front-end/back-end	Front-end
Maximum measurement speed	2500 readings per second	
Function	Items	
	Uncertainty,±(% measurement + % 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
DCI	Frequency range	3 Hz ~ 300 kHz
	Uncertainty	0.05 + 0.006
	Measuring range	0 μA ~ 12 A
Resistance	Maximum resolution	10 pA
	Uncertainty	0.10 + 0.04
	Measuring range	1 μA ~ 12 A
Frequency /period	Maximum resolution	100 pA
	Frequency range	3 Hz ~ 10 kHz
	Uncertainty	0.01%
Capacitance	Measuring range	3 Hz ~ 1 MHz
	Maximum resolution	1 μHz
	Uncertainty	1 + 0.3
On- off/diode	Measuring range	0 nF ~ 100 mF
	Maximum resolution	1 pF
Proportion (DC:DC)	Reference range	yes
	Input range	100mV ~ 10 V
Temperature	Type	100mV ~ 1000 V
	Maximum resolution	Platinum resistance, thermistor, custom sensor
Mathematical functions	Relative to (ax + b), maximum/minimum/average, standard deviation, dB, dBm, read retention, limit test	
Graphics	Histogram, trend graph	
Interface	RS-232,IEEE 488,LAN,USB Device,USB Host,Trig IN/OUT	
Programming language	SCPI Compatible with Agilent 34401A, 34410 and Fluke 45	
Data storage capacity	512K	
Net weight	2.6	
Gross weight	3.15	
Instrument size (W*H*D)	265*105*305	
Packing size (W*H*D)	335*210*435	

Technical indicators					
DC current measurement					
Range	Measuring range	Resolution	Error limit		
			MDM8145A (4 ½)	MDM8146A (4 ½)	MDM8155A (5½)
200uA	0.001uA~220.000uA	0.001uA	± (0.35%+10)	±(0.15% +15)	± (0.05%+10)
2mA	0.01uA~2.20000mA	0.01uA	± (0.35%+10)	±(0.15% +10)	± (0.05%+10)
20mA	0.1uA~22.0000mA	0.1uA	± (0.35%+10)	±(0.15% +10)	± (0.05%+10)
200mA	1uA~220.000mA	1uA	± (0.35%+10)	±(0.15% +10)	± (0.05%+10)
2A	0.01mA~2.20000A	10uA	± (0.3%+10)	± (0.35%+10)	± (0.05%+10)
10A	0.1mA~10A	100uA	± (0.8%+60)	±(0.5% +10)	± (0.2%+60)
AC current measurement (MDM8155A frequency range 40~5kHz, the rest is 40~1kHz)					
Range	Measuring range	Resolution	Error limit		
			MDM8145A (4 ½)	MDM8146A (4 ½)	MDM8155A (5½)
200uA	0.001uA~220.000uA	0.001uA	± (0.8%+80)	±(0.75% +20)	± (0.3%+400)
2mA	0.01uA~2.20000mA	0.01uA	± (0.8%+80)	±(0.75% +10)	± (0.3%+400)
20mA	0.1uA~22.0000mA	0.1uA	± (0.8%+80)	±(0.75% +20)	± (0.3%+400)
200mA	1uA~220.000mA	1uA	± (0.8%+80)	±(0.75% +10)	± (0.3%+400)
2A	0.01mA~2.20000A	10uA	± (0.8%+80)	±(0.75% +20)	± (0.3%+400)
10A	0.1mA~10A	100uA	± (1%+50)	±(1.0% +10)	± (1%+20)
Resistance measurement					
Range	Measuring range	Resolution	Error limit		
			MDM8145A	MDM8146A	MDM8155A
200Ω	0.001Ω~220.000Ω	0.001Ω	± (0.1%+20)	±(0.08% +10)	± (0.08%+50)
2kΩ	0.01Ω~2.20000kΩ	0.01Ω	± (0.1%+20)	±(0.08% +5)	± (0.02%+6)
20kΩ	0.1Ω~22.0000kΩ	0.1Ω	± (0.1%+6)	±(0.08% +5)	± (0.02%+6)
200kΩ	1Ω~220.000kΩ	1Ω	± (0.1%+6)	±(0.08% +5)	± (0.02%+6)
2MΩ	10Ω~2.20000MΩ	10Ω	± (0.4%+10)	±(0.2% +10)	± (0.04%+8)
20MΩ	100Ω~22.0000MΩ	100Ω	± (0.4%+15)	±(0.35% +10)	± (0.25%+6)
Capacitance measurement					
Range	Measuring range	Resolution	Error limit		
			MDM8145A (4 ½)	MDM8146A (4 ½)	MDM8155A (5½)
2nF	0.001nF~2.200nF	0.001nF	± (3.5%+30)	± (2%+5)	± (2%+5)
20nF	0.01nF~22.00nF	0.01nF	± (3.5%+30)	± (2%+5)	± (2%+5)
200nF	0.1nF~220.0nF	0.1nF	± (3.5%+30)	± (2%+5)	± (2%+5)
2uF	1nF~2.200uF	1nF	± (3.5%+30)	± (2%+5)	± (2%+5)
20uF	0.01uF~22.0uF	0.01uF	± (3.5%+30)	± (3%+5)	± (3%+5)
200uF	0.1uF~220.0uF	0.1uF	± (3.5%+30)	± (3%+5)	± (3%+5)
2mF	1uF~2.200mF	1uF	± (4%+10)	± (3%+5)	± (3%+5)
Frequency measurement					
Range	Measuring range	Resolution	Error limit		
			MDM8145A (4 ½)	MDM8146A (4 ½)	MDM8155A (5½)
200Hz	0.001Hz~220.000Hz	0.001Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
2kHz	0.01Hz~2.20000kHz	0.01Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
20kHz	0.1Hz~22.0000kHz	0.1Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
200kHz	1Hz~220.000kHz	1Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
2MHz	10Hz~2.20000MHz	10Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
20MHz	100Hz~22.0000MHz	100Hz	± (0.2%+10)	± (0.2%+10)	± (0.1%+3)
Duty cycle	5.0%~95.0% (error is within 10 words)				
Diode measurement					
Range	Measuring range	Input protection	Remarks		
200Ω	0~2V	250Vp	input current is about 0.75mA		
Open and off measurement					
Range	Measuring range	输入保护 Input protection	Remarks		
200Ω	0~30Ω	250Vp	The input current is about 0.75mA, when the resistance is lower than 30Ω The input current is about 0.75mA.When the resistance is below 30 Omega, the buzzer is sound		
Square wave output					
Output	Output frequency	Output amplitude			
Square wave	1Hz~100kHz	3V			
Net weight	kg	2.6			
Gross weight	kg	3.15			
Instrument size (W*H*D)	mm	265*105*305			
Packing size (W*H*D)	mm	335*210*435			

Digital Multimeter

MDM-201/202/203/204



Multi-function

A good helper of engineers

- True RMS measurement
- Intelligent burn resistant design
- NCV non-contact voltage interaction
- Double quakeproof protection design
- Maximum display 9999 digits



Model	MDM-201	MDM-202	MDM-203	MDM-204
DC Voltage	0.1mV~600V ±(0.5%+2)	0.1mV~600V ±(0.8%+5)	0.01uV~600V ±(0.5%+2)	0.6V~600V ±(0.5%+3)
AC Voltage	0.1V~600V ±(1.2%+10)	1mV~600V ±(1.0%+3)	0.01uV~600V ±(1.0%+3)	0.6V~600V ±(1.0%+3)
DC Current	1uA~10A ±(1.0%+2)	0.01uA~10A ±(1.0%+2)	0.01uA~10A ±(1.0%+2)	1uA~600mA ±(1.2%+10)
AC Current	/	0.01uA~10A ±(1.0%+5)	0.01uA~10A ±(1.0%+5)	1uA~600mA ±(1.2%+10)
Resistance	0.1Ω~20MΩ ±(0.8%+3)	0.1Ω~60MΩ ±(0.8%+2)	0.1Ω~100MΩ ±(0.8%+2)	0.1Ω~60MΩ ±(0.8%+10)
Capacitance	/	1nF~60000μF ±(3.0%+5)	1nF~100000μF ±(3.0%+10)	6nF~60000μF ±(3.5%+20)
Frequency	/	10~10MHz ±(0.1%+5)	10~10MHz ±(0.1%+3)	40~10MHz ±(0.1%+3)
Diode	✓ 2.2V	✓ 3.2V	✓ 3.2V	✓ 3V
NVC Response	✓	✓	✓	✓
VFCMM			✓	
Intelligent prevent buring	✓	✓	✓	
True RMS	✓	✓	✓	
Backlight display	✓	✓	✓	
On and off alarming	✓	✓	✓	
Value lock	✓	✓	✓	
Auto-power off	✓	✓	✓	✓
Maximum display	1999	5999	9999	5999
Input resistance		10MΩ	10MΩ	10MΩ
Sample rate	About 3 times/second			
Power	1.5V*2pc (AAA battery)			
Net weight (kg)	0.2			
Gross weight (kg)	0.3			
Instrument size (W*H*D)	105*45*70			
Packing size (W*H*D)	150*55*75			

Multichannel Temperature Measuring Instrument

MR3000



- Display 8 kinds of colorful screen
 - High brightness touch color TFT LCD, CCFL backlight, clear picture
 - Display accuracy is high, the basic error is ±0.2%F-S
 - Using ARM microprocessor, it can realize multi-channel (up to 64 channels inside the instrument) signal acquisition, recording, display and alarm at the same time
 - Using 70MB large capacity flash memory chip to save history data to ensure data integrity even power cut
 - With flashing alarm display, indicating the lower and lower limit, lower limit, upper limit and upper upper limit alarm of each channel at the same time; 8 relay alarm output
 - Single 8-64 channel free combination, RS232, RS485, USB, GPIB, Ethernet a variety of communication modes
- Fully isolated general input, can input multiple signals at the same time, no need to replace the module, directly set on the instrument
 - The data range of display quantity is wider, which can display 6 digits: -999, 99~1999.999
 - Additional measuring units may be added up to 64CH

Model	MR3000	
Display	7 type TFT LCD 800*480 (VGA)	
The subject cache capacity	70MB	
Expanding memory	USB USB flash memory	
Interface	Ethernet communication	100Base-TX
	RS-232/RS-485/USB/GPIB/Zigbee (RS232 standard, others optional)	
Number of units that can be connected	Measuring unit	1 pc
	I/O unit	1 pc
Maximum number of measured frequency bands	Temperature/voltage	64 channels
	Pulse	4 ch
	Modbus	16 ch
	Calculation	8 ch
Maximum input-output points	Input	32 points (64 points without output)
	Output	32 points
Precision of time axis	±5 ppm	
Calendar timer accuracy	±15 second/month (25°C)	
Language	English/Simplified Chinese/Traditional Chinese	
Networking	FTP terminal/FTP server , SMTP terminal (E-mail) , HTTP server (Web server) , DHCP terminal SNTP server/SNTP terminal , Modbus TCP (terminal/server) 4 , Modbus RTU (initiative/follower)	
Withstand voltage	Between power port-FG port	1500VAC (50/60Hz)1 minute
	Between power port-FG port	Above 5MΩ (500VDC)
Insulation resistance	Pressure strength	Below 0.8N
	Lifetime	More than 10Millian times
Backlight life	About 75000 hours	
Panel thickness	2mm to 26mm	
Adaptive capacity to environment	Protective Structure	IP65 5.
	Quakeproof	According to JIS B 3502 (IEC61131-2)
	Operation temperature	0°C to +50°C
	Operation humidity	20% to 85%RH (no condensation)
Rated	Power voltage	(90-240AC±10%) or (24VDC±10%); fluctuate within 10% (P-P)
	Maximum consumption current	Below 0.45A
Net weight	kg	3.2
Gross weight	kg	4.8
Instrument size (W*H*D)	mm	290*290*180
Packing size (W*H*D)	mm	400*360*290

Infrared Thermometer

MTM-301 Series



Choose high-quality electronic components, adopt aluminum alloy sensor, accurately receive temperature signal measurement, pay attention to the details of customers, to provide customers with more professional measurement experience

- High and low temperature sound and light alarming, high and low temperature alarm value can be set according to the use requirement
- HD VA color backlight display, clear reading
- Laser 9 point positioning measurement leads to more accurate measuring
- The emissivity is adjustable, higher precision measurement for different material surface
- Alarming sound can be open or close
- It can be collected with K type probe for temperature measurement (only:MTM-304)
- Environment temperature and humidity display (only:MTM-304)
- Temperature unit conversion
- 0.5 second fast response, maximum value, auto turn-off, over-range tip etc

Model	MTM-301	MTM-302	MTM-303	MTM-304
Temperature measurement range	50°C~480°C	-50°C~680°C		-50°C~880°C
Measurement accuracy		(1.5%+1°C) (1.5%+5°F)		
Repeat accuracy		±0.5% or ±1°C (2°F)		
Display resolution		0.1°C (0.1°F)		
Resolution		0.1~1.00 adjustable		
Measure the distance ratio		12:1		
°C/°F temperature unit conversion		✓		
Backlight display/ auto shutdown		✓		
Overrange display		"LO" or "HI"		
Screen display mode		VA color screen		
K type probe measure temperature	✗	✗	✗	✓
Ambient temperature and humidity display	✗	✗	✗	✓
Power supply	1.5V*2AAA (seventh battery)			
Operation temperature/humidity	0°C~50°C ; 10~95%RH no condensation			
Net weight (kg)	0.15			
Gross weight (kg)	0.25			
Instrument size (W*H*D)	150*40*95			
Packing size (W*H*D)	190*52*123			

Digital LCR Meter

MCR5000 Series



MCR5000 series is a multifunctional LCR precision meter used for testing various electronic components. Adopt 4.3-inch TFT LCD display, simple display, elegant layout. It is a high speed, wide band, 5 bit test resolution impedance measuring instrument with 40hz-200khz multiple frequency points and 0.1% accuracy, which can meet the requirements of component parameter detection in various occasions. Is a high - quality cost-effective tester

- With new 32-bit core processor, the data is as good as the one of foreign first-class equipment
- 4.3 inch true color TFT display
- 30Ω , 100Ω two types of different signal source output resistance
- Built - in comparator, 5 grade flexible quantified and defective alarming mode shutdown automatically save test conditions, humanized operation
- Internal more than 100 sets of settings files, U disk extension to save multiple groups of test or recall simplified Chinese, English is optional
- U disk copy screen function, test data saving function, support FAT16 format, FAT32 file system, standard with RS232, USB HOST
- USB DEVICE, headphone interface, foot pedal interface and GPIB are optional

Model	MCR5010	MCR5030	MCR5100	MCR5200
Test parameter	L, C, R, Z , D, Q, X, ESR, θ(Deg), θ(Rad)			
Test frequency	100Hz, 120Hz, 1kHz, 10kHz	100Hz, 120Hz, 1kHz, 10kHz, 20kHz, 30kHz	40Hz, 50Hz, 60Hz, 75Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 750Hz, 800Hz, 1kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 7.5kHz, 10kHz, 12kHz, 15kHz, 15.7kHz, 16.2kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 66.6kHz, 75kHz, 100kHz, 120kHz, 150kHz, 200kHz in total 38 frequency points	40Hz, 50Hz, 60Hz, 75Hz, 100Hz, 120Hz, 150Hz, 200Hz, 250Hz, 300Hz, 400Hz, 500Hz, 600Hz, 750Hz, 800Hz, 1kHz, 1.5kHz, 2kHz, 2.5kHz, 3kHz, 4kHz, 5kHz, 6kHz, 7.5kHz, 10kHz, 12kHz, 15kHz, 15.7kHz, 16.2kHz, 20kHz, 25kHz, 30kHz, 40kHz, 50kHz, 60kHz, 66.6kHz, 75kHz, 100kHz, 120kHz, 150kHz, 200kHz in total 41 frequency points
Basic measurement accuracy	0.15%			
Test signal level	0.05V, 0.1V, 0.2V, 0.25V, 0.3V, 0.3V, 0.4V, 0.5V, 1V			
Equivalent circuit	In series, in parallel			
Mathematical functions	Percentage deviation			
Range way	Automatic, hold, manual selection			
Trigger mode	Internal, manual, external, bus			
Measure speed (≥1kHz)	High speed: The fastest is 30 times/second, middle speed: 10times/second, low speed: 3times/second			
Average time	1—255			
Delay time	0—6s, step is 1ms			
Calibration function	Open circuit/ short circuit / quick reset			
Display mode	Direct reading, Δ%, V/I (Measured voltage/current monitoring)			
Display	5 digit display of main and minor parameters, 4.3 inch true color LCD displayer			
Output impedance	30 Ω, 100Ω optional			
Display range				
Z , R, X, ESR	0.1mΩ — 99.999MΩ			
C	0.01 pF — 9.9999F			
L	0.01 μH — 99999 H			
D	0.0001 — 9.9999			
Q	0.0001 — 9999.9			
θ (Deg)	-179.99° — 179.99°			
θ (Rad)	-3.1416 — 3.1416			
Δ%	-999.99% — 999.99%			
Others				
Comparator function	5 grades of sorting function(Except MCR5010)			
Storage	More than 100 sets of internal instrument settings for storage/cal, U disk extension of more than 500 sets			
Port	RS232, HANDLER(Except MCR5010/5030), USB HOST are standard			
Net weight (kg)	3.5			
Gross weight (kg)	4.5			
Instrument size (W*H*D)	240*100*330			
Packing size (W*H*D)	330*210*425			

Oscilloscope Probe

Essentially, an oscilloscope probe establishes a physical and electrical connection between a test point or source and an oscilloscope; in fact, an oscilloscope probe is a type of device or network that connects a signal source to an oscilloscope input. There are three key issues with the degree of connectivity: physical connectivity, impact on circuit operation, and signal transmission.

◆ General Oscilloscope Probe IP100/200/1110/2210/2220/2230



Model	IP100	IP200	IP1110	IP1120	IP2210	IP2220	IP2230
Bandwidth	DC-100MHz	DC-200MHz	DC-100MHz	DC-200MHz	DC-100MHz	DC-200MHz	DC-300MHz
Attenuation	X1 / X10						
Input resistance	About 1MΩ for X1 and about 10MΩ for X10						
Input capacitance	About 105pF for X1 and about 15pF for X10	About 95pF for X1 and about 13pF for X10		About 95pF for X1 and about 12pF for X10			
Maximum output Voltage	X1 150V DC +Peak AC X10 300Vrms						
Compensation range	10-20pF	10-25pF		10-30pF			
Test line length	About 1.2m						
Operating environment	0-50°C, 0-80%RH						

◆ P6139 Series Oscilloscope Probe P6139/P6139A/P6139B



- Miniature probe tip: easier to connect into tested circuit
- Frequency width DC-500MHz
- P6139B With automatic identification function
- Parts combination : more flexible usage , adapt to more test occasions

Model	P6139	P6139A	P6139B
Bandwidth	500MHz	500MHz	500MHz
Attenuation	10X / 1X	10X	10X
Rise Time	<700Ps	<700Ps	<700Ps
Maxinput Voltage	300VCATII	300VCATII	300VCATII
Input Resistance	10MΩ/1MΩ	10MΩ	10MΩ
Input Capacitance	11pF/95pF	9pF	9pF
Auto-ID	No	No	Yes
Cable Length(meter)	1.4m		

◆ Oscilloscope High Voltage Probe IP2100/P3100/IP3100A/P5100A

- Frequency width DC-250MHz
- Automatically identification function
- Voltage withstand as high as 3000Vpk
- High precision accuracy < 1%



Model	IP2100	P3100	IP3100A	P5100A
Bandwidth	100MHz	100MHz	250MHz	250MHz
Attenuation	100X	100X	100X	100X
Rise Time	< 3.50ns	< 3.50ns	< 1.4ns	< 1.4ns
Maxinput Voltage	2000Vpk	2000Vpk	2000Vpk	3000Vpk
Input Resistance	100MΩ	100MΩ	100MΩ	100MΩ
Input Capacitance	12pF	10pF	10pF	3pF
Cable Length(meter)	1.2m	1.2m	1.2m	2m
Operating environment	0-50°C 0-80%RH			

◆ Differential Probe P5205A/5210A

- Separate design
- Adopt large scale integrated circuit , SMT process , with better reliability and stability
- 40MΩ high resistance
- Super high speed test probe , rising time can reach to 3.5ns



Model	P5205A	P5210A
Bandwidth	50MHz	100MHz
Attenuation	500X / 50X	500X / 50X
Rise Time	< 3.50ns	< 7ns
Differential voltage	+/-1300V(500X)	+/-1300V(500X)
Common mode voltage	1000VRms	1000VRms
Input resistance	8MΩ/4MΩ	8MΩ/4MΩ
Input capacitance	7pF	7pF
Common mode dump ratio	DC: > -80 dB 100 kHz : > -60dB 3.2 MHz:-40dB 100 MHz : -30dB	DC: > -80 dB 100 kHz : > -60dB 3.2 MHz:-40dB 100 MHz : -30dB

Optional Accessories



LCR001

SMD Four-terminal test cable



LCR002

SMD Four-terminal test cable



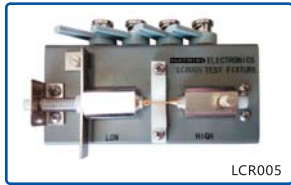
LCR003

SMD Test pliers



LCR004

SMD Test box



LCR005

SMD test box



LCR006

Four-terminal test box



LCR007

Four-terminal test box



IV-26010A

Gold plated short circuit



IV-26010

Gold plated short circuit



IV-08

Temperature module



IV-309

Power supply test lead



ITE-131

RS-232 cable and software

Certification

