



POWER SUPPLIES CATALOG



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DC POWER SUPPLIES

Stemming from the design and manufacture demands of electronic industries, GW Instek offers diverse power supply product lines to meet user's demand for a variety of applications. Based on different needs, the product lines can be divided into several categories including DC Power Supply, AC Power Source and DC Electronic Load.

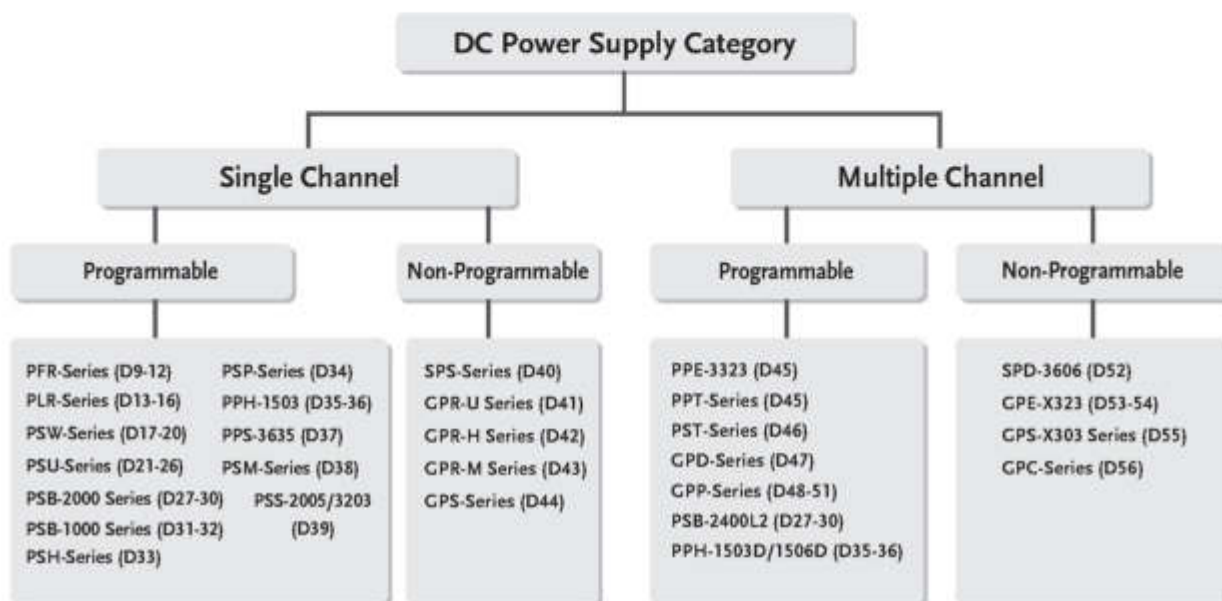
For DC Power Supply, the products can be briefly categorized by the following types, Programmable or Non-programmable, Single or Multiple Outputs, High Precision or Affordable Price, Dual Range and Wide Combinations of Voltage and Current, which can be selected to meet the application requirements.

GW Instek offers more than 100 power supply products are suitable for the requirements of Electronic Assembly Testing, Education, Component Testing, Wireless Product Testing, Burn-in, Battery-Power Product Testing Automotive, Aerospace industries and so on.

PRODUCTS

- Programmable & Single Channel DC Power Supply
- Non-Programmable & Single Channel DC Power Supply
- Programmable & Multiple Channel DC Power Supply
- Non-Programmable & Multiple Channel DC Power Supply

GENERAL SELECTION GUIDE OF POWER SUPPLY BY APPLICATION



Series	Education	R&D/ Research Lab	Production Testing	ATE for Production	Burn-IN	Page
PFR-Series		✓		✓		D9-12
PLR-Series		✓		✓		D13-16
PSW-Series		✓	✓	✓	✓	D17-20
PSU-Series		✓	✓	✓	✓	D21-26
PSB-2000 Series		✓	✓	✓	✓	D27-30
PSB-1000 Series		✓	✓	✓	✓	D31-32
PSH-Series		✓	✓	✓	✓	D33
PSP-Series	✓	✓		✓		D34
PPH-1503/1503D/1506D		✓	✓		✓	D35-36
PPS-3635	✓	✓	✓	✓		D37
PSM-Series		✓	✓		✓	D38
PSS-Series		✓	✓	✓		D39
SPS-Series			✓	✓	✓	D40
GPR-U Series					✓	D41
GPR-H Series		✓	✓		✓	D42
GPR-M Series		✓	✓		✓	D43
GPS-Series	✓	✓	✓			D44
PPE-3323	✓	✓	✓	✓		D45
PPT-Series	✓	✓	✓	✓		D45
PST-Series	✓	✓	✓	✓		D46
GPD-Series	✓	✓	✓			D47
GPP-Series	✓	✓	✓			D48-51
SPD-3606	✓	✓	✓		✓	D52
GPE-X323	✓	✓	✓			D53-54
GPS-x303 Series	✓	✓	✓			D55
GPC-Series	✓	✓	✓			D56

GENERAL SELECTION GUIDE OF DC POWER SUPPLY BY FUNCTION

	Programmability	Display		Technic	Model	Page	
Single Channel	Programmable	LED		Switching	PFR-Series	D9-12	
		LED		Switching	PLR-Series	D13-16	
		LED		Switching	PSW-Series	D17-20	
		LED		Switching	PSU-Series	D21-26	
		LCD		Switching	PSH-Series	D33	
		LED		Switching	PSB-2400L/2400H/2800L/2800LS/2800H	D27-30	
		LCD		Switching	PSB-1400L/1400M/1800L/1800M	D31-32	
		LCD		Switching	PSP-603/405/2010	D34	
		LCD		Linear	PPH-1503	D35-36	
		LED		Linear	PPS-3635	D37	
		VFD		Linear	PSM-Series	D38	
		LCD		Linear	PSS-Series	D39	
		LCD		Linear	GPP-1326	D48-51	
		Non-Programmable	LED		Switching	SPS-1230/1820/2415/3610/606	D40
			LED	Dual	Linear	GPR-U Series	D41
	LED		Dual	Linear	GPR-H Series	D42	
	LED		Dual	Linear	GPR-M Series	D43	
	LED		Linear	GPS-1830D/1850D/3030D/3030DD	D44		
	Analog		Linear	GPS-3030	D44		
	LED		Linear	GPP-1326	D53-54		
Multiple Channel	Programmable	LED		Switching	PSB-2400L2	D27-30	
		LED		Linear	PPE-3323	D45	
		LED		Linear	PPT-1830/3615	D45	
		LCD		Linear	PST-3201/3202	D46	
		LED		Linear	GPD-2303S/3303S/4303S/3303D	D47	
		LCD		Linear	GPP-2323/3323/4323	D48-51	
		LCD		Linear	PPH-1503D	D35-36	
	Non-Programmable	LED		Switching	SPD-3606	D52	
		LED	Dual	Linear	GPC-1850D/3030D/3060D/6030D	D56	
		LED	Quad	Linear	GPC-3030DQ	D56	
		LED	Quad	Linear	GPS-2303/3303/4303	D55	
		LED		Linear	GPE-2303/3303/4303	D53-54	

GENERAL SELECTION GUIDE OF DC POWER SUPPLY BY TECHNIC

Technic	Channel	Programmability	Display		Model	Page	
Switching	Single Channel	Programmable	LED		PFR-Series	D9-12	
			LED		PLR-Series	D13-16	
			LED		PSW-Series	D17-20	
			LED		PSU-Series	D21-26	
			LCD		PSH-Series	D33	
			LED		PSB-2400L/2400H/2800L/2800LS/2800H	D27-30	
			LED		PSB-1400L/1400M/1800L/1800M	D31-32	
LCD		PSP-603/405/2010	D34				
	Non-Programmable	LED		SPS-1230/1820/2415/3610/606	D40		
	Multiple Channel	Programmable	LED		PSB-2400L2	D27-30	
Non-Programmable		LED		SPD-3606	D52		
Linear	Single Channel	Programmable	LCD		PPH-1503	D35-36	
			LED		PPS-3635	D37	
			VFD		PSM-Series	D38	
			LCD		PSS-Series	D39	
			LCD		GPP-1326	D48-51	
		Non-Programmable	LED	Dual	GPR-U Series		D41
			LED	Dual	GPR-H Series		D42
			LED	Dual	GPR-M Series		D43
			LED		GPS-1830D/1850D/3030D/3030DD		D44
			Analog		GPS-3030		D44
			LED		GPE-1326		D49-50
	Multiple Channel	Programmable	LED		PPE-3323	D45	
			LED		PPT-1830/3615	D45	
			LCD		PPH-1503D/1506D	D35-36	
			LCD		PST-3201/3202	D46	
			LED		GPD-2303S/3303S/4303S/3303D	D47	
			LCD		GPP-2323/3323/4323	D48-51	
		Non-Programmable	LED	Dual	GPC-1850D/3030D/3060D/6030D		D56
			LED	Quad	GPC-3030DQ		D56
			LED	Quad	GPS-2303/3303/4303		D55
			LED		GPE-2303/3303/4303		D53-54

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PROGRAMMABLE & SINGLE CHENNEL DC POWER SUPPLY

Voltage(V)	Current(A)	Power(W)	Model	Display	Technic	Remark	Page
6	200	1200	PSU 6-200	LED	Switching	USB/LAN/RS-232/RS-485/GPIB(Opt)	D21-26
8	20	200	PSM-2010	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
12.5	120	1500	PSU 12.5-120	LED	Switching	USB/LAN/RS-232/RS-485/GPIB(Opt)	D21-26
15	3	45	PPH-1503	LCD	Linear	9V/5A or 15V/3A, USB/LAN/GPIB	D35-36
15	7	120	PSM-3004	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
20	18	360	PLR 20-18	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
20	36	720	PLR 20-36	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
20	76	1520	PSU 20-76	LED	Switching	USB/LAN/RS-232/RS-485/GPIB(Opt)	D21-26
20	18	360	PSH-2018A	LCD	Switching	RS-232/GPIB(Opt)	D33
20	10	200	PSP-2010	LCD	Switching	RS-232	D34
20	10	200	PSM-2010	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
20	5	100	PSS-2005	LCD	Linear	RS-232/GPIB(Opt)	D39
30	36	360	PSW 30-36	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
30	72	720	PSW 30-72	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
30	108	1080	PSW 30-108	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
30	4	120	PSM-3004	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
30	6	200	PSM-6003	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
32	3	96	PSS-3203	LCD	Linear	RS-232/GPIB(Opt)	D39
32	6	192	GPP-1326	LCD	Linear	RS-232/USB(CDC)/LAN(Opt)/GPIB(Opt)	D48-51
36	10	360	PLR 36-10	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
36	20	720	PLR 36-20	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
36	10	360	PSH-3610A	LCD	Switching	RS-232/GPIB(Opt)	D33
36	20	720	PSH-3620A	LCD	Switching	RS-232/GPIB(Opt)	D33
36	30	1080	PSH-3630A	LCD	Switching	RS-232/GPIB(Opt)	D33
36	3.5	126	PPS-3635	LED	Linear	36V/3.5A, GPIB	D37
40	38	1520	PSU 40-38	LED	Switching	USB/LAN/RS-232/RS-485/GPIB(Opt)	D21-26
40	5	200	PSP405	LCD	Switching	RS-232	D34
60	6	360	PLR 60-6	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
60	12	720	PLR 60-12	LED	Switching	RS-232/LAN(Opt)/USB(Opt)/GPIB(Opt)	D13-16
60	3.5	200	PSP-603	LCD	Switching	RS-232	D34
50	10	100	PFR-100L	LED	Switching	USB/RS-232/RS-485/LAN(Opt)/GPIB(Opt)	D9-12
60	3.3	200	PSM-6003	VFD	Linear	DUAL RANGE, RS-232/GPIB	D38
60	25	1500	PSU 60-25	LED	Switching	USB/LAN/RS-232/RS-485/GPIB(Opt)	D21-26
80	13.5	360	PSW 80-13.5	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
80	27	720	PSW 80-27	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
80	40.5	1080	PSW 80-40.5	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
80	40	400	PSB-2400L	LED	Switching	RS-232/USB/GPIB(Opt)	D27-30
80	80	800	PSB-2800L	LED	Switching	RS-232/USB/GPIB(Opt)	D27-30
80	80	800	PSB-2800LS	LED	Switching	RS-232/USB/GPIB(Opt)	D27-30
100	15	1500	PSU 100-15	LED	Switching	USB/LAN/USB-GPIB(Opt)	D21-26
150	10	1500	PSU 150-10	LED	Switching	USB/LAN/USB-GPIB(Opt)	D21-26

DC POWER SUPPLIES

Voltage(V)	Current(A)	Power(W)	Model	Display	Technic	Remark	Page
160	7.2	360	PSW 160-7.2	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
160	14.4	720	PSW 160-14.4	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
160	21.6	1080	PSW 160-21.6	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
250	2	100	PFR-100M	LED	Switching	USB/RS-232/RS-485/LAN(Opt)/GPIB(Opt)	D9-12
250	4.5	360	PSW 250-4.5	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
250	9	720	PSW 250-9	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
250	13.5	1080	PSW 250-13.5	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
300	5	1500	PSU 300-5	LED	Switching	RS-232/USB/LAN/USB-GPIB(Opt)	D21-26
400	3.8	1520	PSU 400-3.8	LED	Switching	RS-232/USB/LAN/USB-GPIB(Opt)	D21-26
600	2.6	1560	PSU 600-2.6	LED	Switching	RS-232/USB/LAN/USB-GPIB(Opt)	D21-26
800	1.44	360	PSW 800-1.44	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
800	2.88	720	PSW 800-2.88	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
800	4.32	1080	PSW 800-4.32	LED	Switching	USB/LAN/USB-GPIB(Opt)	D17-20
800	3	400	PSB-2400H	LED	Switching	RS-232/USB/GPIB(Opt)	D31-32
800	6	800	PSB-2800H	LED	Switching	RS-232/USB/GPIB(Opt)	D31-32

DC POWER SUPPLIES

NON-PROGRAMMABLE & SINGLE CHENNEL DC POWER SUPPLY

Voltage[V]	Current[A]	Power[W]	Model	Display	Technic	Remark	Page
8	30	240	GPR-0830HD	LED	Linear	Rear-Panel Output	D42
12	30	360	SPS-1230	LED	Switching	Rear-Panel Output	D40
18	3	54	GPS-1830D	LED	Linear	Rear-Panel Output	D44
18	5	90	GPS-1850D	LED	Linear		D44
18	10	180	GPR-1810HD	LED	Linear	Rear-Panel Output	D43
18	20	360	SPS-1820	LED	Switching	Rear-Panel Output	D40
18	20	360	GPR-1820HD	LED	Linear	Rear-Panel Output	D42
18	50	900	GPR-1850HDN	LED	Linear	Rear-Panel Output	D41
24	15	360	SPS-2415	LED	Switching		D40
30	3	90	GPS-3030D	LED	Linear	Rear-Panel Output	D44
30	3	90	GPS-3030DD	LED	Linear		D44
30	3	90	GPS-3030	Analog	Linear		D44
30	6	180	GPR-3060D	LED	Linear	Rear-Panel Output	D43
32	6	192	GPE-1326	LED	Linear	Front-Panel Output	D53-54
35	10	350	GPR-3510HD	LED	Linear	Rear-Panel Output	D42
35	20	700	GPR-3520HDA	LED	Linear		D41
36	10	360	SPS-3610	LED	Switching	Rear-Panel Output	D40
60	3	180	GPR-6030D	LED	Linear	Rear-Panel Output	D43
60	6	360	SPS-606	LED	Switching	Rear-Panel Output	D40
60	6	360	GPR-6060D	LED	Linear	Rear-Panel Output	D42
60	15	900	GPR-6015HDA	LED	Linear	Rear-Panel Output	D41
75	5	375	GPR-7550D	LED	Linear	Rear-Panel Output	D42
75	10	750	GPR-7510HDA	LED	Linear	Rear-Panel Output	D41
110	3	330	GPR-11H30D	LED	Linear	Rear-Panel Output	D42
160	5	800	GPR-16H50DA	LED	Linear	Rear-Panel Output	D41
250	3	750	GPR-25H30DA	LED	Linear	Rear-Panel Output	D41
300	1	300	GPR-30H10D	LED	Linear	Rear-Panel Output	D42
350	2	700	GPR-35H20DA	LED	Linear	Rear-Panel Output	D41
500	1.5	750	GPR-50H15DA	LED	Linear	Rear-Panel Output	D41
600	1.5	900	GPR-60H15DA	LED	Linear	Rear-Panel Output	D41
1000	0.5	500	GPR-100H05DA	LED	Linear	Rear-Panel Output	D41
75	10	750	GPR-7510HDC	LED	Linear	Rear-Panel Output	D41
60	15	900	GPR-6015HDC	LED	Linear	Rear-Panel Output	D41
35	20	700	GPR-3520HDC	LED	Linear	Rear-Panel Output	D41

DC POWER SUPPLIES

PROGRAMMABLE & MULTIPLE CHENNEL DC POWER SUPPLY

Voltage(V)	Current(A)	Power (W)	Model	CH	Display	Technic	Remark	Page
15	3	63	PPH-1503D	2	LCD	Linear	15V/3A or 9V/5A x 1, 12V/1.5A x 1 GPIB/LAN/GPIB	D35-36
15	3	81	PPH-1506D	2	LCD	Linear	15V/3A or 9V/5A x 1, 12V/3A x 1 GPIB/LAN/GPIB	D35-36
18	3	138	PPT-1830	3	LED	Linear	18V/3A x 2, 6V/5A x 1 GPIB	D45
30	3	180	GPD-2303S	2	LED	Linear	30V/3A x 2 USB	D47
30	3	195	GPD-3303S	3	LED	Linear	30V/3A x 2 (2.5/3.3/5V)/3A x 1, USB	D47
30	3	195	GPD-4303S	4	LED	Linear	30V/3A x 2; (5V/3A) or (5.0V~10V/1A) x 1; 5V/1A, USB	D47
30	3	195	GPD-3303D	3	LED	Linear	30V/3A x 2 (2.5/3.3/5V)/3A x 1, USB	D47
32	3	207	PPE-3323	3	LED	Linear	±32V/3A; -32V/-3A 3.3V(5V)/3A FIXED; RS-232	D45
32	1	96	PST-3201	3	LCD	Linear	32V/1A x 3 RS-232/GPIB (Opt)	D46
32	2	158	PST-3202	3	LCD	Linear	32V/2A x 2, 6V/5A x 1 RS-232/GPIB (Opt)	D46
32	3	192	GPP-2323	2	LCD	Linear	32V/3A x 2, RS-232/USB(CDC)/ LAN(Opt)/GPIB(Opt)	D48-51
32	3	217	GPP-3323	3	LCD	Linear	32V/3A x 2, (1.8/2.5/3.3/5.0V)/5A x 1 RS-232/USB(CDC)/LAN(Opt)/GPIB(Opt)	D48-51
32	3	212	GPP-4323	4	LCD	Linear	32V/3A x 2, 5V/1A x 1, 15V/1A x 1 RS-232/USB(CDC)/LAN(Opt)/GPIB(Opt)	D48-51
36	1.5	126	PPT-3615	3	LED	Linear	36V/1.5A x 2 6V/3A x1; GPIB	D45
80	40	800	PSB-2400L2	2	LED	Switching	80V/40A x 2 RS-232/USB/GPIB (Opt)	D27-30

NON-PROGRAMMABLE & MULTIPLE CHENNEL DC POWER SUPPLY

Voltage(V)	Current(A)	Power (W)	Model	CH	Display	Technic	Remark	Page
18	5	195	GPC-1850D	3	LED	Linear	18V/5A x 2; 5V/3A x 1	D56
30	6	375	SPD-3606	3	LED	Switching	30V/6A x 2; 5V/3A x 1	D44
30	3	195	GPC-3030D	3	LED	Linear	30V/3A x 2; 5V/3A x 1	D56
30	6	375	GPC-3060D	3	LED	Linear	30V/6A x 2; 5V/3A x 1	D56
30	3	195	GPC-3030DQ	3	LED	Linear	30V/3A x 2; 5V/3A x 1	D56
30	3	180	GPS-2303	3	LED	Linear	30V/3A x 2	D55
30	3	195	GPS-3303	3	LED	Linear	30V/3A x 2; 5V/3A x 1	D55
30	3	200	GPS-4303	4	LED	Linear	30V/3A x 2; 5V/1A x 1; 15V/1A x 1	D55
32	3	192	GPE-2323	2	LED	Linear	32V/3A x 2	D53-54
32	3	217	GPE-3323	3	LED	Linear	32V/3A x 2; 5V/5A x 1	D53-54
32	3	212	GPE-4323	4	LED	Linear	32V/3A x 2; 5V/1A x 1; 15V/1A x 1	D53-54
60	3	375	SPD-3606	3	LED	Switching	60V/3A x 2; 5V/3A x 1	D52
60	3	375	GPC-6030D	3	LED	Linear	60V/3A x 2; 5V/3A x 1	D56

Fanless Multi-Range D.C. Power Supply



NEW

PFR-100L



NEW

PFR-100M



FEATURES

- Constant Power Output for Fivefold Multi-Range(V&I) Operation
- Natural Convection Cooling Design (Fanless Structure)
- Preset Memory Function
- Output ON/OFF Delay Function
- CV, CC Priority Mode
- Adjustable Slew Rate For Voltage and Current
- Bleeder Circuit Control
- Protection : OVP, OCP, AC FAIL and OTP
- Support Front Panel and Rear Panel Output
- Built-in USB and RS-232/485 Interface
- Optional LAN+GPIB
- Web Server Monitoring and Control
- External Analog Control and Monitor Function
- Remote Sensing Function

Model	PFR-100L	PFR-100M
Output Channel	1	1
Output Voltage	0~ 50V	0~ 250V
Output Current	0~ 10A	0~ 2A
Rated Power	100W	100W

The PFR-100 series, a small and high-performance programmable D.C. power supply, adopts natural convection design to dissipate heat. The fanless structure allows users to focus on their experiments and tests in a quiet environment. Fanless power supply will not suck in dust and foreign objects, therefore, PFR-100 series has a longer life cycle compared with that of power supplies with fan.

The PFR-100 series is a power supply with a five-fold rated power that allows users to self-define voltage and current under rated power conditions so as to satisfy them with wider voltage and current operational ranges. PFR-100 series, with rated 100W, provides two models: PFR-100L- maximum output voltage of 50V (at 2A) or maximum output current of 10A (at 10V); PFR-100M- maximum output voltage of 250V (at 0.4A) or maximum output current of 2A (at 50V).

The PFR-100 series provides front and rear panel output terminals. The front panel output terminal helps users shorten test lead replacement time while conducting adjustment on front panel's function keys. The rear panel output terminal facilitates an easy wiring operation for rackmount assembly. 3U height, 70mm width and 2.5KG in weight have greatly elevated PFR-100 series portability. Furthermore, the multi-drop mode allows users to control up to 31 PFR-100 series without using switch/Hub that help users save the equipment cost.

The LAN interface for PFR-100 is Ethernet port. PFR-100 also has a built-in web server and intuitive user interface. Users, via general browsers including Internet Explorer, Mozilla Firefox or Android cellular phones, can monitor PFR-100's test and measurement anywhere. Users not only can remotely monitor PFR-100 via Internet, but also remotely observe and adjust their operating PFR-100s in the lab from your home. The outputs of PFR-100 series can be monitored including OVP, OCP, UVL; and the system information can be checked such as unit's serial number, firmware edition and internet setting. Users can remotely adjust PFR-100 settings, including output voltage/current, the slew rate for voltage/current, Bleeder circuit control, OCP, delayed time for output voltage and Buzzer settings.

The PFR-100 series provides special functionalities to meet test requirements for different load's characteristics. The CC priority mode can be applied for DUTs with diode characteristics to prevent DUT from being damaged by inrush current. A slow rise time for voltage can also protect DUT from inrush current, especially for tests on capacitive load. When power is off or load is disconnected, the activation of Bleeder circuit control will allow the bleeder resistor to consume filter capacitor's electricity. Without the bleed resistor, power supply's filter capacitor may still have electricity that is a potential hazard. For automatic testing equipment systems, the bleeder resistor allows PFR-100 series to rapidly discharge to prepare itself for the next operation.

SPECIFICATIONS

Model	PFR-100L		PFR-100M
OUTPUT RATING			
Rated Output Voltage	50V	250V	
Rated Output Current	10A	2A	
Rated Output Power	100W	100W	
REGULATION(CV)			
Load Regulation ([±] 2)	10mV	33mV	
Line Regulation ([±] 1)	3mV	5mV	
REGULATION(CC)			
Load Regulation ([±] 9)	10mA	3.2mA	
Line Regulation ([±] 1)	8mA	1.2mA	
RIPPLE & NOISE ([±] 3)			
Vp-p ([±] 4)	50mV	150mV	
Vr.m.s.([±] 5)	4mV	15mV	
A r.m.s.	10mA	2mA	
PROGRAMMING ACCURACY			
Voltage	0.1% of setting +	40mV	200mV
Current	0.2% of setting +	20mA	2mA
MEASUREMENT ACCURACY			
Voltage	0.1% of reading +	40mV	200mV
Current	0.2% of reading +	20mA	2mA
RESPONSE TIME			
Rise Time ([±] 6)	Rated load	50ms	100ms
Fall Time ([±] 7)	Rated load	100ms	200ms
	No load	500ms	1000ms
Transient Response Time ([±] 8)		1.5ms	2ms
PROGRAMMING RESOLUTION			
Voltage		2mV	10mV
Current		1mA	0.1mA
MEASUREMENT RESOLUTION			
Voltage		2mV	10mV
Current		1mA	0.1mA
PROTECTION FUNCTION			
Over Voltage Protection (OVP)	Setting range	5~55V	5~275V
Over Current Protection (OCP)	Setting range	1~11A	0.2~2.2A
Under Voltage Limit (UVL)	Setting range	0~52.5V	0~262.5V
Over Temperature Protection (OTP)	Operation	Turn the output off.	Turn the output off.
Low AC Input Protection (AC-Fail)	Operation	Turn the output off.	Turn the output off.
Power Limit (Power Limit)	Operation	Turn the output off.	Turn the output off.



PFR-Series

SPECIFICATIONS

Model	PFR-100L		PFR-100M
FRONT PANEL DISPLAY ACCURACY, 4 DIGITS			
Voltage	0.1% of reading +	40mV	200mV
Current	0.2% of reading +	20mA	2mA
ENVIRONMENT CONDITION			
Operating Temperature	0°C to 40°C		
Storage Temperature	-20°C to 70°C		
Operating Humidity	20% to 80% RH; No condensation		
Storage Humidity	20% to 85% RH; No condensation		
READBACK TEMP. COEFFICIENT(After A 30 Minute Warm-up)			
Voltage	100ppm/°C		
Current	200ppm/°C		
OTHER			
Analog Control	Yes		
Interface	USB, RS-232/RS-485; Factory option: LAN/GPIB		
AC Input	85~265VAC, 47~63Hz, single pahse		
DIMENSIONS & WEIGHT			
		70(W)x124(H)x300(D)mm; Approx. 2.5kg	

Note: *1: At 85 ~ 132Vac or 170 ~ 265Vac, constant load.
 *2: From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.
 *3: Measure with JETTA RC-9131B (1:1) probe
 *4: Measurement frequency bandwidth is 10Hz to 20MHz.
 *5: Measurement frequency bandwidth is 5Hz to 1MHz.
 *6: From 10%~90% of rated output voltage, with rated resistive load.
 *7: From 90%~10% of rated output voltage, with rated resistive load.
 *8: Time for output voltage to recover within 0.1% + 10mV of its rated output for a load change from 50 to 100% of its rated output current.
 *9: For load voltage change, equal to the unit voltage rating, constant input voltage.

ORDERING INFORMATION

PFR-100L Fanless Multi-Range D.C. Power Supply
PFR-100M Fanless Multi-Range D.C. Power Supply

ACCESSORIES :

CD(User Manual, Programming manual) x 1, Power cord, GTL-134 test lead, Accessory Packages
 GTL-104A test lead (for PFR-100L only), GTL-105A test lead (for PFR-100M only)

OPTIONAL ACCESSORIES

GTL-258 GPIB Cable, 2000mm
PSU-232 RS-232 Cable with DB9 Connector Kit
PSU-485 RS-485 Cable with DB9 Connector Kit
GTL-246 USB Cable (USB 2.0 Type A-TypeB Cable)
GRA-431-J-100/200 Rack mount Kit(JIS)with AC 100V/200V
GRA-431-E-100/200 Rack mount Kit(EIA)with AC 100V/200V
PFR-GL LAN+GPIB interface

PFR-100 Series Fanless Multi-Range D.C. Power Supply

PFR-100□ - GL - GTL-258

Model: L: 0-50V/10A/100W
 M: 0-250V/2A/100W
 Cable Options:
 GTL-258: A GPIB cable including 25 pins Micro-D connector
 PSU-232: An RS-232 cable including RJ-45 connector
 PSU-485: An RS-485 cable including RJ-45 connector
 GTL-246: A USB cable for TypeA-TypeB connectors
 None
 Interface Options:
 □: USB(Type B)& RS-232/RS-485(RJ-45 connector) as default
 GL: LAN & GPIB(25 pins Micro-D connector)

Rear Panel



GRA-431-J/E Rack Mount Kit(JIS/EIA)

For : PFR-Series



PSU-232 RS-232 Cable with DB9 Connector Kit



PSU-485 RS-485 Cable with DB9 Connector Kit



GTL-258 GPIB Cable, 2000mm



GTL-134 Test Lead



Fanless Multi-Range D.C. Power Supply

A. C.V/C.C PRIORITY MODE



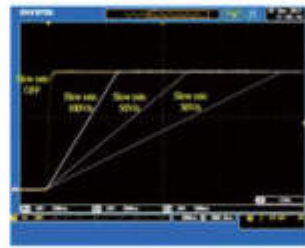
Under the conventional C.V mode, inrush current and surge voltage appeared at forward voltage (V_f) of LED



Under C.C priority mode, inrush and surge voltage are effectively restrained.

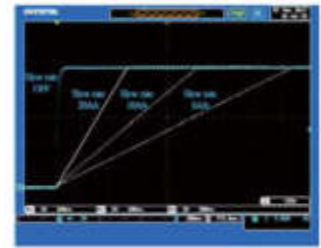
Under the application conditions of diode load, conventional power supplies under the C.V priority mode will produce inrush current and surge voltage at turn-on. The PFR-100 series has C.V and C.C priority modes. The C.C priority mode can prevent inrush current and surge voltage from occurring at turn-on to protect DUT.

B. ADJUSTABLE SLEW RATE



Adjustable Voltage Slew Rate

Voltage Slew Rate
0.1V~100.0V/sec (PFR-100L)
0.1V~500.0V/sec (PFR-100M)

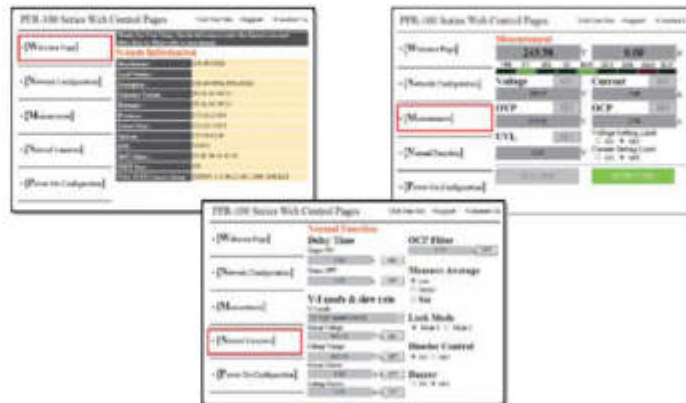


Adjustable Current Slew Rate

Current Slew Rate
0.01A~20.00A/sec (PFR-100L)
0.001A~4.000A/sec (PFR-100M)

The PFR-100 series can adjust slew rate for current and voltage. Via setting the rise and fall time of voltage and current, users can verify DUT's characteristics during voltage and current variation. Additionally, slew rate adjustment can mitigate voltage shift to effectively prevent DUT from being damaged by inrush current. This function is ideal for tests such as capacitive load and motor.

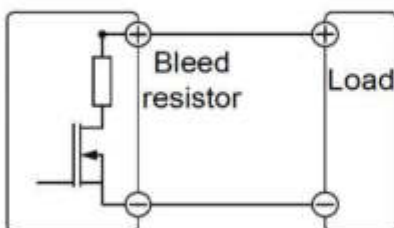
C. WEB SERVER REMOTE CONTROL FUNCTION



Users, via general browsers including Internet Explorer, Mozilla Firefox or Android cellular phones, can monitor PFR-100's test and measurement anywhere. Users not only can remotely monitor PFR-100 via internet, but also remotely observe and adjust your operating PFR-100 in the lab from your home. The outputs of PFR-100 can be monitored including OVP, OCP, UVL; and system

information can be checked such as unit's serial number, firmware edition and internet setting. Users can remotely adjust PFR-100 settings, including output voltage/current, the slew rate for voltage/current, Bleed circuit control, OCP, delayed time for output voltage and Buzzer settings.

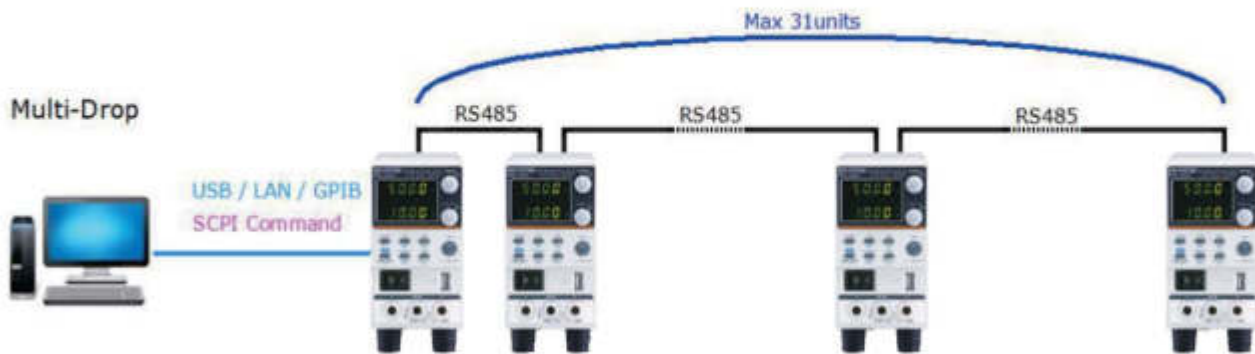
D. BLEEDER CIRCUIT CONTROL



PFR-100 Series Bleeder Circuit

The PFR-100 series power supply has a bleeder circuit control which is in parallel with the output terminal. When power is off or load is disconnected, the bleeder resistor will consume electricity from the filter capacitor. Without a bleed resistor, the filter capacitor of power could still be charged with electricity that poses a potential danger. In addition, for ATE system, bleed resistor allows the PFR-100 series to bleed current rapidly so as to prepare itself for the next operation.

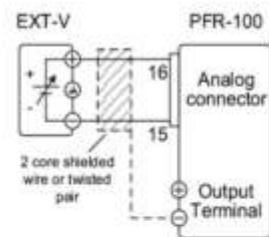
E REMOTE PROGRAM CONTROL (UP TO 31 UNITS CONNECTION)



Provide USB, GPIB and LAN for PC to remote control Master PFR-100. RJ-45 connector on the rear panel can connect up to 31 units. LAN or USB remote control and augmenting slave

units by using the multi-drop mode will no longer need any switch/hub that can help customers save equipment costs.

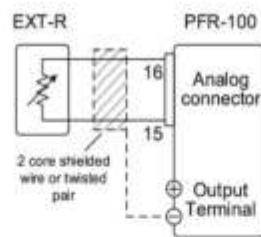
F EXTERNAL ANALOG CONTROL FUNCTION



Pin16 → EXT-V (+)
Pin15 → EXT-V (-)
Wire shield → negative (-) output terminal

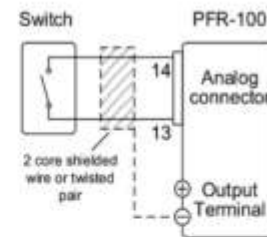
External Voltage Controls Voltage Range

The rear panel of the PFR-100 series has an analog control terminal. The external analog control interface allows external voltage or resistance to control voltage and current output; and allows power supply to output or to be turned on and off.



Pin16 → EXT-R
Pin15 → EXT-R
Wire shield → negative (-) output terminal

External Resistance Controls Voltage Range

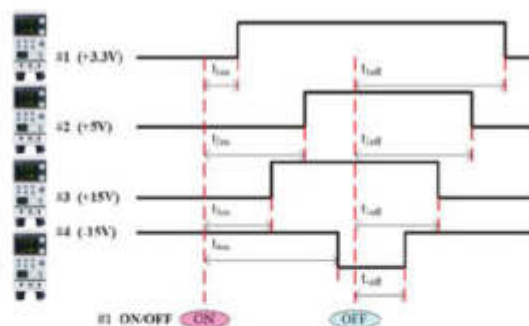


Pin14 → Switch
Pin13 → Switch
Wire shield → negative (-) output terminal

External ON-OFF To Control Output, ON or OFF

The diagram above shows typical connection methods for external control applications. For more detailed connection information please refer to user manual.

G OUTPUT ON/OFF DELAY



An Example of Output On/Off Delay Control Among Multiple Outputs of the PFR-100 units

The Output On/Off delay feature enables the setting of a specific time delay for output on after the power supply output is turned on, and a specific time delay for output off after the power supply output is turned off. When multiple PFR-100 units are used, the

On/Off delay time of each unit can be set respectively referring to fix time points. This multiple-output control can be done through the analog control terminal at rear panel or through the PC programming with standard commands.

Low Noise D.C. Power Supply



PLR 20-18/36-10/60-6



PLR 20-36/36-20/60-12



FEATURES

- * Output Voltage Rating : 20V/36V/60V
- * Output Power : 360W/720W
- * Low Ripple and Noise(0.5mVrms/10mArms)
- * Fast Transition Recovery Time(100μs)
- * Equipped Power Factor Correction Circuit for AC-input 100~240VAC
- * Maximum 2 units in Series Connections or 3 units in Parallel Connections
- * Select the Setting Digits for Voltage and Current(Coarse/Fine Volume Control)
- * Panel Lock Function/3 set of Preset Function
- * Output Off Timer Function(Range : 1 min to 1000 hours & 59mins)
- * CC Priority Function(Prevent Overshoot & Inrush Current)
- * Sequence Function of PC Editing (Max. : 1000 steps/Min. step Period : 50ms)
- * Protection : OVP, UVP, OCP, Remote Sensing(Terminal Open)
- * External Analog Control Function
- * PC Remote Interface : Standard : RS-232 ; Optional : GPIB/USB/LAN

GW Instek launches the new generation PLR-series programmable switching D.C. power supply. The single power output ranges are 360W and 720W. The series comprises 6 models and the voltage ranges are 20V, 36V and 60V. The PLR-series is a hybrid circuit design which incorporates front stage switching and rear stage linear architectures. The unique advantages of this design benefit from the combination of both switching and linear structures. The front stage switching structure can effectively reduce size and weight, and the rear stage linear structure can maintain lower ripple voltage, lower ripple current, and faster transient response.

The PLR-series features many functions, including three sets of user-defined Preset function; programmable automatic Output off timer function; programmable Sequence function; CV, CC priority activation functions (prevent overshoot and inrush current while output is turned on); External voltage and current output control and OVP, OCP and UVP functions. The above functions are built-in. Users do not have to pay for any extra costs.

The flexible allocation is one of the advantages of the PLR-series. For users require large output power, the PLR-series allows maximum 3 same model units in parallel connection to obtain larger output current, and maximum 2 same model units in series connection to obtain larger output voltage.

The PLR-series takes the consideration of the integration between its rack and other systems. Hence, the heat dissipation design adopts front air inlet and rear air outlet (there is no air outlet on the top, bottom, and on the both sides). The optional dedicated rack mount adapter (GRA-427) is for PLR-series to be rack mounted. Other equipment can be directly placed on top or under PLR-series to save rack space.

The PLR-series is equipped with RS-232 interface and also provides optional GPIB&USB (PLR-GU) and USB&LAN (PLR-LU). The program control of maximum 32 units can be realized by Local Bus no matter which interface is utilized. Additionally, the PLR-ARC interface not only provides external voltage and external resistance control but also meets the requirement of PLC control.

The PLR-series genuinely meets users' requirements of the new generation DC power supplies. The series, completely simplifying and expediting system development processes, is suitable for the R&D, design verification, and manufacturing of the semi-conductor equipment, automobile, component and communications industries.

SPECIFICATIONS

	PLR 20-18	PLR 20-36	PLR 36-10	PLR 36-20	PLR 60-6	PLR 60-12
OUTPUT RATING						
Voltage	0V – 20V	0V – 20V	0V – 36V	0V – 36V	0V – 60V	0V – 60V
Current	0 – 18A	0 – 36A	0 – 10A	0 – 20A	0 – 6A	0 – 12A
Power	360W	720W	360W	720W	360W	720W
REGULATION (CV)						
Load	3mA	3mA	3.8mA	3.8mA	5mA	5mA
Line	2mA	2mA	2.8mA	2.8mA	4mA	4mA
REGULATION (CC)						
Load	5mA	5mA	5mA	5mA	5mA	5mA
Line	5mA	10mA	1mA	5mA	1mA	5mA
RIPPLE & NOISE (Noise Bandwidth=20MHz ; Ripple Bandwidth = 1MHz)						
CV p-p	30mVp-p	30mVp-p	30mVp-p	30mVp-p	30mVp-p	30mVp-p
CV rms	0.5mVrms	0.5mVrms	0.5mVrms	0.5mVrms	0.5mVrms	0.5mVrms
CC rms	10mA rms	10mA rms	5mA rms	10mA rms	5mA rms	5mA rms
REDAKBACK ACCURACY (23°C±5°C, after 30 mins warm-up)						
Voltage	± (0.1%rdg+2digits)		± (0.1%rdg+2digits)		± (0.1%rdg+2digits)	
Current	± (0.5%rdg+2digits)		± (0.5%rdg+2digits)		± (0.5%rdg+2digits)	
Power	± (0.7%rdg+1.5%F.S.)		± (0.7%rdg+1.5%F.S.)		± (0.7%rdg+1.5%F.S.)	
SETTING ACCURACY (23°C±5°C, after 30 mins warm-up)						
Voltage	± (0.5%SET+0.5%F.S.)		± (0.5%SET+0.5%F.S.)		± (0.5%SET+0.5%F.S.)	
Current	± (1%SET+1%F.S.)		± (1%SET+1%F.S.)		± (1%SET+1%F.S.)	
RESPONSE TIME						
Raise Time (Output voltage: 10%→90%FS)	50ms/50ms: No load/ Rated load		50ms/50ms: No load/ Rated load		50ms/50ms: No load/ Rated load	
Fall Time(Full load) (Output voltage: 90%→10%FS)	50ms		50ms		150ms	
Fall Time(No load) (Output voltage: 90%→10%FS)	250ms		250ms		600ms	
Load Transient Recover Time (Load change from 50 to 100%)	100 μs		100 μs		100 μs	
SETTING RESOLUTION						
Voltage	10mV		10mV		10mV	
Current	10mA		10mA		10mA	
MEASUREMENT RESOLUTION						
Voltage	10mV		10mV		10mV	
Current	10mA		10mA		10mA	
SERIES AND PARALLEL CAPABILITY						
Parallel Operation	Up to 3 units		Up to 3 units		Up to 3 units	
Series Operation	Up to 2 units		Up to 2 units		Up to 2 units	



Rear Panel



PLR-Series

SPECIFICATIONS						
	PLR 20-18	PLR 20-36	PLR 36-10	PLR 36-20	PLR 60-6	PLR 60-12
PROTECTION FUNCTION						
OVP	Set range : 10% to 110% F.S. Set resolution: 10 times the minimum display resolution Activated when the output voltage exceeds the set OVP value : Hardware detection					
OCP	Set range : 5% to 110% F.S. Set resolution: 10 times of minimum display resolution Activated when the output current exceeds set OCP value : Software detection					
UVP	Set range : -1V to 110% F.S. Set resolution: 10 times the minimum display resolution Activated when the output voltage falls below the set UVP value : Software detection					
ENVIRONMENT CONDITION						
Operation Temp.	0°C ~ 40°C					
Storage Temp.	- 20°C ~ 60°C					
Operating Humidity	30% ~ 85% RH (No dew condensation)					
Storage Humidity	20% ~ 85% RH (No dew condensation)					
READ BACK TEMP. COEFFICIENT						
Voltage	±100ppm/°C					
Current	±100ppm/°C					
OTHER						
Power Consumption	570VA	1100VA	520VA	1050VA	510VA	1000VA
Power Factor	0.99	0.99	0.99	0.99	0.99	0.99
Cooling Method	Forced cooling : Fan speed proportionate to the temperature of the internal heat sink					
Power Source	Single-phase 100VAC to 240VAC, 50Hz to 60Hz					
Interface	Standard : RS-232C ; Optional : LAN/USB, GPIB/USB, External Analog Control					
Analog Control	Yes					
Dimension & Weight	PLR 20-18/PLR 36-10/PLR 60-6 : 139.5 (H) x 140(W) x 415.5(D); Approx. 5.2kg. PLR 20-36/PLR 36-20/PLR 60-12 : 139.5 (H) x 210(W) x 415.5(D); Approx. 7.5kg					

ORDERING INFORMATION

PLR 20-18	0-20V/0-18A/360W Low Noise DC Power Supply
PLR 20-36	0-20V/0-36A/720W Low Noise DC Power Supply
PLR 36-10	0-36V/0-10A/360W Low Noise DC Power Supply
PLR 36-20	0-36V/0-20A/720W Low Noise DC Power Supply
PLR 60-6	0-60V/0-6A/360W Low Noise DC Power Supply
PLR 60-12	0-60V/0-12A/720W Low Noise DC Power Supply

ACCESSORIES :

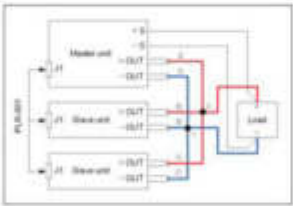
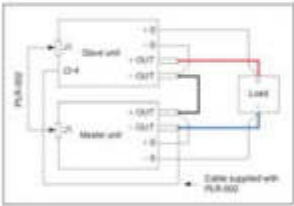
User Manual(CD) x 1, Power Cable x 1, Rear Output Terminal Cover x 1, Bolt set x 1(Hexagon head bolt P-3 x 2, Flat washer x 2, Hexagon nut x 2), Output grounding cable x 1, M4 Small Screw Washer x 1, M3 Small Screw Washer x 1, M3 Large Screw Washer x 2

OPTIONAL ACCESSORIES

PLR-GU	GPIB/USB Interface Card
PLR-LU	LAN/USB Interface Card
PLR-ARC	External Analog Control Interface Card
PLR-001	Parallel Connection Signal Cable(2-3 units)
PLR-002	Series Connection Signal Cable
GRA-427	Rack Mount Kit (EIA+JIS)
GTL-246	USB Cable (1.2m)
GTL-248	GPIB Cable (2.0m)
GRJ-1101	Modular Cable (0.5m)
GRJ-1102	Modular Cable (1.5m)

Low Noise D.C. Power Supply

A. SERIES AND PARALLEL CONNECTIONS (Voltage and Current Allocation Chart for Series and Parallel Operation)



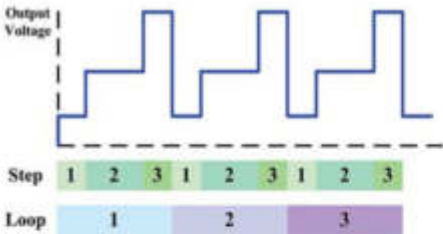
Series Connection Diagram Parallel Connection Diagram

To bring up the overall output power, the PLR-series supports same model units to be arranged in series operation for the maximum 2 units or in parallel operation for maximum 3 units.

Unit	Model	PLR 20-18	PLR 20-36	PLR 36-10	PLR 36-20	PLR 60-6	PLR 60-12
Single Unit Voltage/Current Allocation		20V/18A	20V/36A	36V/10A	36V/20A	60V/6A	60V/12A
2 units in Series Operation Voltage/Current Allocation		40V/18A	40V/36A	72V/10A	72V/20A	120V/6A	120V/12A
2 units in Parallel Operation Voltage/Current Allocation		20V/36A	20V/72A	36V/20A	36V/40A	60V/12A	60V/24A
3 units in Parallel Operation Voltage/Current Allocation		20V/54A	20V/108A	36V/30A	36V/60A	60V/18A	60V/36A

The series is very suitable for the power supply applications on D.C. power supply modules, electronic parts and components, and wafer plating equipment.

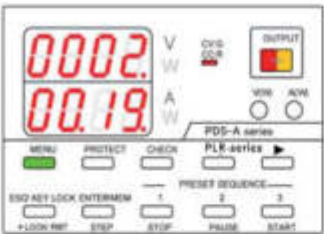
B. SEQUENCE FUNCTION



Example for the Sequence Operation

Before applying the sequence function, a series of different voltage, current and duration steps must be edited by a PC to make a sequence. CSV format, through RS-232C, LAN/USB (option) or GPIB/USB (option) interface, is transmitted to the memory of the PLR-series to sequentially execute steps consisting of voltage, current, and duration settings of the sequence. The shortest time for each step is 50ms and the maximum steps are 1000. The sequence function is to test DUT's response to the fast changing power supply that is one of the crucial verification items for electronic products' reliability tests.

D. OUTPUT OFF TIMER FUNCTION



Counting Down From 2hr and 20mins

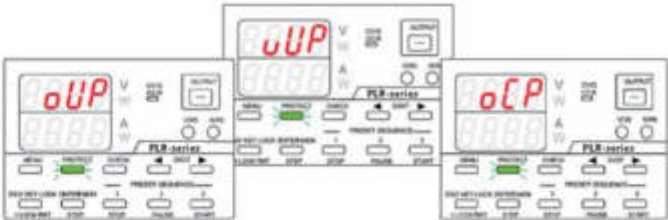
The output off timer function is to set the PLR-series to automatically turn off its output after a certain period of time. The shortest time setting is 1 minute. The setting range is from 1 minute to the maximum 1000 hours and 59 minutes. This function can only be activated when power supply output is being turned on.

C. PRESET FUNCTION



The PLR-series provides three parameter preset function keys on the front panel and each preset memory consists of parameters of output voltage and output current settings. Users via storing frequently used voltage and current parameters from the front panel to quickly save and recall parameters.

E. OVP, OCP AND UVP FUNCTIONS

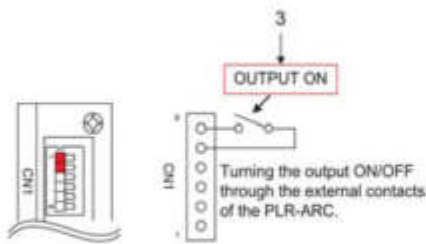


OVP (Over Voltage Protection) UVP (Under Voltage Protection) OCP (Over Current Protection)

When the voltage and current outputs exceed the preset conditions of OVP and OCP, the PLR-series will be shut down so as to prevent DUT from any damages.

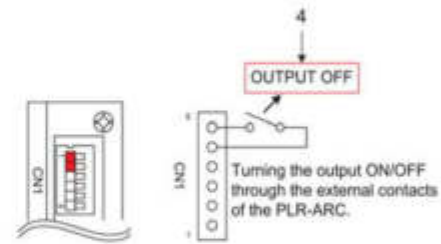
OCP : the setting range is 5%~110% of the rated output
OVP : the setting range is 10%~110% of the rated output
UVP : the setting range is 1V ~ 110% of the rated output

F. EXTERNAL ANALOG CONTROL FUNCTION



Turning the Output on by External Analog Control Interface

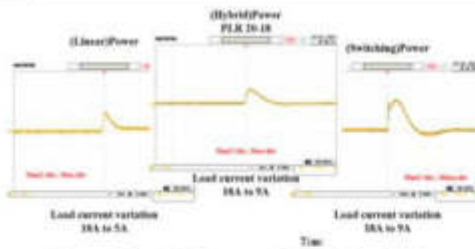
The rear panel of the PLR-series features analog control terminal which controls output voltage and current values through external voltage or resistance. The on and off of power supply output or main power disconnection can also



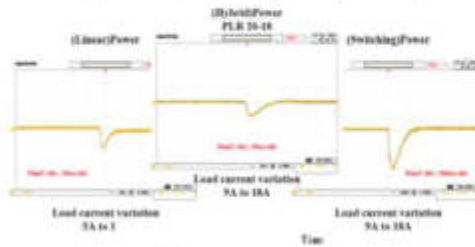
Turning the Output Off by External Analog Control Interface

be executed via external analog control interface. The above diagrams show the typical external analog control connection methods. For more connection information, please refer to the user manual.

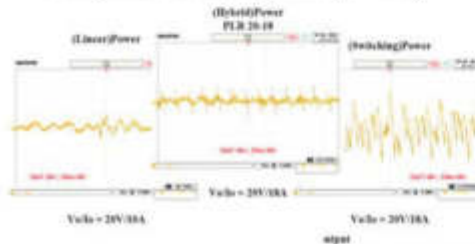
G. COMPARISONS ON TRANSIENT RECOVERY TIME CHARACTERISTICS



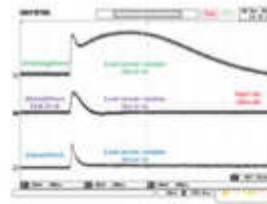
Comparison for Recovery Time ($V_o = 20V$)



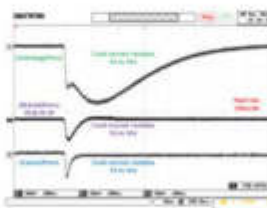
Comparison for Recovery Time ($V_o = 20V$)



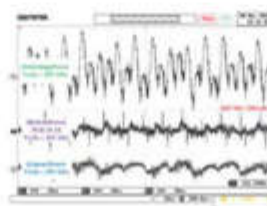
Ripple Comparison for Rating Power Output (Bandwidth : 1MHz)



Current Falling Comparison



Current Rising Comparison



Ripple Comparison for Rating Power Output

The PLR-series has a fast transient recovery capability, which is ideal for applications of large load current changes. The above diagrams show the actual comparative results of transient response time under different techniques.

H. FEATURE COMPARISONS

Operation	Linear Type Power Supply	PLR-series (Hybrid)	Switching Type Power Supply
Ripple & Noise for CV	0.35mVrms(Typ.)	$\leq 0.5mVrms$	7mVrms(Typ.)
Ripple & Noise for CC	< 2mArms(Typ.)	5mArms	72mArms(Typ.)
Recovery Time	< 50 μs (Typ.)	$\leq 100\mu s$	1ms(Typ.)
Series & Parallel Operation	—	✓	✓
External Analog Control Interface	—	Opt.	Std.
Interfaces	Std. : RS-232/GPIB	Std. : RS-232/Local bus Opt. : LAN/USB or GPIB/USB	Std. : USB/LAN Opt. : USB to GPIB, USB to RS-232
Power	200W	360W	360W
Dimensions (mm)	230(W) × 140(H) × 380(D)	140(W) × 124(H) × 364(D)	71(W) × 124(H) × 350(D)
Weight	10 kg	5.2 kg	3 kg
CE Certificate	✓	✓	✓

⊕ : Excellent
○ : Good
△ : Bad

Programmable Switching D.C. Power Supply (Multi-Range D.C. Power Supply)



PSW-Series



FEATURES

- ✧ Voltage Rating : 30V/80V/160V/250V/800V, Output Power Rating : 360W-1080W
- ✧ Multi-range Voltage & Current Combinations in One Power Supply
- ✧ C.V/C.C Priority ; Particularly Suitable for the Battery and LED Industry
- ✧ Adjustable Slew Rate
- ✧ Series Operation(2 units in Series)for(30V/80V/160V), Parallel Operation(3 units in Parallel) for (30V/80V/160V/250V/800V)
- ✧ High Efficiency and High Power Density
- ✧ 1/2, 1/3, 1/6 Rack Mount Size Design (EIA/JIS Standard) for 360W, 720W, 1080W
- ✧ Standard Interface : LAN, USB, Analog Control Interface
- ✧ Optional Interface : GPIB-USB Adaptor, RS232-USB Cable
- ✧ LabVIEW Driver



PSW 80-40.5 (0-80V, 0-40.5A, 1080W)



PSW 160-7.2 (0-160V, 0-7.2A, 360W)



PSW 80-13.5 (0-80V, 0-13.5A, 360W)

The PSW-Series is a single-output multi-range programmable switching DC Power Supply covering a power range up to 1080W. This series of products include fifteen models with the combination of 30V, 80V, 160V, 250V and 800V rated voltages and 360W, 720W and 1080W maximum output powers. The multi-range feature allows the flexible and efficient configuration of voltage and current within the rated power range. As the PSW-Series can be connected in series for maximum 2 units or in parallel for maximum 3 units, the capability of connecting multiple PSW-Series units for higher voltage or higher current output provides a broad coverage of applications. With the flexibility of multi-range power utilization and series/parallel connection, the PSW-Series significantly reduces the users' cost for various power supply products to accommodate the projects with different power requirements.

The C.V/C.C priority selection of the PSW-Series is a very useful feature for DUT protection. The conventional power supply normally operates under C.V mode when the power output is turned on. This could bring a high inrush current to the capacitive load or current-intensive load at the power output-on stage. Taking the I-V curve verification of LED as an example, it becomes a very challenging task to perform this measurement using a conventional power supply. With LED connected to a power supply under C.V mode as the initial setting, when the power output is turned on and the voltage rises to the LED forward voltage, the current will suddenly peak up and exceed the preset value of current limit. Upon detecting this high current, the power supply starts the transition from C.V mode to C.C mode. Though the current becomes stable after the C.C mode being activated, the current spike occurred at the C.V and C.C crossover point may possibly damage the DUT. At the power output-on stage, the PSW-Series is able to operate under C.C priority to limit the current spike occurred at the threshold voltage and therefore protects DUT from the inrush current damage.

The adjustable slew rate of the PSW-Series allows users to set for either output voltage or output current, a specific rise time from low to high level transition, and a specific fall time from high to low level transition. This facilitates the characteristic verification of a DUT during voltage or current level changes with controllable slew rates. Most manufacturing tests of lighting device or large capacitor during power output-on are associated with the occurrence of high surge current, which can greatly reduce the life time of the DUT. To prevent inrush current from damaging current-intensive devices, a smooth and slow voltage transition during power On-Off can significantly reduce the spike current and protect the device from high current damage.

The OVP and OCP are provided with the PSW-Series. Both OVP and OCP levels can be selected, with default level set at 110%, of the rated voltage/current of the power supply. When any of the protection levels is tripped, the power output will be switched off to protect the DUT. The PSW-Series provides USB Host/Device and LAN interfaces as standard, GPIB-USB adaptor and RS232-USB cable as optional. The LabView driver and the Data Logging PC software are supported on all the available interfaces. An analog control/monitoring connector is also available on the rear panel for external control of power On/Off and external monitoring of power output Voltage and Current.

PARALLEL OPERATION (3 UNITS)

MODEL	SINGLE UNIT	2 UNITS	3 UNITS
PSW 30-36	30V/36A	30V/72A	30V/108A
PSW 30-72	30V/72A	30V/144A	30V/216A
PSW 30-108	30V/108A	30V/216A	30V/324A
PSW 80-13.5	80V/13.5A	80V/27A	80V/40.5A
PSW 80-27	80V/27A	80V/54A	80V/81A
PSW 80-40.5	80V/40.5A	80V/81A	80V/121.5A
PSW 160-7.2	160V/7.2A	160V/14.4A	160V/21.6A
PSW 160-14.4	160V/14.4A	160V/28.8A	160V/43.2A
PSW 160-21.6	160V/21.6A	160V/43.2A	160V/64.8A
PSW 250-4.5	250V/4.5A	250V/9A	250V/13.5A
PSW 250-9	250V/9A	250V/18A	250V/27A
PSW 250-13.5	250V/13.5A	250V/27A	250V/40.5A
PSW 800-1.44	800V/1.44A	800V/2.88A	800V/4.32A
PSW 800-2.88	800V/2.88A	800V/5.76A	800V/8.64A
PSW 800-4.32	800V/4.32A	800V/8.64A	800V/12.96A

SERIES OPERATION (2 UNITS)

MODEL	SINGLE UNIT	2 UNITS
PSW 30-36	30V/36A	60V/36A
PSW 30-72	30V/72A	60V/72A
PSW 30-108	30V/108A	60V/108A
PSW 80-13.5	80V/13.5A	160V/13.5A
PSW 80-27	80V/27A	160V/27A
PSW 80-40.5	80V/40.5A	160V/40.5A
PSW 160-7.2	160V/7.2A	320V/7.2A
PSW 160-14.4	160V/14.4A	320V/14.4A
PSW 160-21.6	160V/21.6A	320V/21.6A
PSW 250-4.5	N/A	N/A
PSW 250-9	N/A	N/A
PSW 250-13.5	N/A	N/A
PSW 800-1.44	N/A	N/A
PSW 800-2.88	N/A	N/A
PSW 800-4.32	N/A	N/A

SPECIFICATIONS									
	PSW 30-36	PSW 30-72	PSW 30-108	PSW 80-13.5	PSW 80-27	PSW 80-40.5	PSW 160-7.2	PSW 160-14.4	PSW 160-21.6
OUTPUT RATING									
Voltage	0 ~ 30V	0 ~ 30V	0 ~ 30V	0 ~ 80V	0 ~ 80V	0 ~ 80V	0 ~ 160V	0 ~ 160V	0 ~ 160V
Current	0 ~ 36A	0 ~ 72A	0 ~ 108A	0 ~ 13.5A	0 ~ 27A	0 ~ 40.5A	0 ~ 7.2A	0 ~ 14.4A	0 ~ 21.6A
Power	360W	720W	1080W	360W	720W	1080W	360W	720W	1080W
REGULATION(CV)									
Load	20mV	20mV	20mV	45mV	45mV	45mV	85mV	85mV	85mV
Line	18mV	18mV	18mV	43mV	43mV	43mV	83mV	83mV	83mV
REGULATION(CC)									
Load	41mA	77mA	113mA	18.5mA	32mA	45.5mA	12.2mA	19.4mA	26.6mA
Line	41mA	77mA	113mA	18.5mA	32mA	45.5mA	12.2mA	19.4mA	26.6mA
RIPPLE & NOISE (Noise Bandwidth 20MHz; Ripple Bandwidth=1MHz)									
CV p-p	60mV	80mV	100mV	60mV	80mV	100mV	60mV	80mV	100mV
CV rms	7mV	11mV	14mV	7mV	11mV	14mV	12mV	15mV	20mV
CC rms	72mA	144mA	216mA	27mA	54mA	81mA	15mA	30mA	45mA
PROGRAMMING ACCURACY									
Voltage	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+100mV	0.1%+100mV	0.1%+100mV
Current	0.1%+30mA	0.1%+60mA	0.1%+100mA	0.1%+10mA	0.1%+30mA	0.1%+40mA	0.1%+5mA	0.1%+15mA	0.1%+20mA
MEASUREMENT ACCURACY									
Voltage	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+10mV	0.1%+100mV	0.1%+100mV	0.1%+100mV
Current	0.1%+30mA	0.1%+60mA	0.1%+100mA	0.1%+10mA	0.1%+30mA	0.1%+40mA	0.1%+5mA	0.1%+15mA	0.1%+20mA
RESPONSE TIME									
Raise Time	50ms	50ms	50ms	50ms	50ms	50ms	100ms	100ms	100ms
Fall Time(Full Load)	50ms	50ms	50ms	50ms	50ms	50ms	100ms	100ms	100ms
Fall Time(No Load)	500ms	500ms	500ms	500ms	500ms	500ms	1000ms	1000ms	1000ms
Load Transient Recover Time (Load change from 50~100%)	1ms	1ms	1ms	1ms	1ms	1ms	2ms	2ms	2ms
PROGRAMMING RESOLUTION (By PC Remote Control Mode)									
Voltage	1mV	1mV	1mV	2mV	2mV	2mV	3mV	3mV	3mV
Current	1mA	2mA	3mA	1mA	2mA	3mA	1mA	2mA	3mA
MEASUREMENT RESOLUTION (By PC Remote Control Mode)									
Voltage	1mV	1mV	1mV	2mV	2mV	2mV	3mV	3mV	3mV
Current	1mA	2mA	3mA	1mA	2mA	3mA	1mA	2mA	3mA
SERIES AND PARALLEL CAPABILITY									
Parallel Operation	Up to 3 units including the master unit								
Series Operation	Up to 2 units including the master unit								
PROTECTION FUNCTION									
OVP	3 ~ 33V	3 ~ 33V	3 ~ 33V	8 ~ 88V	8 ~ 88V	8 ~ 88V	16 ~ 176V	16 ~ 176V	16 ~ 176V
OCV	3.6 ~ 39.6A	5 ~ 79.2A	5 ~ 118.8A	1.35 ~ 14.85A	2.7 ~ 29.7A	4.05 ~ 44.55A	0.72 ~ 7.92A	1.44 ~ 15.84A	2.16 ~ 23.76A
OHP	Activated by elevated internal temperatures								
FRONT PANEL DISPLAY ACCURACY, 4 digits									
Voltage	0.1%±20mV	0.1%±20mV	0.1%±20mV	0.1%±20mV	0.1%±20mV	0.1%±20mV	0.1%±100mV	0.1%±100mV	0.1%±100mV
Current	0.1%±40mA	0.1%±70mA	0.1%±100mA	0.1%±20mA	0.1%±40mA	0.1%±50mA	0.1%±5mA	0.1%±30mA	0.1%±30mA
ENVIRONMENT CONDITION									
Operation Temp	0℃ ~ 50℃								
Storage Temp	-25℃ ~ 70℃								
Operating Humidity	20% ~ 85% RH; No condensation								
Storage Humidity	90% RH or Less; No condensation								
READ BACK TEMP COEFFICIENT									
Voltage	100ppm/℃ of rated output voltage : after a 30 minute warm-up								
Current	200ppm/℃ of rated output current : after a 30 minute warm-up								
OTHER									
Analog Control Interface	Yes								
Fan	USB/LAN/GPIB-USB(Optional)/RS232-USB(Optional)								
POWER SOURCE	With thermal sensing control								
	85VAC~265VAC, 47~63Hz, single phase								
DIMENSIONS & WEIGHT	71(W)x124(H) x350(D) mm ; Approx. 3kg	142(W)x124(H) x350(D) mm ; Approx. 5.3kg	214(W)x124(H) x350(D) mm ; Approx. 7.5kg	71(W)x124(H) x350(D) mm ; Approx. 3kg	142(W)x124(H) x350(D) mm ; Approx. 5.3kg	214(W)x124(H) x350(D) mm ; Approx. 7.5kg	71(W)x124(H) x350(D) mm ; Approx. 3kg	142(W)x124(H) x350(D) mm ; Approx. 5.3kg	214(W)x124(H) x350(D) mm ; Approx. 7.5kg

PSW-001 Accessory Kit



PSW-002 Simple IDC Tool



PSW-003 Contact Removal Tool

PSW-004 Basic Accessories Kit x 1
(for PSW 30V/80V/160V)

Programmable Switching D.C. Power Supply (Multi-Range D.C. Power Supply)

SPECIFICATIONS						
	PSW 250-4.5	PSW 250-9	PSW 250-13.5	PSW 800-1.44	PSW 800-2.88	PSW 800-4.32
OUTPUT RATING						
Voltage	0 ~ 250V	0 ~ 250V	0 ~ 250V	0 ~ 800V	0 ~ 800V	0 ~ 800V
Current	0 ~ 4.5A	0 ~ 9A	0 ~ 13.5A	0 ~ 1.44A	0 ~ 2.88A	0 ~ 4.32A
Power	360W	720W	1080W	360W	720W	1080W
REGULATION(CV)						
Load	130mV	130mV	130mV	405mV	405mV	405mV
Line	128mV	128mV	128mV	403mV	403mV	403mV
REGULATION(CC)						
Load	9.5mA	14mA	18.5mA	6.44mA	7.88mA	9.32mA
Line	9.5mA	14mA	18.5mA	6.44mA	7.88mA	9.32mA
RIPPLE & NOISE (Noise Bandwidth 20MHz; Ripple Bandwidth=1MHz)						
CV p-p	80mV	100mV	120mV	150mV	200mV	200mV
CV rms	15mV	15mV	15mV	30mV	30mV	30mV
CC rms	10mA	20mA	30mA	5mA	10mA	15mA
PROGRAMMING ACCURACY						
Voltage	0.1%+200mV	0.1%+200mV	0.1%+200mV	0.1%+400mV	0.1%+400mV	0.1%+400mV
Current	0.1%+5mA	0.1%+10mA	0.1%+15mA	0.1%+2mA	0.1%+4mA	0.1%+6mA
MEASUREMENT ACCURACY						
Voltage	0.1%+200mV	0.1%+200mV	0.1%+200mV	0.1%+400mV	0.1%+400mV	0.1%+400mV
Current	0.1%+5mA	0.1%+10mA	0.1%+15mA	0.1%+2mA	0.1%+4mA	0.1%+6mA
RESPONSE TIME						
Raise Time	100ms	100ms	100ms	150ms	150ms	150ms
Fall Time(Full Load)	150ms	150ms	150ms	300ms	300ms	300ms
Fall Time(No Load)	1200ms	1200ms	1200ms	2000ms	2000ms	2000ms
Load Transient Recover Time (Load change from 50~100%)	2ms	2ms	2ms	2ms	2ms	2ms
PROGRAMMING RESOLUTION (By PC Remote Control Mode)						
Voltage	5mV	5mV	5mV	14mV	14mV	14mV
Current	1mA	1mA	1mA	1mA	1mA	1mA
MEASUREMENT RESOLUTION (By PC Remote Control Mode)						
Voltage	5mV	5mV	5mV	14mV	14mV	14mV
Current	1mA	1mA	1mA	1mA	1mA	1mA
SERIES AND PARALLEL CAPABILITY						
Parallel Operation	3	3	3	3	3	3
Series Operation	N/A	N/A	N/A	N/A	N/A	N/A
PROTECTION FUNCTION						
OVP	20 ~ 275V	20 ~ 275V	20 ~ 275V	20 ~ 880V	20 ~ 880V	20 ~ 880V
OCP	0.45 ~ 4.95A	0.9 ~ 9.9A	1.35 ~ 14.85A	0.144 ~ 1.584A	0.288 ~ 3.168A	0.432 ~ 4.752
OHP	Activated by elevated internal temperatures					
FRONT PANEL DISPLAY ACCURACY (4 digits)						
Voltage	0.1%±200mV	0.1%±200mV	0.1%±200mV	0.1%±400mV	0.1%±400mV	0.1%±400mV
Current	0.1%±5mA	0.1%±10mA	0.1%±20mA	0.1%±2mA	0.1%±4mA	0.1%±6mA
ENVIRONMENT CONDITION						
Operation Temp	0℃ ~ 50℃					
Storage Temp	-25℃ ~ 70℃					
Operating Humidity	20% ~ 85% RH; No condensation					
Storage Humidity	90% RH or Less; No condensation					
READ BACK TEMP COEFFICIENT						
Voltage	100ppm/℃ of rated output voltage : after a 30 minute warm-up					
Current	200ppm/℃ of rated output current : after a 30 minute warm-up					
OTHER						
Analog Control Interface	Yes					
Fan	USB/LAN/GPIB(Optional)					
POWER SOURCE	With thermal sensing control					
DIMENSIONS & WEIGHT	85VAC~265VAC, 47~63Hz, single phase					
	71(W)x124(H) x350(D) mm ; Approx. 3kg	142(W)x124(H) x350(D)mm ; Approx. 5.3kg	214(W)x124(H) x350(D) mm ; Approx. 7.5kg	71(W)x124(H) x350(D) mm ; Approx. 3kg	142(W)x124(H) x350(D) mm ; Approx. 5.3kg	214(W)x124(H) x350(D) mm ; Approx. 7.5kg

PSW-005 Cable for 2 Units of PSW-Series in Series Mode Connection (for PSW 30V/80V/160V)



PSW-006 Cable for 2 Units of PSW-Series in Parallel Mode Connection



PSW-007 Cable for 3 Units of PSW-Series in Parallel Mode Connection



PSW-008 Basic Accessories Kit (for PSW 250V/800V)





PSW-Series

ORDERING INFORMATION

PSW 30-36	(0-30V/0-36A/360W) Multi-Range DC Power Supply
PSW 30-72	(0-30V/0-72A/720W) Multi-Range DC Power Supply
PSW 30-108	(0-30V/0-108A/1080W) Multi-Range DC Power Supply
PSW 80-13.5	(0-80V/0-13.5A/360W) Multi-Range DC Power Supply
PSW 80-27	(0-80V/0-27A/720W) Multi-Range DC Power Supply
PSW 80-40.5	(0-80V/0-40.5A/1080W) Multi-Range DC Power Supply
PSW 160-7.2	(0-160V/0-7.2A/360W) Multi-Range DC Power Supply
PSW 160-14.4	(0-160V/0-14.4A/720W) Multi-Range DC Power Supply
PSW 160-21.6	(0-160V/0-21.6A/1080W) Multi-Range DC Power Supply
PSW 250-4.5	(0-250V/0-4.5A/360W) Multi-Range DC Power Supply
PSW 250-9	(0-250V/0-9A/720W) Multi-Range DC Power Supply
PSW 250-13.5	(0-250V/0-13.5A/1080W) Multi-Range DC Power Supply
PSW 800-1.44	(0-800V/0-1.44A/360W) Multi-Range DC Power Supply
PSW 800-2.88	(0-800V/0-2.88A/720W) Multi-Range DC Power Supply
PSW 800-4.32	(0-800V/0-4.32A/1080W) Multi-Range DC Power Supply

ACCESSORIES

CD-ROM x 1 (Programming Manual, User Manual), GTL-123 Test Lead x 1 (for PSW 30V/80V/160V), Power Cord x 1 (Region dependent), GTL-240 USB Cable "L" Type x 1, PSW-004 Basic Accessories Kit x 1 (for PSW 30V/80V/160V), Includes: M4 Terminal screws and washers x 2, Air Filter x 1, Analog control protection dummy x 1, Analog control lock lever x 1, M8 terminal bolts, nuts and washers x 2.

PSW-008	Basic Accessories kit for PSW 250V/800V models
PSW-009	Output terminal cover for 30V/80V/160V models
PSW-011	Output terminal cover for 250V/800V models
PSW-012	High voltage output terminal for 250V/800V model

OPTIONAL ACCESSORIES

PSW-001	Accessory Kit
PSW-002	Simple IDC Tool
PSW-003	Contact Removal Tool
PSW-005	Cable for 2 Units of PSW-Series in Series Mode Connection (for PSW 30V/80V/160V)
PSW-006	Cable for 2 Units of PSW-Series in Parallel Mode Connection
PSW-007	Cable for 3 Units of PSW-Series in Parallel Mode Connection
GUG-001	GPIO to USB Adaptor
GRA-410-J	Rack Mount Kit (JIS)
GRA-410-E	Rack Mount Kit (EIA)
GET-001	Extended Terminal (for PSW 30V/80V/160V)
GET-002	Extended Terminal (for PSW 250V/800V)
GTL-130	Test lead: 2 x red, 2 x black (for PSW 250V/800V)
PSW-010	Large filter (Type II/III)
GTL-248	GPIO Cable, Double Shielded, 2000mm
GTL-250	GPIO Cable, Double Shielded, 600mm
CUR-001	USB to RS-232 Cable, 300mm

PSW-Series (LV) Rear Panel



PSW-Series (HV) Rear Panel



CUR-001 USB to RS-232 Cable (for PSW-Series, 300mm)



GUG-001 GPIO to USB Adaptor (for GDS-3000Series, PSW-Series)



GET-001 Extended Terminal (for PSW 30V/80V/160V)



GET-002 Extended Terminal (for PSW 250V/800V)



GTL-130 Test lead, 1200mm, 18AWG, UL 3239 (for PSW 250V/800V)



Programmable Switching D.C. Power Supply



PSU-Series



FEATURES

- * Voltage Output : 6V/12.5V/20V/40V/60V/100V/150V/300V/400V/600V
- * Power Output : 1200W ~ 1560W
- * C.V/C.C Priority Mode
- * Adjustable Voltage/Current Rise and Fall Time
- * Series/Parallel Connection : Max. 2 units (Models Under 300V)/4 units of The Same Model
- * High Efficiency and High Power Density
- * 1U Height and 19" Rack Mount Size
- * Three sets of Preset Function
- * Bleeder Control Function
- * Internal Resistance Function
- * Panel Lock Function
- * Protection : OVP, OCP, OHP, UVL, AC Fail, FAN Fail
- * Standard : USB, LAN, RS-232, RS-485, Analog Control
- * Option : GPIB, Isolated Analog Interface (Voltage Control/Current Control)

GW Instek PSU-HV series has five models, including PSU 100-15, PSU 150-10, PSU 300-5, PSU 400-3.8, and PSU 600-2.6. The launch of PSU-HV is to complete the existing PSU series so as to satisfy high voltage application demands, allowing the augmented PSU-series to cover a voltage range from 6V to 600V. PSU-HV inherits the functional design and maintains the high power density characteristic and 1U height appearance of the PSU-LV series (PSU 6-200, PSU 12.5-120, PSU 20-76, PSU 40-38 and PSU 60-25). Furthermore, the original maximum output voltage of 60V is expanded to the maximum voltage of 600V and the maximum power of 1560 watts. The launch of the PSU-HV series augments the existing PSU-series to fully satisfy the extensive voltage demands of 1U power supply market and provides system integrators with more flexibilities and selections to conduct system integration. The introduction of the PSU-HV series has perfected the PSU product line, which satisfies the application requirements ranging from low voltage and large current to high voltage.

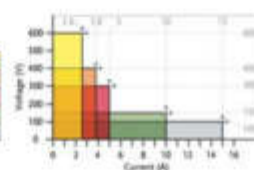
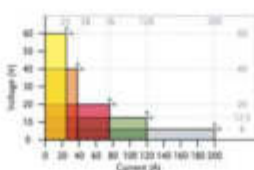
Utilizing same model units of the PSU-series to conduct series and parallel connections can increase total output power, total current or total voltage. The wide voltage and current output ranges of the PSU-series can fully satisfy various voltage and current measurement requirements. The PSU-series is a single power output DC programmable power supply, which outputs 1200W to 1560W. The PSU-series provides maximum 2 units in series connection (models under 300V) to achieve maximum 600V or 4 units in parallel connection to obtain maximum 800A and the maximum output power of 6.24 kilowatts.

The PSU-series allows settings for CC priority or CV priority. Under CC or CV mode, users can adjust slew rate for output voltage or current based upon test requirements. There are two kinds of slew rate settings: high speed priority and slew rate priority. High speed priority sets slew rate at the maximum speed to reach CC or CV mode. Slew rate priority allows users to set slew rate for CC or CV mode in order to control rise or fall slew rate. Slew rate priority mode is ideal for motor tests by adjusting the rise time of output voltage to protect DUT from being damaged by inrush current occurred at turn-on.

Comparing with other 1U power supplies available in the market, PSU supports a most complete array of interfaces, including USB, LAN, RS-232, RS-485, analog control interface, GPIB (option), isolated analog interface (voltage control), and isolated analog interface (current control). Via the multi-drop mode, PSU will not need any switch/hub and GPIB cable for remote control and slave unit augmentation when using LAN, USB or GPIB. This feature can help users save costs on augmentation equipment for connecting slave while using LAN or USB.

The new PSU-HV series is ideal for the primary input of DC/DC converter and servomotor production application. PSU is often integrated into component test systems such as aging test equipment for capacitors; 600V DC bias applications; aging test equipment for diode; semiconductor production equipment; automotive electronics; and ECU for V8 engine or V12 engine, etc.

The PSU-series provides users with flexible settings of High/Low Level or Trigger input /Trigger output signals with pulse width of 1 ~ 60ms. Trigger input controls PSU to output or upload preset voltage, current and memory parameters. While outputting or uploading preset voltage, current and memory parameters PSU can produce corresponding Trigger output signals.



Model Name	Voltage Rating	Current Rating	Power
PSU 6-200	6V	200A	1200W
PSU 12.5-120	12.5V	120A	1500W
PSU 20-76	20V	76A	1520W
PSU 40-38	40V	38A	1520W
PSU 60-25	60V	25A	1500W
PSU 100-15	100V	15A	1500W
PSU 150-10	150V	10A	1500W
PSU 300-5	300V	5A	1500W
PSU 400-3.8	400V	3.8A	1520W
PSU 600-2.6	600V	2.6A	1560W

1U Handle & Bracket



- Note :
- *1. Minimum voltage is guaranteed to maximum 0.2% of the rated output voltage.
 - *2. Minimum current is guaranteed to maximum 0.4% of the rated output current.
 - *3. At 85~132Vac or 170~265Vac, constant load.
 - *4. From No-load to Full-load, constant input voltage.
 - *5. Measured at the sensing point in Remote Sense.
 - *6. Measure with JEITA RC 9131 B (1:1) probe.
 - *7. Measurement frequency bandwidth is 10Hz~20MHz.
 - *8. Measurement frequency bandwidth is 5Hz~1MHz.
 - *9. From 10%~90% of rated output voltage, with rated resistive load.
 - *10. From 90%~10% of rated output voltage, with rated resistive load.
 - *11. Time for output voltage to recover within 0.5% of its rated output for a load change from 10~90% of its rated output current. Voltage set point from 10%~100% of rated output.
 - *12. For load voltage change, equal to the unit voltage rating, constant input voltage.
 - *13. For 6V model the ripple is measured at 2~6V output voltage and full output current.
 - *14. For other models, the ripple is measured at 10~100% output voltage and full output current.
 - *15. At rated output power.

SPECIFICATIONS											
MODEL		PSU 6-200	PSU 12.5-120	PSU 20-76	PSU 40-38	PSU 60-25	PSU 100-15	PSU 150-10	PSU 300-5	PSU 400-3.8	PSU 600-2.6
OUTPUT RATINGS											
Rated Output Voltage (*1)		6V	12.5V	20V	40V	60V	100V	150V	300V	400V	600V
Rated Output Current (*2)		200A	120A	76A	38A	25A	15A	10A	5A	3.8A	2.6A
Rated Output Power		1200W	1500W	1520W	1520W	1500W	1500W	1500W	1500W	1520W	1560W
RIPPLE AND NOISE(*5)											
CVp-p(10 ~ 20MHz) p-p (*6)		60mV	60mV	60mV	60mV	60mV	80mV	100mV	150mV	200mV	300mV
CVrms(5Hz ~ 1MHz) r.m.s. (*7)		8mV	8mV	8mV	8mV	8mV	8mV	10mV	25mV	40mV	60mV
CCrms(5Hz ~ 1MHz) r.m.s. (*12)		400mA	240mA	152mA	95mA	75mA	45mA	35mA	25mA	17mA	12mA
LOAD REGULATION											
Voltage(*4)		2.6mV	3.25mV	4mV	6mV	8mV	12mV	17mV	32mV	42mV	62mV
Current(*11)		45mA	29mA	20.2mA	12.6mA	10mA	8mA	7mA	6mA	5.76mA	5.52mA
LINE REGULATION											
Voltage(*3)		2.6mV	3.25mV	4mV	6mV	8mV	12mV	17mV	32mV	42mV	62mV
Current(*3)		22mA	14mA	9.6mA	5.8mA	4.5mA	3.5mA	3mA	2.5mA	2.38mA	2.26mA
ANALOG PROGRAMMING AND MONITORING											
External Voltage Control Output Voltage		Accuracy and linearity: ±0.5% of rated output voltage									
External Voltage Control Output Current		Accuracy and linearity: ±1% of rated output current									
External Resistor Control Output Voltage		Accuracy and linearity: ±1% of rated output voltage									
External Resistor Control Output Current		Accuracy and linearity: ±1.5% of rated output current									
Output Voltage Monitor		Accuracy: ±1%									
Output Current Monitor		Accuracy: ±1%									
Shutdown Control		Turns the output off with a LOW (0V to 0.5V) or short-circuit									
Output On/Off Control		Possible logic selections: Turn the output on using a LOW (0V to 0.5V) or short-circuit, turn the output off using a HIGH (4.5V to 5V) or open-circuit; Turn the output on using a HIGH (4.5V to 5V) or open-circuit, turn the output off using a LOW (0V to 0.5V) or short-circuit									
Alarm Clear Control		Clear alarms with a LOW (0V to 0.5V) or short-circuit									
CV/CC/ALM/PWR ON/OUT ON Indicator		Photocoupler open collector output; Maximum voltage 30V, maximum sink current 8mA									
Trigger Out		Maximum low level output = 0.8V; minimum high level output = 2V; Maximum source current = 8mA									
Trigger In		Maximum low level input voltage = 0.8V; minimum high level input voltage = 2V, Maximum sink current = 8mA									
FRONT PANEL											
Display, 4 digits, Voltage Accuracy 0.1%+ Current Accuracy 0.2%+		12mV 600mA	25mV 360mA	40mV 228mA	80mV 114mA	120mV 75mA	200mV 45mA	300mV 30mA	600mV 15mA	800mV 11.4mA	1200mV 7.8mA
Indications		GREEN LED's: CV, CC, V, A, VSR, ISR, DLY, RMT, LAN, M1, M2, M3, RUN, Output ON; RED LED's: ALM, ERR									
Buttons		Lock/Local(Unlock), PROT(ALM_CLR), Function(M1), Test(M2), Set(M3), Shift, Output									
Knobs		Voltage, Current									
USB Port		Type A USB connector									
Transient Response Time		1.5ms	1ms	1ms	1ms	1ms	1ms	2ms	2ms	2ms	2ms
OUTPUT RESPONSE TIME											
Rise Time(*8)	Rated load	80ms	80ms	80ms	80ms	80ms	150ms	150ms	150ms	200ms	250ms
	No load	80ms	80ms	80ms	80ms	80ms	150ms	150ms	150ms	200ms	250ms
Fall Time(*9)	Rated load	10ms	50ms	50ms	80ms	80ms	150ms	150ms	150ms	200ms	250ms
	No load	500ms	700ms	800ms	1000ms	1100ms	1500ms	2000ms	2500ms	3000ms	4000ms
PROGRAMMING AND MEASUREMENTS (RS-232/485, USB, LAN, GPIB)											
Output Voltage Programming Accuracy	0.05%+	3mV	6.25mV	10mV	20mV	30mV	50mV	75mV	150mV	200mV	300mV
Output Current Programming Accuracy	0.2%+	200mA	120mA	76mA	38mA	25mA	15mA	10mA	5mA	3.8mA	2.6mA
Output Voltage Programming Resolution		0.2mV	0.4mV	0.7mV	1.3mV	2mV	3.4mV	5.2mV	10.2mV	13.6mV	20.4mV
Output Current Programming Resolution		6mA	4mA	2.5mA	1.2mA	0.8mA	0.5mA	0.34mA	0.19mA	0.13mA	0.09mA
Output Voltage Measurement Accuracy	0.1%+	6mV	12.5mV	20mV	40mV	60mV	100mV	150mV	300mV	400mV	600mV
Output Current Measurement Accuracy	0.2%+	400mA	240mA	152mA	76mA	50mA	30mA	20mA	10mA	7.6mA	5.2mA
Output Voltage Measurement Resolution		0.2mV	0.4mV	0.7mV	1.3mV	2mV	3.4mV	5.2mV	10.2mV	13.6mV	20.4mV
Output Current Measurement Resolution		6mA	4mA	2.5mA	1.2mA	0.8mA	0.5mA	0.34mA	0.19mA	0.13mA	0.09mA
TEMPERATURE COEFFICIENT											
Voltage & Current		100ppm/°C after a 30 minute warm-up									
REMOTE SENSE COMPENSATION VOLTAGE(SINGLE WIRE)											
Voltage		1V	1V	1V	2V	3V	5V	5V	5V	5V	5V
PROTECTION FUNCTION											
Over Voltage Protection(OVP)	Setting Range	0.6~6.6V	1.25~13.75V	2~22V	4~44V	5~66V	5~110V	5~165V	5~330V	5~440V	5~660V
	Setting Accuracy	60mV	125mV	200mV	400mV	600mV	1000mV	1500mV	3000mV	4000mV	6000mV
Over Current Protection(OCp)	Setting Range	5~220A	5~132A	5~83.6A	3.8~41.8A	2.5~27.5A	1.5~16.5A	1~11A	0.5~5.5A	0.38~4.18A	0.26~2.86A
	Setting Accuracy	4000mA	2400mA	1520mA	760mA	500mA	300mA	200mA	100mA	76mA	52mA
Under Voltage Limit(UVL)	Setting Range	0~6.3V	0~13.12V	0~21V	0~42V	0~63V	0~105V	0~157.5V	0~315V	0~420V	0~630V
Over Temperature Protection(OHP)	Operation	Turn the output off.									
Incorrect Sensing Connection Protection(SENSE)	Operation	Turn the output off.									
Low AC Input Protection (AC-FAIL)	Operation	Turn the output off.									
Shutdown (SD)	Operation	Turn the output off.									
Power Limit (POWER LIMIT)	Operation	Over power limit									
	Value (Fixed)	Approx. 105% of rated output power									
INTERFACE CAPABILITIES											
USB		TypeA: Host, TypeB: Slave, Speed: 1.1/2.0, USB Class: CDC(Communications Device Class)									
LAN		MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask									
RS-232 / RS-485		Complies with the EIA232D / EIA485 Specifications									
GPIB (Factory Option)		SCPI - 1993, IEEE 488.2 compliant interface									
ISOLATED ANALOG CONTROL INTERFACE (FACTORY OPTION)											
Voltage Control		Using 0-5V or 0-10V signals for programming and measurement									
Current Control		Using 4-20mA current signals for programming and measurement									
ENVIRONMENTAL CONDITIONS											
Operating Temperature		0°C ~ 50°C									
Storage Temperature		-25°C ~ 70°C									
Operating Humidity		20% ~ 85% RH; No condensation									
Storage Humidity		90% RH or less; No condensation									
Altitude		Maximum 2000m									
INPUT CHARACTERISTICS											
Nominal Input Rating		100Vac to 240Vac, 50Hz to 60Hz, single phase									
Input Voltage Range		85Vac ~ 265Vac									
Input Frequency Range		47Hz ~ 63Hz									
Maximum Input Current	100Vac/200Vac(A)	21/11									
Inrush Current		Less than 50A									
Maximum Input Power		2000VA									
Power Factor	100Vac/200Vac	0.99/0.98									
Hold-up Time		20ms or greater									
Efficiency (*13)	100Vac/200Vac(%)	76.5/78.5	82.0/85.0	83.0/86.0	84.0/87.0	84.0/87.0	84.0/87.0	84.0/87.0	84.0/87.0	84.0/87.0	84.0/87.0
DIMENSIONS & WEIGHT											
		423(W) × 43.6(H) × 447.2(D)mm, Approx. 8.7kg									

Programmable Switching D.C. Power Supply

Rear Panel



PSU-Series

ORDERING INFORMATION

PSU 6-200	1200W Programmable Switching DC Power Supply
PSU 12.5-120	1500W Programmable Switching DC Power Supply
PSU 20-76	1520W Programmable Switching DC Power Supply
PSU 40-38	1520W Programmable Switching DC Power Supply
PSU 60-25	1500W Programmable Switching DC Power Supply
PSU 100-15	1500W Programmable Switching DC Power Supply
PSU 150-10	1500W Programmable Switching DC Power Supply
PSU 300-5	1500W Programmable Switching DC Power Supply
PSU 400-3.8	1520W Programmable Switching DC Power Supply
PSU 600-2.6	1560W Programmable Switching DC Power Supply

ACCESSORIES :

CD-ROM x 1 (User Manual, Programming Manual), Output terminal cover x 1, Analog connector plug kit x 1, Output terminal M8 bolt set (6V~60V model), Input terminal cover x 1, 1U Handle (RoHS), 1U Bracket (LEFT, RoHS), 1U Bracket (RIGHT, RoHS), Power Cord (10A) x 1

OPTIONAL ACCESSORIES

PSU-01B	Bus bar for 2 units in parallel connection	GTL-246	USB Cable, USB 2.0A-B Type Cable, 4P
PSU-01C	Cable for 2 units in parallel connection	GRM-001	Slide bracket 2pcs/set, PSU option
PSU-02B	Bus bar for 3 units in parallel connection	PSU-GPIB	GPIB Interface card (factory option)
PSU-02C	Cable for 3 units in parallel connection	GPW-001	UL/CSA power cord 3m, PSU option
PSU-03B	Bus bar for 4 units in parallel connection	GPW-002	VDE power cord 3m, PSU option
PSU-03C	Cable for 4 units in parallel connection	GPW-003	PSE power cord 3m, PSU option
PSU-232	RS232 Cable with DB9 connector kit	PSU-ISO-I	Isolate current remote control card (factory option)
PSU-485	RS485 Cable with DB9 connector kit	PSU-ISO-V	Isolate voltage remote control card (factory option)
PSU-01A	Joins a vertical stack of 2 PSU units together. 2U-sized handles x2, joining plates x2		
PSU-02A	Joins a vertical stack of 3 PSU units together. 3U-sized handles x2, joining plates x2		
PSU-03A	Joins a vertical stack of 4 PSU units together. 4U-sized handles x2, joining plates x2		

FREE DOWNLOAD

Driver LabView Driver

PSU-01B

Bus bar for 2 units in parallel connection



PSU-232

Rs232 Cable with DB9 connector kit



PSU-02C

Cable for 3 units in parallel connection



GPW-001

UL/CSA power cord 3m, PSU option



PSU-01A

Joins a vertical stack of 2 PSU units together. 2U-sized handles x2, joining plates x2



PSU-01C

Cable for 2 units in parallel connection



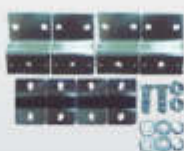
PSU-485

Rs485 Cable with DB9 connector kit



PSU-03B

Bus bar for 4 units in parallel connection



GPW-002

VDE power cord 3m, PSU option



PSU-02A

Joins a vertical stack of 3 PSU units together. 3U-sized handles x2, joining plates x2



PSU-02B

Bus bar for 3 units in parallel connection



GRM-001

Slide bracket 2pcs/set, PSU option



PSU-03C

Cable for 4 units in parallel connection



GPW-003

PSE power cord 3m, PSU option



PSU-03A

Joins a vertical stack of 4 PSU units together. 4U-sized handles x2, joining plates x2



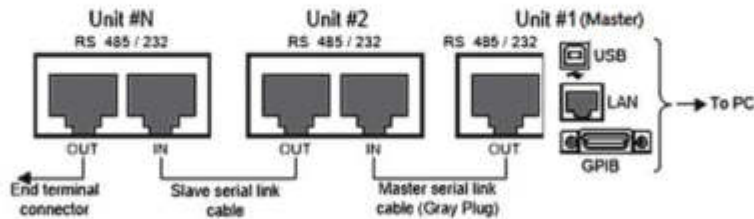
A. SERIES/PARALLEL OPERATION AND HIGH POWER DENSITY

Series Connection	1 unit	2 units	Parallel connection	1 unit	2 units	3 units	4 units
Height of Sets	1U	2U	Height of Sets	1U	2U	3U	4U
PSU 6-200	6V	12V	PSU 6-200	6V	6V	6V	6V
	200A	200A		200A	400A	600A	800A
PSU 12.5-120	12.5V	25V	PSU 12.5-120	12.5V	12.5V	12.5V	12.5V
	120A	120A		120A	240A	360A	480A
PSU 20-76	20V	40V	PSU 20-76	20V	20V	20V	20V
	76A	76A		76A	152A	228A	304A
PSU 40-38	40V	80V	PSU 40-38	40V	40V	40V	40V
	38A	38A		38A	76A	114A	152A
PSU 60-25	60V	120V	PSU 60-25	60V	60V	60V	60V
	25A	25A		25A	50A	75A	100A
PSU 100-15	100V	200V	PSU 100-15	100V	100V	100V	100V
	15A	15A		15A	30A	45A	60A
PSU 150-10	150V	300V	PSU 150-10	150V	150V	150V	150V
	10A	10A		10A	20A	30A	40A
PSU 300-5	300V	600V	PSU 300-5	300V	300V	300V	300V
	5A	5A		5A	10A	15A	20A
PSU 400-3.8	400V	—	PSU 400-3.8	400V	400V	400V	400V
	3.8A	—		3.8A	7.6A	11.4A	15.2A
PSU 600-2.6	600V	—	PSU 600-2.6	600V	600V	600V	600V
	2.6A	—		2.6A	5.2A	7.8A	10.4A

Remark : 1U → 43.6mm

To augment output power, the PSU-series can realize two-fold rated power (models under 300V) via 2 same model units in series connection; and four-fold rated power via 4 same model units in parallel connection so as to satisfy customers with large voltage and large current requirements. 2U height units in series connection can achieve maximum 600V output. 4U height units in parallel connection can output maximum 800A and 6240W.

B. REMOTE PROGRAM CONTROL (UP TO 31 UNITS CONNECTION)



Provide RS-232, RS-485, USB, GPIB and LAN for PC to remote control Master PSU-Series. RJ-45 connector on the rear panel can connect up to 31 units.

* For the detailed information please refer to User Manual

LAN or USB remote control and augmenting slave units by using PSU-Series multi-drop mode will no longer need any switch/hub that can help customers save equipment costs.

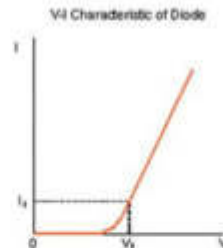
C. C.V/C.C PRIORITY MODE



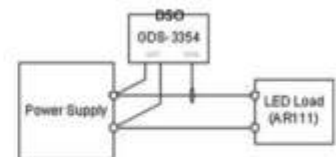
Under the conventional C.V mode, inrush current and surge voltage appeared at forward voltage (V_f) of LED.



Under C.C priority mode, inrush and surge voltage are effectively restrained.



V-I Characteristic of Diode



Using GDS-3354 DSO to Test LED Operation Under C.V Priority and C.C Priority Respectively

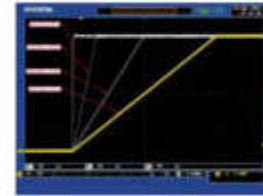
Conventional power supplies under the CV priority mode will produce inrush current and surge voltage at turn-on. The PSU-series has CV and CC priority modes.

The CC priority mode can prevent inrush current and surge voltage from occurring at turn-on to protect DUT.

Programmable Switching D.C. Power Supply

D. ADJUSTABLE SLEW RATE

VOLTAGE SLEW RATE	CURRENT SLEW RATE
0.001V~0.06V/msec (PSU 6-200)	0.001A~2A/msec (PSU 6-200)
0.001V~0.125V/msec (PSU 12.5-120)	0.001A~1.2A/msec (PSU 12.5-120)
0.001V~0.2V/msec (PSU 20-76)	0.001A~0.76A/msec (PSU 20-76)
0.001V~0.4V/msec (PSU 40-38)	0.001A~0.38A/msec (PSU 40-38)
0.001V~0.6V/msec (PSU 60-25)	0.001A~0.25A/msec (PSU 60-25)
0.001V~1.000V/msec (PSU 100-15)	0.001A~0.150A/msec (PSU 100-15)
0.001V~1.500V/msec (PSU 150-10)	0.001A~0.100A/msec (PSU 150-10)
0.001V~1.500V/msec (PSU 300-5)	0.001A~0.025A/msec (PSU 300-5)
0.001V~2.000V/msec (PSU 400-3.8)	0.001A~0.008A/msec (PSU 400-3.8)
0.001V~2.400V/msec (PSU 600-2.6)	0.001A~0.006A/msec (PSU 600-2.6)



Adjustable Voltage Slew Rate

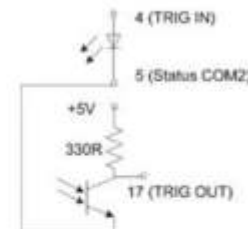
The PSU series can adjust slew rate for current and voltage. Via setting the rise and fall time of voltage and current, users can verify DUT's characteristics during voltage and current variation. Additionally, slew rate adjustment can mitigate voltage shift to effectively prevent DUT from being damaged by inrush current. This function is ideal for tests such as capacitive load and motor.

E. OVP, OCP AND UVL

PSU-Series	OCP	OVP	UVL
6-200	5 ~ 220	0.6 ~ 6.6	0 ~ 6.3
12.5-120	5 ~ 132	1.25 ~ 13.75	0 ~ 13.12
20-76	5 ~ 83.6	2 ~ 22	0 ~ 21
40-38	3.8 ~ 41.8	4 ~ 44	0 ~ 42
60-25	2.5 ~ 27.5	5 ~ 66	0 ~ 63
100-15	1.5 ~ 16.5	5 ~ 110	0 ~ 105
150-10	1 ~ 11	5 ~ 165	0 ~ 157.5
300-5	0.5 ~ 5.5	5 ~ 330	0 ~ 315
400-3.8	0.38 ~ 4.18	5 ~ 440	0 ~ 420
600-2.6	0.26 ~ 2.86	5 ~ 660	0 ~ 630

Once the voltage or current output exceeds the preset level of OVP or OCP, PSU will shut down output to protect DUT. UVL is for users to set the minimum output voltage from the output terminal.

F. TRIGGER CONTROL (TRIGGER INPUT/TRIGGER OUTPUT)



PSU-series provides users with complete trigger input and trigger output functions so as to flexibly control PSU-series. Each function is elaborated as follows.

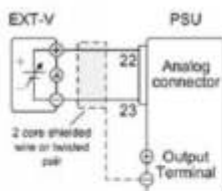
Trigger Input function :

1. Allow users to set the effective pulse width from 0~60ms for trigger input (0: the LOW or HIGH signal of DC level for trigger input)
2. Receive trigger input to control PSU-series output or to output preset voltage and current.
3. Receive trigger input to upload preset memory parameters.

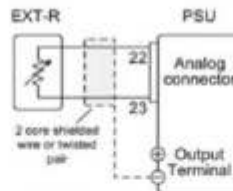
Trigger Output function :

1. Allow users to set the effective pulse width from 0~60ms for trigger output (0: the LOW or HIGH signal of DC level for trigger output)
2. Set LOW or HIGH for output DC level
3. PSU produces trigger output signal when setting output or changing preset value or uploading preset memory parameters.

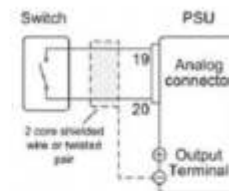
G. EXTERNAL ANALOG CONTROL FUNCTION



- Pin23 → EXT-V (-)
- Pin22 → EXT-V (+)
- Wire shield → negative (-) output terminal



- Pin22 → EXT-R
- Pin23 → EXT-R
- Wire shield → negative (-) output terminal



- Pin19 → Switch
- Pin20 → Switch
- Wire shield → negative (-) output terminal

External Voltage Controls Voltage Range

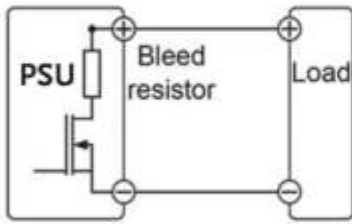
External Resistance Controls Voltage Range

External On-off to Control Output, on or off

The rear panel of the PSU-series has an analog control terminal. The external analog control interface allows external voltage or resistance to control voltage and current output; and allows power supply to output or to be turned on and off. The diagram on the upper shows typical connection methods for external control applications. For more detailed connection information please refers to user manual.



H. BLEEDER CONTROL



PSU-Series Built-in Bleed Resistor

The PSU-Series employs a bleed resistor in parallel with the output terminal. Bleed resistor is designed to dispatch the power from the power supply filter capacitors when power is turned off or the load is disconnected. Without a bleed resistor, power terminal may remain charged on the filter capacitors for some time and be potentially hazardous. In addition, bleed resistor also allows for smoother voltage regulation of the power supply as the bleed resistor acts as a minimum voltage load. The bleed resistance can be turned on or off using the configuration setting.

I. VARIOUS INTERFACES SUPPORT



1. Analog Control Interface
2. RS485/RS232 Interface for Remote Control
3. LAN Port for System Communication
4. USB Interface for Remote Control
5. GPIB Interface for Remote Control
6. Isolate Voltage Remote Control Card
7. Isolate Current Remote Control Card

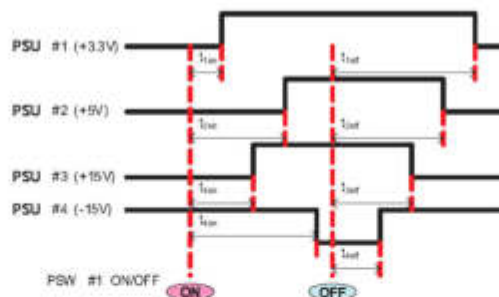
J. USING THE RACK MOUNT KIT



Rack Mount Kit for PSU-Series EIA & JIS

The rack mount kit of the PSU-Series supports both EIA and JIS standards. A standard rack can accommodate one unit of the PSU-Series.

K. OUTPUT ON / OFF DELAY



The Example of Output On/Off Delay Control Among Multiple Outputs of the PSU Units

The Output On/Off delay feature enables the setting of a specific time delay for output on after the power supply output is turned on, and a specific time delay for output off after the power supply output is turned off. When multiple PSU units are used, the On/Off

delay time of each unit can be set respectively referring to fix time points. This multiple-output control can be done through the analog control terminal at rear panel or through the PC programming with standard commands.

Programmable Switching D.C. Power Supply (Multi-range D.C. Power Supply)



PSB-2400L2



PSB-2400L/PSB-2400H/
PSB-2800L/PSB-2800H



PSB-2800LS



Note : PSB-2400H/PSB-2800H are not CE approved

FEATURES

- * Output Voltage Rating : 80V/800V, Output Power Rating : 400W ~ 800W
- * Constant Power Output for Multi-Range (V & I) Operation
- * Series and Parallel Operation (2 Units in Series or 4 Units in Parallel Maximum)
- * 90 Degree Angle Rotatable Control Panel
- * Sequence Function Edited by PC will be Controlled Through Power Supply Optional Interfaces
- * Standard Interface : RS-232C/USB/Analog Control Interface
- * Optional Interface : GPIB
- * Preset Function (3 Points)
- * LabVIEW Driver

The PSB-2000 Series is a high power density, programmable and multi-range output DC power supply. There are six models in the series including one power booster unit. The PSB-2000 Series has the output voltage of 0~80V and 0~800V, and the output power ranges of 0~400W and 0~800W. The multi-range output functionality facilitates flexible collocations of higher voltage and larger current under the rated power range. Both series and parallel connections can be applied to the PSB-2000 Series to fulfill the requirements of higher

The PSB-2000 Series provides three sets of preset function keys to memorize regularly used settings of voltage, current and power that users can recall rapidly. The sequence function, via RS232C, USB interface or optional GPIB interface, can connect with the computer to produce output power defined by sequence of a series of set voltage and current steps that are defined by the computer. This function is often used to establish a standard test procedure for the verification of the influence on DUTs done by the swiftly changing operating

The PSB-2000 Series protects over voltage and over current. The power supply output function will be shut down to protect DUTs while the protection mechanism is triggered to function. When conducting battery charging operation, the Hi-Ω mode of the PSB-2000 Series will prevent reverse current from damaging power supply.

The PSB-2000 Series provides analog control interfaces on the rear panel to control PSB-2000 Series output via the external voltage or to externally monitor voltage and current output status of power supply. The PSB-2000 Series panel can be rotated 90 degree angle suitable for vertical or horizontal position to accommodate the ideal space utilization.

SERIES OPERATION

MODEL NUMBER	SINGLE UNIT	TWO UNITS
PSB-2400L	80V/40A	160V/40A
PSB-2800L	80V/80A	160V/80A
PSB-2800LS (Booster Unit for PSB-2800L Only)	N/A	N/A
PSB-2400L2	N/A	N/A
PSB-2400H	N/A	N/A
PSB-2800H	N/A	N/A

PARALLEL OPERATION

MODEL NUMBER	SINGLE UNIT	TWO UNITS	THREE UNITS	FOUR UNITS
PSB-2400L	80V/40A	80V/80A	80V/120A	80V/160A
PSB-2800L	80V/80A	80V/160A	80V/240A	80V/320A
PSB-2800LS	N/A	80V/160A (PSB-2800L x 1 + PSB-2800LS x 1)	80V/240A (PSB-2800L x 1 + PSB-2800LS x 2)	N/A
PSB-2400L2	N/A	N/A	N/A	N/A
PSB-2400H	800V/3A	800V/6A	N/A	N/A
PSB-2800H	800V/6A	800V/12A	N/A	N/A

SPECIFICATIONS						
	PSB-2400L	PSB-2800L	PSB-2400L2	PSB-2400H	PSB-2800H	PSB-2800LS
OUTPUT RATING						
Voltage	0 ~ 80V	0 ~ 80V	0 ~ 80V x 2CH	0 ~ 800V	0 ~ 800V	80V
Current	0 ~ 40A	0 ~ 80A	0 ~ 40A x 2CH	0 ~ 3A	0 ~ 6A	80A
Power	400W	800W	800W	400W	800W	800W
REGULATION (CV)						
Load	0.01% ± 3mV of rated voltage			0.01% ± 30mV of rated voltage		N/A
Line	0.01% ± 2mV of rated voltage			0.01% ± 20mV of rated voltage		
REGULATION (CC)						
Load	0.02% ± 3mA of rated current			0.05% ± 15mA of rated current		N/A
Line	0.01% ± 2mA of rated current			0.05% ± 10mA of rated current		
RIPPLE & NOISE (Noise Bandwidth 20MHz ; Ripple Bandwidth=1MHz)						
CV p-p	90mV	150mV	90mV	250mV(only output voltage measures more than 1% of the rated voltage)	300mV(only output voltage measures more than 1% of the rated voltage)	N/A
CV rms	4mV	6mV	4mV	20mV(when current measures<2A) 35mV(when current measures>2A)	25mV(when current measures<2A) 40mV(when current measures>2A)	
CC rms	30mA	60mA	30mA	15mA	20mA	
PROGRAMMING ACCURACY						
Voltage	0.1% settings±2digits			0.1% settings±2digits		N/A
Current	0.2% settings±2digits			0.2% settings±2digits		
Power	± 10W			±10W (only output voltage measures more than 1% of rated voltage)		
READ BACK ACCURACY						
Voltage	0.2% readings±2digits			0.2% readings±2digits		N/A
Current	0.3% readings±2digits			0.3% readings±2digits		
Power	0.5% readings±5digits			0.5% readings±Vout x 40mA		
RESPONSE TIME						
Raise Time(Full load/No load)	50ms			200ms		N/A
Fall Time(Full load)	100ms			500ms		
Fall Time(No load)	500ms			1000ms		
Load Transient Recover Time (Load change from 50~100%)	1ms			7ms		
PROGRAMMING RESOLUTION						
Voltage	10mV			100mV		N/A
Current	10mA			10mA		
Power	10W			10W		
MEASUREMENT RESOLUTION						
Voltage	10mV			100mV		N/A
Current	10mA			10mA		
Power	10W			10W		
SERIES AND PARALLEL CAPABILITY						
Channel Number	1	1	2	1	1	For PSB-2800L Only
Series Operation	Up to 2 Units	Up to 2 Units	N/A	N/A	N/A	
Parallel Operation	Up to 4 Units	Up to 4 Units	N/A	Up to 2 Units	Up to 2 Units	
Parallel with booster PSB-2800LS	N/A	Up to 3 Units	N/A	N/A	N/A	
PPROTECTION FUNCTION						
OVP (Fixed)	Output off when 110% of rated voltage			Output off when output voltage exceeds 110% of rated voltage		N/A
OVP (Variable)	Output off when operating; Setting range:1V~84V with front panel			Presettable in range from 10V ~ 840V om front panel		
OCV (Fixed)	Output off when 110% of rated current			Output off when output voltage exceed 110% of rated current		
OCV (Variable)	Output off when operating;Setting range:1A~42A(84A for model number)			Presettable in range from 0.1A ~ 6.30A om front panel		
OHP	Output off above heat sink setting temperature			Output off at the internal heat sink temperature over setting value		
ENVIRONMENT CONDITION						
Operation Temp	0°C ~ 40°C					N/A
Storage Temp	-20°C ~ 70°C					
Operating Humidity	30% ~ 80% RH (no dew condensation)					
Storage Humidity	30% ~ 80% RH (no dew condensation)					
OTHER						
Inrush Current	35A Max	70A Max	70A Mmax	35A Max	70A Max	70A Max
Power Consumption/Factor	560VA/0.99	1120VA/0.99	1120VA/0.99	560VA/0.99	1120VA/0.99	1120VA/0.99
Cooling Method	Forced air-cooling with fan motor					
Power Source	100VAC ~ 240VAC, 50/60Hz, Single phase					
Interface (Standard)	RS-232C/USB					
Interface (Optional)	GPIB					
Analog Control	Yes					
DIMENSIONS & WEIGHT						
	210(W) x 124(H) x 290(D)mm					
	Approx.5kg	Approx.7kg	Approx.7kg	Approx. 5kg	Approx. 6kg	Approx. 7kg

Programmable Switching D.C. Power Supply (Multi-range D.C. Power Supply)



PSB-2400L2



**PSB-2400L/PSB-2400H/
PSB-2800L/PSB-2800H**



PSB-2800LS

Rear Panel



PSB-003 Parallel Connection Kit for Horizontal Installation



PSB-004 Parallel Connection Kit for Vertical Installation



PSB-001 GPIB Control Board



PSB-005 Parallel Connection Signal Cable



GRJ-1101 Modular Cable



PSB-006 Series Connection Signal Cable



PSB-008 RS-232C Cable (PSB-2000 Only)



PSB-007 Joint Kit



ORDERING INFORMATION

PSB-2400L	0~80V/0~40A/400W Multi-Range DC Power Supply
PSB-2800L	0~80V/0~80A/800W Multi-Range DC Power Supply
PSB-2400L2	0~80V x 2/0~40A x 2/800W Multi-Range DC Power Supply
PSB-2400H	0~800V/0~3A/400W Multi-Range DC Power Supply
PSB-2800H	0~800V/0~6A/800W Multi-Range DC Power Supply
PSB-2800LS	800W Slave (Booster) Unit For Current Extension Only

ACCESSORIES :

User Manual (CD) x 1, AC Power Cord x 1, External Control Connector (26pin), Screws for output terminals on rear panel, Protection covers for output terminals on rear panel, Protection caps for output terminals on the front panel, GND Cable, USB Cable (For Model Number : PSB-2400L; PSB-2800L; PSB-2400L2; PSB-2400H; PSB-2800H) Local Bus (For Model Number : PSB-2400L; PSB-2800L; PSB-2400L2; PSB-2400H; PSB-2800H)

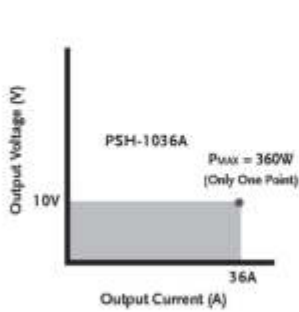
OPTIONAL ACCESSORIES

PSB-001	GPIB Card	CTL-246	USB Cable
PSB-003	Parallel Connection Kit for Horizontal Installation. Kit Includes : (PSB-007 Joint Kit, Horizontal bus bar x 2, PSB-005 x1)	CTL-248	GPIB Cable
PSB-004	Parallel Connection Kit for Vertical Installation. Kit Includes : (PSB-007 Joint Kit, Vertical bus bar x 2, PSB-005 x 1)	GRJ-1101	Modular Cable
PSB-005	Parallel Connection Signal Cable	GRA-424	Rack Mount Kit
PSB-006	Series Connection Signal Cable		
PSB-007	Joint Kit : Includes 4 Joining Plates, (M3x6)screws x 4 ; (M3x8) screw x 2		
PSB-008	RS232C Cable (PSB-2000 Only)		

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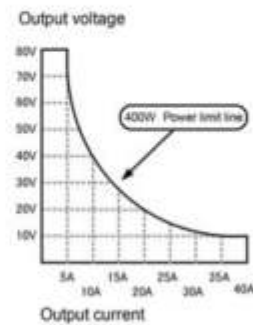
Driver Labview Driver

A. MULTI-RANGE OUTPUT OPERATION



The operation area of a Conventional Power Supply

Compared with the maximum power output of the conventional power supply that is calculated by the maximum output voltage multiplies by the maximum output current, the PSB-2000 series, defying the formula, has a unique characteristic of multi-range output (voltage and current). This distinguishing feature, under the same maximum power output range, can output a higher voltage with a smaller current and vice versa. For instance, for a conventional power supply with a maximum power output of 360W, the maximum voltage and current outputs are likely to be



The operation area of a Multi-Range Power Supply for PSB-2000 Series

10V and 36A respectively. Comparatively, PSB-2400L, with the maximum power output of 400W, provides voltage and current output ranges of 0~80V and 0~40A. The maximum current of 5A will be provided when the voltage reaches 80V and the maximum voltage of 10V for the maximum current of 40A. PSB-2400L, breaking the limitation of $P_{max} = V_{max} \times I_{max}$, broadens voltage and current application ranges. The following diagrams illustrate the voltage and current comparison between the multi-range output power supply and the conventional power supply.

B. PRODUCTS IN THE SERIES

There are six models in the PSB-2000 Series. Model type, output voltage, output current and output power are as follows :

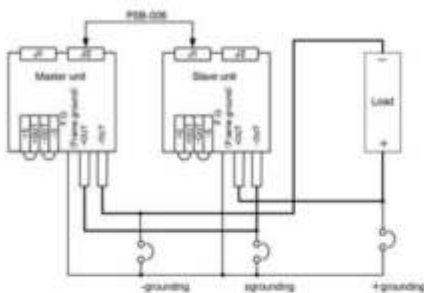
MODEL	PSB-2400L	PSB-2800L	PSB-2400L2	PSB-2400H	PSB-2800H	PSB-2800LS*
Channel Number	1	1	2	1	1	NA
Voltage Rating**	0 ~ 80V	0 ~ 80V	0 ~ 80V x 2CH	0 ~ 800V	0 ~ 800V	80V
Current Rating***	0 ~ 40A	0 ~ 80A	0 ~ 40A x 2CH	0 ~ 3A	0 ~ 6A	80A
Output Power (Max.)	400W	800W	800W	400W	800W	800W

* PSB-2800LS, a booster unit acting as slave to extend current, can not operate alone. It must operate with PSB-2800L master.

** The maximum current under the highest output voltage is power/voltage. For instance, when PSB-2400L outputs 80V the maximum current is $400W/80V = 5A$.

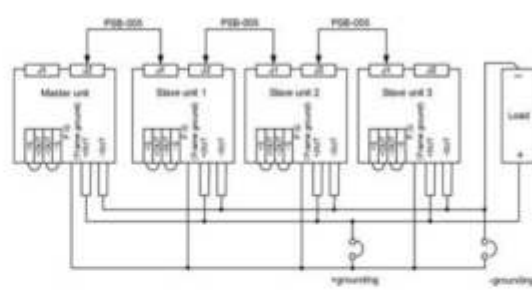
*** Same as above. When PSB2400L outputs 40A the highest voltage is $400W/40A = 10V$.

C. SERIES AND PARALLEL CONNECTIONS



Series Connection

Hence, the PSB-2000 Series, with its multi-range output function and the power extension capability of series and parallel connections, is the high power density and high performance to cost ratio DC power supply, which provides



Parallel Connection

a wider range of power applications for any limited equipment space. The PSB-2000 Series is an ideal selection for testing DC power supply module, automobile lithium and lithium iron battery and electronic parts.

Programmable Multi-Range D.C. Power Supply



PSB-1000 Series



FEATURES

- * LCD Display and User-Friendly Menu-Typed Functional Interface
- * Voltage Rating : 40V/160V, Output Power Rating : 400W/800W
- * Constant Power Output for Multi-Range(V & I) Operation
- * The I/V Control Functions(Adjustable Slew Rate) are Suitable for Diode Characteristic Load & Surge Reducing
- * Sequence Function for Sequential D.C. Waveform Output
- * C.V/C.C Priority
- * Auto Run for Output or Sequence Function
- * Master-Slave Operation : 2 Units in Series/ 4 Units in Parallel
- * Synchronized Operation(Voltage Trigger, Trigger In/Trigger Out Signal)
- * Standard Interface : USB Host, LAN; Option : GPIB
- * Internal Sense Control(Disable/Front Panel/ Rear Panel)Function
- * LabVIEW Driver

PSB-106 Basic accessory kit :

M4 Terminal screws and washers x 2,
M8 Terminal bolts, Nuts and washers x 2,
Analog control protection dummy x 1,
Analog control lock level x 2, Short bar x 1



PSB-1000 is a series of Multi-Range DC Power Supply, whose maximum voltage output of 320V can be realized by placing 2 sets of 160V units in series connection. By connecting 4 sets of PSB-1800L units in parallel, the maximum current output of 320A can be achieved.

The PSB-1000 series is a bench-top power supply featuring user friendly interface, which can clearly display setting conditions and measurement results via LCD display and menu-typed functionality selection without referring to the user manual. All settings can be done by functionality keys, numerical keys, and speed dial keys. The 30A output capability from the front output terminal of the PSB-1000 series can better meet the requirements of laboratories and scientific R&D departments.

The PSB-1000 series features user friendly menu-typed functionality interface and its built-in functionalities can better meet industry's application requirements. Both front panel and rear panel output terminals of the PSB-1000 series facilitate researchers to access power output conveniently. The display panel adopts menu-typed functionality selection to help users quickly familiarize with settings and operation that is extremely suitable for on-site engineers and R&D engineers who deal with complicated functional setting requirements. Power On Configuration allows users to select previously set SEQ to carry out automatic execution as soon as power is turned on. For production lines demanding sequential power supply output application requirements, tremendous time can be saved by this function, which exempts users from resetting sequential power supply when power is turned on every single time.

Voltage Trigger allows users to set pulse signals for leading edge threshold and trailing edge threshold. VOLT TRIG can be applied to Automatic test system by providing output time for working voltage via BNC adapter. The Output Delay function facilitates users to respectively set action time for power output on and power output off for multiple sets of PSB-1000 so as to realize sequential power output applications.

The PSB-1000 series is equipped with multi range power output capability providing fourfold rated power output to meet customers' flexible application requirements.

SPECIFICATIONS

Model Name	PSB-1400L	PSB-1400M	PSB-1800L	PSB-1800M
OUTPUT RATING				
Output Voltage(V)	0-40	0-160	0-40	0-160
Output Current(A)	0-40	0-10	0-80	0-20
Output Power(W)	400W	400W	800W	800W
REGULATION (CV)				
Load Regulation (mV)	25	85	25	85
Line Regulation (mV)	23	83	23	83
REGULATION (CC)				
Load Regulation (mA)	45	15	85	25
Line Regulation (mA)	45	15	85	25
RIPPLE & NOISE (Noise Bandwidth 20MHz ; Ripple Bandwidth = 1MHz)				
CV p-p	60	60	80	80
CV rms	7	12	11	15
CC rms	80	20	160	40
PROGRAMMING ACCURACY				
Voltage (mV) 0.1% +	10	50	10	50
Current (mA) 0.1% +	20	10	40	20
MEASUREMENT ACCURACY				
Voltage (mV) 0.1% +	10	50	10	50
Current (mA) 0.1% +	20	10	40	20
RESPONSE TIME				
Raise Time (ms)	50	100	50	100
Fall Time(Full load) (ms)	50	150	50	150
Fall Time(No load) (ms)	500	1200	500	1200
Load Transient Recover Time(ms) (Load change from 50 to 100%)	1	1	1	1
PROGRAMMING RESOLUTION (By PC Remote Control Mode)				
Voltage (mV)	1	3	1	3
Current (mA)	1	1	2	1
MEASUREMENT RESOLUTION (By PC Remote Control Mode)				
Voltage (mV)	1	3	1	3
Current (mA)	1	1	2	1
SERIES AND PARALLEL CAPABILITY				
Parallel Operation	Up to 4 units including the master unit			
Series Operation	Up to 2 units including the master unit			
PPROTECTION FUNCTION				
OVP (V)	4-44	5-176	4-44	5-176
OCP (A)	4-44	1-11	5-88	2-22
OHP	Turn the output off.	Turn the output off.	Turn the output off.	Turn the output off.



PSB-1000 Series

SPECIFICATIONS

Model Name		PSB-1400L	PSB-1400M	PSB-1800L	PSB-1800M
FRONT PANEL DISPLAY ACCURACY (4 Digits)					
Voltage (mV)	0.1% +	20	100	20	100
Current (mA)	0.1% +	20	10	40	20
ENVIRONMENT CONDITION					
Operation Temp	0°C ~ 40°C				
Storage Temp	-25°C ~ 70°C				
Operating Humidity	20% ~ 85% RH; No condensation				
Storage Humidity	90% RH or less; No condensation				
OTHER					
Analog Control	Yes				
Interface	USB/LAN/GPIB(Optional)				
Power Source	100Vac ~ 240Vac, 50Hz ~ 60Hz, single phase				
Dimension	214(W)×124(H)×350(D) mm				
Weight					
	Approx. 5.2kg	Approx. 5.2kg	Approx. 6.8kg	Approx. 6.8kg	

ORDERING INFORMATION

PSB-1400L	40V/40A/400W Programmable Multi-Range D.C. Power Supply
PSB-1400M	160V/10A/400W Programmable Multi-Range D.C. Power Supply
PSB-1800L	40V/80A/800W Programmable Multi-Range D.C. Power Supply
PSB-1800M	160V/20A/800W Programmable Multi-Range D.C. Power Supply

ACCESSORIES :

CD ROM (User Manual, Programming Manual) x 1, Power cord for UL/CSA or PSE (Region dependent), Output terminal cover, Type A-B USB cable, PSB-106 Basic accessory kit : M4 terminal screws and washers x 2, M8 Terminal bolts, Nuts and washers x 2, Analog control protection dummy x 1, Analog control lock level x 2, Short bar x 1

OPTIONAL ACCESSORIES

PSW-001	Analog remote control connector kit
PSW-002	Simple IDC tool
PSW-003	Contact removal tool
PSB-101	Cable for 2 units of PSB-1000 in parallel connection
PSB-102	Cable for 3 units of PSB-1000 in parallel connection
PSB-103	Cable for 4 units of PSB-1000 in parallel connection
PSB-104	Cable for 2 units of PSB-1000 in series connection
PSB-105	GPIB card
PSB-106	Basic accessory kit : M4 Terminal screws and washers x 2, M8 Terminal bolts, Nuts and washers x 2, Analog control protection dummy x 1, Analog control lock level x 2, Short bar x 1
GRA-418-J	Rack Mount Kit (JIS)
GRA-418-E	Rack Mount Kit (EIA)
CTL-123	Test leads: 1x red, 1x black

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Driver	Labview Driver
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Rear Panel



PSB-101 Cable for 2 units of PSB-1000 in parallel connection



PSB-102 Cable for 3 units of PSB-1000 in parallel connection



PSB-103 Cable for 4 units of PSB-1000 in parallel connection



PSB-104 Cable for 2 units of PSB-1000 in series connection



Programmable Switching D.C. Power Supply



PSH-Series



FEATURES

- * Wide Input Voltage Range and High Power Factor (P.F)
- * High Efficiency and High Power Density
- * Constant Voltage and Constant Current Operation
- * Over Voltage, Over Current and Over Temperature Protection
- * Self-Test and Software Calibration
- * Output ON/OFF Control
- * Low Ripple and Noise
- * LCD Display
- * Built-in Buzzer Alarm
- * Standard Interface : RS-232C
- * Optional Interface : GPIB (IEEE-488.2)
- * LabVIEW Driver

Rear Panel



The PSH-Series is single output from 360W to 1080W, programmable switching DC power supplies. OVP, OCP and OTP protect the power supply and loads from unexpected conditions. Remote sensing adds an extra level of precision by compensating cable losses between loads. The bright LCD with simultaneous parameter outputs allows effortless operation. Self-test and software calibration features also reduce maintenance overhead. SCPI commands and LabVIEW driver access through the RS-232C or the optional GPIB interface allow remote control and ATE software development capability. Modular architecture, dedicated rear-panel output, and the 19 inch 4U rack mounting option ensure that the PSH-Series is optimized for large systems.

SPECIFICATIONS				
	PSH-2018A	PSH-3610A	PSH-3620A	PSH-3630A
OUTPUT				
Voltage	20V	36V	36V	36V
Current	18A	10A	20A	30A
REGULATION (C.V.)				
Load	≤ 0.1%+5mV	≤ 0.1%+5mV	≤ 0.1%+5mV	≤ 0.1%+5mV
Line	≤ 0.05%+5mV	≤ 0.05%+5mV	≤ 0.05%+5mV	≤ 0.05%+5mV
REGULATION (C.C.)				
Load	≤ 0.2%+5mA	≤ 0.2%+5mA	≤ 0.2%+10mA	≤ 0.2%+15mA
Line	≤ 0.2%+5mA	≤ 0.2%+5mA	≤ 0.2%+10mA	≤ 0.2%+15mA
RIPPLE & NOISE				
Voltage (mVrms)	≤ 10mVrms	≤ 10mVrms	≤ 10mVrms	≤ 10mVrms
Voltage (mVp-p)	≤ 100mVp-p	≤ 100mVp-p	≤ 100mVp-p	≤ 100mVp-p
	20Hz~20MHz	20Hz~20MHz	20Hz~20MHz	20Hz~20MHz
Current (mA rms)	≤ 0.2%	≤ 0.2%	≤ 0.2%+20mA	≤ 0.2%+40mA
RESOLUTION				
Voltage	10mV	10mV	10mV	10mV
Current	10mA	10mA	10mA	10mA
PROGRAM ACCURACY				
Voltage	≤ 0.05%+25mV	≤ 0.05%+25mV	≤ 0.05%+25mV	≤ 0.05%+25mV
Current	≤ 0.2%+30mA	≤ 0.2%+30mA	≤ 0.2%+30mA	≤ 0.2%+30mA
REARBACK RESOLUTION (Meter)				
Voltage	Same as Resolution	Same as Resolution	Same as Resolution	As Resolution
Current	Same as Resolution	Same as Resolution	Same as Resolution	As Resolution
REARBACK ACCURACY (Meter)				
Voltage	Same as Program Accuracy	Same as Program Accuracy	Same as Program Accuracy	As Program Accuracy
Current	Same as Program Accuracy	Same as Program Accuracy	Same as Program Accuracy	As Program Accuracy
REARBACK TEMP. COEFFICIENT				
Voltage (25±5°C)	≤ 100ppm/°C	≤ 100ppm/°C	≤ 100ppm/°C	≤ 100ppm/°C
RESPONSE (Rise/Fall) TIME				
Voltage Up (10%~90%)	≤ 150mS	≤ 150mS	≤ 150mS	≤ 150mS
	(≤ 95% rating load)	(≤ 95% rating load)	(≤ 95% rating load)	(≤ 95% rating load)
Voltage Down (90%~10%)	≤ 150mS	≤ 150mS	≤ 150mS	≤ 150mS
	(≥ 10% rating load)	(≥ 10% rating load)	(≥ 10% rating load)	(≥ 10% rating load)
RECOVERY TIME (50% Step Load Change From 25%~75%)				
CV Mode	≤ 2mS	≤ 2mS	≤ 2mS	≤ 2mS
PROTECTION				
OVP/OCP/OTP	✓	✓	✓	✓
Rush Current	✓	✓	✓	✓
OUTPUT ON/OFF CONTROL				
	✓	✓	✓	✓
INTERFACE				
Standard : RS-232C; Optional : GPIB				
POWER SOURCE				
AC90V~250V, 50/60Hz				
DIMENSIONS & WEIGHT				
	108(W)x142(H)x393(D) mm; Approx. 3.3kg	108(W)x142(H)x393(D) mm; Approx. 3.3kg	188(W)x142(H)x393(D) mm; Approx. 6.2kg	268(W)x142(H)x393(D) mm; Approx. 9.3kg

ORDERING INFORMATION

PSH-2018A 360W Programmable Switching D.C. Power Supply
 PSH-3610A 360W Programmable Switching D.C. Power Supply
 PSH-3620A 720W Programmable Switching D.C. Power Supply
 PSH-3630A 1080W Programmable Switching D.C. Power Supply

ACCESSORIES :
 User manual x 1, Power cord x 1

OPTION

Opt. 01: GPIB Interface (Factory Installed)

OPTIONAL ACCESSORIES

GRA-403 Rack Mount Kit
 GTL-232 RS-232C Cable, 9-pin Female to 9-pin, null Modem for Computer
 GTL-122 Test Lead, U-type to Alligator Test Lead, Max. Current 40A, 1200mm
 GTL-248 GPIB Cable, Double Shielded, 2000mm

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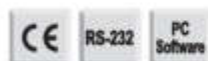
PC Software PC Software including Data Log ; Remote Control Software
 Driver Labview Driver

Note : When Opt.01 GPIB interface is ordered, the standard interface RS-232C will be deleted.

Programmable Switching D.C. Power Supply



PSP-603/405/2010



FEATURES

- * LCD Display
- * Output ON/OFF Control
- * 3 Step Fan Speed Control
- * Voltage/Current/Power Setting
- * Key Lock to Avoid Error Operation
- * Normal, +%, & -% Output Operation Key
- * Standard Interface : RS-232C
- * Optional European Type Jack Terminal

European Type Jack Terminal



Rear Panel



The PSP-Series is single output, 200W, programmable switching DC power supplies. OVL, OCL, OTP, and OPL protect the PSP-Series and its loads from unexpected conditions. The PSP-Series has a large LCD panel with output and parameter views and a key lock feature to prevent changing the settings. The PSP-Series is suitable for generic bench-top applications in laboratories and educational institutions.

SPECIFICATIONS			
OUTPUT			
Model	PSP-603	PSP-405	PSP-2010
Voltage	0 – 60V	0 – 40V	0 – 20V
Current	0 – 3.5A	0 – 5A	0 – 10A
VOLTAGE REGULATION			
Load	≤ 10mV	≤ 10mV	≤ 10mV
Line	≤ 0.05%	≤ 0.05%	≤ 0.05%
CURRENT REGULATION			
Load	≤ 5mA	≤ 5mA	≤ 5mA
Line	≤ 0.05%	≤ 0.05%	≤ 0.05%
RIPPLE			
Voltage (mVrms)	≤ 20mV	≤ 20mV	≤ 20mV
Current (mA rms)	≤ 10mA	≤ 10mA	≤ 10mA
RESOLUTION			
Voltage	20mV	10mV	10mV
Current	2mA	2mA	5mA
PROGRAM ACCURACY			
Voltage	± 0.05%rdg ± 4digits	± 0.05%rdg ± 3digits	± 0.05%rdg ± 3digits
Current	± 0.1%rdg ± 5digits	± 0.1%rdg ± 5digits	± 0.3%rdg ± 10digits
READBACK (METER) RESOLUTION			
Voltage	Same as Resolution	Same as Resolution	Same as Resolution
Current	Same as Resolution	Same as Resolution	Same as Resolution
READBACK (METER) ACCURACY			
Voltage	Same as Program Accuracy	Same as Program Accuracy	Same as Program Accuracy
Current	Same as Program Accuracy	Same as Program Accuracy	Same as Program Accuracy
PROTECTION			
OVL/OCL/OPL/OTP	✓	✓	✓
OUTPUT ON/OFF CONTROL			
	✓	✓	✓
DISPLAY			
LCD			
INTERFACE (STANDARD)			
RS-232C			
POWER SOURCE			
AC 115V ± 10% , AC 230V ± 15% , 50/60Hz			
DIMENSIONS & WEIGHT			
225(W) x 100(H) x 305(D) mm ; Approx. 4kg			

ORDERING INFORMATION

- PSP-603 200W Programmable Switching DC Power Supply
 PSP-405 200W Programmable Switching DC Power Supply
 PSP-2010 200W Programmable Switching DC Power Supply

ACCESSORIES :

User manual x 1, Power cord x 1, Test lead GTL-104A x 1, European test lead GTL-204A x 1

OPTIONAL ACCESSORIES

GTL-232A RS-232C Cable

FREE DOWNLOAD

PC Software RS-232C Remote Control Software

Programmable High Precision D.C. Power Supply



PPH-1503



PPH-1503D/1506D/1510D



FEATURES

- ✦ 3.5" TFT LCD Display
- ✦ High Measurement Resolution: 1mV/0.1μA for 5mA range.
- ✦ Transient Recovery Time: ≤40μs within 100mV; <80μs within 20mV
- ✦ Current Sink Function
- ✦ Pulse Current Measurement (Pulse width min.: 33μs)
- ✦ Long Integration Current Measurement
- ✦ Built-in DVM Measurement Function
- ✦ Sequence Function (Sequence power output)
- ✦ Built-in Battery Simulation Function (CH1 of PPH-15xxD)
- ✦ OVP, OCP, OTP & Temperature Display for Heat Sink
- ✦ Support USB (Device & Host)/GPIB/LAN
- ✦ Five Groups of Save/Recall Setting
- ✦ External Relay Control

PPH-1503 Rear Panel



PPH-1503D/1506D/1510D Rear Panel



PPH-Series high precision measurement capability achieves the maximum resolution of 1mV/0.1μA and the smallest pulse current width of 33μs that satisfy customers' measurement application requirements of high resolution and pulse current. Fast load current variation will result in voltage sag for general power supplies that will have an impact on DUT's internal circuit operation. PPH-Series is equipped with the excellent transient recovery time, which can, in less than 40μs, recover the output voltage to within 100mV of the previous voltage output when the current level changes from 10% to 100% of the full scale. Furthermore, conventional power supplies do not have sufficient response speed to promptly respond to set voltage value once the set voltage is changed. PPH-15xxD has a rise time of 0.2ms and a fall time of 0.3ms, which are 100 times faster than that of conventional power supplies. Therefore, PPH-15xxD can provide DUT with a stable output voltage even when DUT is operating under large transient current output. The internal high-speed sampling circuit design of PPH-15xxD, with the sample rate of 64K, can conduct pulse current measurement without using a current probe and oscilloscope. The current read back accuracy is 0.2%+1μA (equals to 11μA) at 5mA range, and the read back resolution is 0.1μA that allow DUT to be measured with a high accuracy level. Unlike battery, general power supplies, which do not have the characteristics of fast transient recovery time, can not maintain a stable power supply for cellular phone, wireless device, and wearable device which produce large transient pulse current load for hundreds of μs to dozens of ms when in use. PPH-15xxD, different from general power supplies, has the characteristics of fast transient recovery time. While simulating battery to output pulse current, PPH-15xxD can quickly compensate the voltage drop caused by pulse current. PPH-15xxD's CH1 has the built-in battery simulation function, which can define output impedance settings so as to accurately simulate battery's impedance characteristics during battery discharge. Fast transient recovery time and built-in battery simulation function together facilitate PPH-15xxD to accurately simulate battery's real behavior pattern so as to conduct product tests.

PPH-15xxD is not only suitable for simulating battery, charger and supplying power to DUT, but also ideal for simulating an electronic load to conduct discharge tests with its sink current capability. The sink current function allows PPH-15xxD to simulate a voltage source with the sink current capability. The maximum sink current of PPH-15xxD's CH1 is 3.5A and for CH2 is 3A. Long integration current measurement can be utilized to conduct average current measurement for periodical pulse current in a long period of time that is applied to analyze power consumption for a period of time. One of the applications is to measure the average power consumption of a cellular phone in use so as to conduct the internal RF module parameter analysis. The maximum pulse current measurement range of CH1 is 5A and for CH2 is 3A. The built-in sequence function of CH1 provides users with 1000 steps to edit sequential outputs, including voltage, current and execution time. The built-in DVM function of CH2 has a voltage range from 0 to +20VDC that saves users the cost of purchasing an additional voltage meter.

PPH-15xxD provides OTP function and shows heat sink temperature on the upper right corner of the display screen. Other than that, features such as five sets of system setting values for the SAVE/RECALL function, 10 sets of Power On Setup Settings, Key-Lock function to prevent unauthorized inputs, temperature-controlled fan to reduce noise, hardcopy to save screen information, and external relay control device together augment PPH-15xxD's usability. PPH-Series supports test requirements of Profile1, Profile2 and Profile3 from USB Power Delivery(PD) constructed by USB-IF association.

SELECTION GUIDE

Model	PPH-1503	PPH-1503D	PPH-1506D	PPH-1510D
Channel	1	2	2	2
Dual Range Output	Channel 1: 0~15V/0~3A or 0~9V/0~5A Channel 2: NA	0~15V/0~3A or 0~9V/0~5A 0~12V/0~1.5A	0~15V/0~3A or 0~9V/0~5A 0~12V/0~3.0A	0~15V/0~3A or 0~9V/0~5A Rear Terminal: 0~10A(0~4.5V) 0~12V/0~3.0A
Display	3.5 Inch TFT LCD	3.5 Inch TFT LCD	3.5 Inch TFT LCD	3.5 Inch TFT LCD
Current Measurement Range	5A/5mA	5A/500mA/5mA(CH1)	5A/500mA/5mA(CH1)	10A/500mA/5mA(CH1)
CV&CC	✓	✓	✓	✓
Built-in DVM Measurement Function	✓	✓ (CH2)	✓ (CH2)	✓ (CH2)
Pulse Current Measurement	✓	✓	✓	✓
Long Integration Current Measurement	✓	✓	✓	✓
Battery Simulation	NA	✓ (CH1)	✓ (CH1)	✓ (CH1)
Automated Sequential Output	✓	✓ (CH1)	✓ (CH1)	✓ (CH1)
High Measurement Resolution	✓ (1mV/0.1 μA)	✓ (1mV/0.1 μA)	✓ (1mV/0.1 μA)	✓ (1mV/0.1 μA)
Sink Current Capability	✓ (Max : 2A)	✓ (Max : 3.5A)	✓ (Max : 3.5A)	✓ (Max : 3.5A)
Selectable Output From Front or Rear Panel	✓	✓	✓	✓
Relay Output Control	✓	✓	✓	✓
Memory	5 Sets	5 Sets	5 Sets	5 Sets
Sample Rate	60K	64K	64K	64K
Lock Function	✓	✓	✓	✓
Protection Function	OVP/OTP/OCP	OVP/OTP/OCP	OVP/OTP/OCP	OVP/OTP/OCP
Four Wire Output Open Circuit Protection	NA	✓	✓	✓
Temperature Display for Heat Sink	NA	✓	✓	✓
Standard Interface:	GPIB	✓	✓	✓
LAN, USB, Analog Control	USB	✓ (CDC)	✓ (TMC)	✓ (TMC)
Interface	LAN	✓	✓	✓

ORDERING INFORMATION

PPH-1503	(0~15V/0~3A or 0~9V/0~5A)High Precision DC Power Supply
PPH-1503D	(CH1:0~15V/0~3A or 0~9V/0~5A;CH2:0~12V/0~1.5A)High Precision Dual Channel Output DC Power Supply
PPH-1506D	(CH1:0~15V/0~3A or 0~9V/0~5A;CH2:0~12V/0~3A)High Precision Dual Channel Output DC Power Supply
PPH-1510D	(CH1:0~15V/0~3A or 0~9V/0~5A,0~4.5V/0~10A(Rear terminal);CH2:0~12V/0~3A)High Precision Dual Channel Output DC Power Supply

ACCESSORIES :

CD (User manual x1, Quick start manual x1), Power cord (Region dependent), Test lead GTL-207A x1, GTL-203A x1, GTL-204A x1

OPTIONAL ACCESSORIES

GTL-246 USB Cable (USB 2.0, A-B Type)

SPECIFICATIONS								
Model	PPH-1503		PPH-1503D		PPH-1506D		PPH-1510D	
OUTPUT RATING								
Number of Output Channel	1		2		2		2	
Channel No.	Ch 1		Ch 1		Ch 1		Ch 1	
Power	45W		45W		45W		45W	
Voltage	0 ~ 15V or 0 ~ 9V		0 ~ 15V or 0 ~ 9V		0 ~ 15V or 0 ~ 9V		0 ~ 15V or 0 ~ 9V	
Current	0 ~ 3A or 0 ~ 5A		0 ~ 3A or 0 ~ 5A		0 ~ 3A or 0 ~ 5A		0 ~ 3A or 0 ~ 5A	
Output Voltage Rising Time	0.15ms (10% ~ 90%)		0.20ms (10% ~ 90%)		0.20ms (10% ~ 90%)		0.20ms (10% ~ 90%)	
Output Voltage Falling Time	0.65ms (90% ~ 10%)		0.30ms (90% ~ 10%)		0.30ms (90% ~ 10%)		0.30ms (90% ~ 10%)	
STABILITY								
Voltage	0.01%+0.5mV		0.01%+3.0mV		0.01%+3.0mV		0.01%+3.0mV	
Current	0.01%+50 μ A		—		—		—	
REGULATION (CV)								
Load	0.01%+2mV		0.01%+2mV		0.01%+2mV		0.01%+2mV	
Line	0.5mV		0.5mV		0.5mV		0.5mV	
REGULATION (CC)								
Load	0.01%+1mA		0.01%+1mA		0.01%+1mA		0.01%+1mA	
Line	0.5mA		0.5mA		0.5mA		0.5mA	
RIPPLE & NOISE (20Hz~20MHz)								
CV p-p	8mV		$\leq 5A : 8mVp-p(20Hz \sim 20MHz)$		$\leq 5A : 8mVp-p(20Hz \sim 20MHz)$		$\leq 5A : 8mVp-p(20Hz \sim 20MHz)$	
CV rms	1mV		3mV(0~1MHz)		3mV(0~1MHz)		3mV(0~1MHz)	
CC rms	—		—		—		—	
PROGRAMMING ACCURACY								
Voltage	0.05%+10mV		0.05%+10mV		0.05%+10mV		0.05%+10mV	
Current(Ch1:5A,10A;CH2:1.5A,3A)	0.16%+5mA		0.16%+5mA(5A/1.5A)		0.16%+5mA(5A/3A)		0.16%+5mA(5A/3A)	
Current (500mA)	—		0.16%+0.5mA		0.16%+0.5mA		0.16%+0.5mA	
Current (5mA)	—		0.16%+5 μ A		0.16%+5 μ A		0.16%+5 μ A	
REARBACK ACCURACY								
Voltage	0.05%+3mV		0.05%+3mV		0.05%+3mV		0.05%+3mV	
Current(Ch1:5A,10A;CH2:1.5A,3A)	0.2%+400 μ A(5A)		0.2%+400 μ A(5A)		0.2%+400 μ A(5A)		0.2%+400 μ A(5A)	
Current (500mA)	—		0.2%+100 μ A		0.2%+100 μ A		0.2%+100 μ A	
Current (5mA)	0.2%+1 μ A		0.2%+1 μ A		0.2%+1 μ A		0.2%+1 μ A	
RESPONSE TIME								
Transient Recovery Time (Response to 1000% Load Change)	<40 μ S (within 100mV) <80 μ S (within 20mV)		<40 μ S (within 100mV, Rear) <50 μ S (within 100mV,Front) <80 μ S (within 20mV)		<40 μ S (within 100mV, Rear) <50 μ S (within 100mV,Front) <80 μ S (within 20mV)		<40 μ S (within 100mV, Rear) <50 μ S (within 100mV,Front) <80 μ S (within 20mV)	
PROGRAMMING RESOLUTION								
Voltage	2.5mV		2.5mV		2.5mV		2.5mV	
Current (5A range)	1.25mA		1.25mA(5A)		1.25mA(5A)		1.25mA(5A)	
Current (500mA range)	—		0.125mA		0.125mA		0.125mA	
Current (5mA range)	—		1.25 μ A		1.25 μ A		1.25 μ A	
REARBACK RESOLUTION								
Voltage	1mV		1mV		1mV		1mV	
Current (5A range)	0.1mA		0.1mA(5A)		0.1mA(5A)		0.1mA(5A)	
Current (500mA range)	—		0.01mA		0.01mA		0.01mA	
Current (5mA range)	0.1 μ A		0.1 μ A		0.1 μ A		0.1 μ A	
PROTECTION FUNCTION								
OVP Accuracy	50mV		Ch1: 0.8V		Ch1: 0.8V		Ch1: 0.8V	
OVP Resolution	10mV		10mV		10mV		10mV	
DVM								
DC Readback Accuracy(25 \pm 5 $^{\circ}$ C)	$\pm 0.05\%+3mV$		$\pm 0.05\%+3mV$		$\pm 0.05\%+3mV$		$\pm 0.05\%+3mV$	
Readback Resolution	1mV		1mV		1mV		1mV	
Input Voltage Range	0 ~ 20VDC		0 ~ 20VDC		0 ~ 20VDC		0 ~ 20VDC	
Maximum Input Voltage	—		-3V, +22V		-3V, +22V		-3V, +22V	
Input Resistance and Capacitance	100000M Ω		20M Ω		20M Ω		20M Ω	
PROGRAMMABLE OUTPUT RESISTANCE								
Range	—		0.001 Ω ~ 1.000 Ω		0.001 Ω ~ 1.000 Ω		0.001 Ω ~ 1.000 Ω	
Programming Accuracy	—		0.5% + 10 m Ω		0.5% + 10 m Ω		0.5% + 10 m Ω	
Resolution	—		1m Ω		1m Ω		1m Ω	
PULSE CURRENT MEASUREMENT								
Trigger Level	5mA ~ 5A, 5mA/Step		5mA ~ 5A, 5mA/Step		5mA ~ 5A, 5mA/Step		5mA ~ 5A, 5mA/Step	
High Time/Low Time/ Average Time	33.3 μ s ~ 833ms, 33.3 μ s/Step		33.3 μ s ~ 833ms, 33.3 μ s/Step		33.3 μ s ~ 833ms, 33.3 μ s/Step		33.3 μ s ~ 833ms, 33.3 μ s/Step	
Trigger Delay	0 ~ 100ms, 10 μ s/Steps		0 ~ 100ms, 10 μ s/Steps		0 ~ 100ms, 10 μ s/Steps		0 ~ 100ms, 10 μ s/Steps	
Average Readings	1 ~ 100		1 ~ 100		1 ~ 100		1 ~ 100	
Long Integration Pulse Time	15 ~ 635		15 ~ 635		15 ~ 635		15 ~ 635	
Long Integration Measurement Time	850ms(60Hz)/840ms(50Hz)~60s, or Auto time 16.7ms/Steps(60Hz), 20ms/Steps(50Hz)		850ms(60Hz)/840ms(50Hz)~60s, or Auto time 16.7ms/Steps(60Hz), 20ms/Steps(50Hz)		850ms(60Hz)/840ms(50Hz)~60s, or Auto time 16.7ms/Steps(60Hz), 20ms/Steps(50Hz)		850ms(60Hz)/840ms(50Hz)~60s, or Auto time 16.7ms/Steps(60Hz), 20ms/Steps(50Hz)	
Long Integration Trigger Mode	Rising, Falling, Neither		Rising, Falling, Neither		Rising, Falling, Neither		Rising, Falling, Neither	
OTHERS								
Output Terminal	Front/Rear Panel		Front/Rear Panel		Front/Rear Panel		Front/Rear Panel	
DVM Input	Front/Rear Panel		—		—		—	
Relay Control Connector	150mA/15V, 5V output, 100mA		150mA/15V, 5V output, 100mA		150mA/15V, 5V output, 100mA		150mA/15V, 5V output, 100mA	
Operation Temperature	0 ~ 40 $^{\circ}$ C		0 ~ 40 $^{\circ}$ C		0 ~ 40 $^{\circ}$ C		0 ~ 40 $^{\circ}$ C	
Operation Humidity	< 80%		< 80%		< 80%		< 80%	
Storage Temperature	-20 $^{\circ}$ C ~ 70 $^{\circ}$ C		-20 $^{\circ}$ C ~ 70 $^{\circ}$ C		-20 $^{\circ}$ C ~ 70 $^{\circ}$ C		-20 $^{\circ}$ C ~ 70 $^{\circ}$ C	
Storage Humidity	< 80%		< 80%		< 80%		< 80%	
PC REMOTE INTERFACES								
Standard	GPIB/USB/LAN		GPIB/USB/LAN		GPIB/USB/LAN		GPIB/USB/LAN	
CURRENT SINK CAPACITY								
Sink Current Rating	2A (Vout \leq 5V); 2A-0.1 $^{\circ}$ (Vout-5V) (Vout>5V)		Ch1: 0~4V:3.5A; 4~15V:3.5A (0.25A/V) *(Vset-4V)		Ch1: 0~4V:3.5A; 4~15V:3.5A (0.25A/V) *(Vset-4V)		Ch1: 0~4V:3.5A; 4~15V:3.5A (0.25A/V) *(Vset-4V)	
MEMORY								
Save/Recall	5 Sets		5 Sets		5 Sets		5 Sets	
POWER								
Input Power	90 ~ 264VAC; 50/60Hz		90 ~ 264VAC; 50/60Hz		90 ~ 264VAC; 50/60Hz		90 ~ 264VAC; 50/60Hz	
Power Consumption	150W		160W		160W		160W	
DIMENSIONS & WEIGHT								
	222(W)x86(H)x363(D)mm; Approx 4.2kg		222(W)x86(H)x363(D)mm; Approx 4.5kg		222(W)x86(H)x363(D)mm; Approx 4.5kg		222(W)x86(H)x363(D)mm; Approx 4.5kg	

Single Output Programmable Linear D.C. Power Supply



PPS-3635



FEATURES

- * Easy Operation with UP/DOWN Key
- * High Resolution: 10mV, 1mA
- * Over Voltage Protection, Over Current Protection (by Hardware)
- * 100 Set Memory
- * Self Test and Software Calibration
- * Auto Step Running With Time Setting
- * FRONT/REAR Output and Sense Switch Selectable
- * IEEE-488.2 and SCPI Compatible Command set
- * LabVIEW Driver Software
- * High Stability, Low Drift
- * 4 Digit Display
- * IEC Safety Regulation

Rear Panel



PPS-3635 is a single output, 126W output, programmable linear DC power supply.

OVP and OCP hardware protection, compliance to major safety standards such as UL, CSA, and IEC ensure a high level of safety and reliability. The remote sense adds extra level of precision by compensating cable losses between loads. The SCPI command set and LabVIEW driver access through the GPIB interface provide remote control and ATE software development capability.

The flexible PPS-3635 GPIB is ideal for high-level applications requiring high precision and an extra level of safety.

SPECIFICATIONS

OUTPUT

Voltage	0 – 36V
Current	0 – 3.5A
OVP	0 – 38.5V

LOAD REGULATION

Voltage	≤ 3mV rear output (≤ 6mV front output)
Current	≤ 3mA (≤ 6mA rating current > 3.5A)

LINE REGULATION

Voltage	≤ 3mV
Current	≤ 3mA

RESOLUTION

Voltage	10mV (20mV rating voltage > 36V)
Current	1mA (2mA rating current > 3.5A)
OVP	10mV (20mV rating voltage > 36V)

PROGRAM ACCURACY (25±5°C)

Voltage	≤ 0.05% + 25mV (+ 50mV rating voltage > 36 V)
Current	≤ 0.2% + 10mA
OVP	≤ 2% + 0.6V

RIPPLE & NOISE (20Hz – 20MHz)

Voltage	Ripple 1mVrms / 3mVp-p Noise 2mVrms / 30mVp-p
Current	≤ 3mA rms (≤ 5mA rms rating current > 3.5A)

TEMPERATURE COEFFICIENT (0–40°C)

Voltage	≤ 100ppm + 3mV
Current	≤ 150ppm + 3mA

REARBACK RESOLUTION ACCURACY (25±5°C)

Voltage	10mV (20mV rating voltage > 36V)
Current	1mA (2mA rating current > 3.5A)
Voltage	≤ 0.05% + 25mV (+ 50mV rating voltage > 36V)
Current	≤ 0.2% + 10mA

RESPONSE TIME

VOLTAGE UP	10% – 90%	≤ 100mS
VOLTAGE DOWN	90% – 10%	≤ 100mS (≥ 10% rating load)

REARBACK TEMPERATURE

COEFFICIENT	Voltage	≤ 100ppm + 10mV (+ 20mV rating voltage > 36V)
	Current	≤ 150ppm + 10mA
DRIFT	Voltage	≤ 0.03% + 6mV
	Current	≤ 0.1% + 6mA

MEMORY

Store/Recall	100 sets
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TIMER

Setting Time	1 second – 255 minutes (Max. 255 minutes x 100 Sets)
Resolution	1 second
Function	for output working loop (Auto Step running)

INTERFACE

GPIB Interface Standard	
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POWER SOURCE

AC	100V/120V/ 220V/240V ±10%, 50/60Hz
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DIMENSIONS & WEIGHT

	255(W) x 145(H) x 346(D) mm; Approx. 9.5kg
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ORDERING INFORMATION

PPS-3635 126W Single Output Programmable D.C. Power Supply

ACCESSORIES :

User manualx1, Power cordx1, Test lead GTL-104A x 1

OPTIONAL ACCESSORIES

GRA-401	Rack Adapter Panel, 19" 4U
GTL-248	GPIB Cable, Double Shielded, 2000mm

FREE DOWNLOAD

Driver	LabView Driver
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Programmable Dual-range Linear D.C. Power Supply



PSM-2010/3004/6003



FEATURES

- * Single Output Dual Range Max. 200W
- * High Resolution: 1mV/1mA
- * Stable & Clear Power: 0.01% Load/Line Regulation, 350µVrms Ripple
- * 100 Sets Memory
- * Auto Step Running With Timer Setting
- * Safety Design: OVP, OCP & OTP ; Output ON/OFF Control(OCP Provides Delay Setting to Prevent Trip of High Start-Up Current)
- * Self-Test and Software Calibration
- * Highly Visible Vacuum-Fluorescent Display
- * Front and Rear Output Terminal
- * Standard Interface : RS-232C, GPIB
- * Optional European Jack Type Terminal

European Type Jack Terminal



Rear Panel



The PSM-Series is single output / dual range, 120W or 200W, programmable linear DC power supplies. OVP, OCP, OTP, and output On/Off control protect the PSM-Series and their load from unexpected conditions. High resolution, high regulation, and low ripple are maintained at 1mV/1mA, 0.01%, and <350µVrms, respectively. Operation and configuration is simplified with a digital interface and a clear LCD display. Standard features include; store/recall output memories, automatic stepping with timers for continuous testing and self-testing and software calibration features to reduce maintenance overhead. SCPI programming, LabVIEW drivers, RS-232C and GPIB interfaces enable easy automated test system integration and remote control. The PSM-Series is an ideal choice for high precision applications such as QA verification and product development.

SPECIFICATIONS				
		PSM-2010	PSM-3004	PSM-6003
DC OUTPUT				
Low Range		0 – 8V/20A	0 – 15V/7A	0 – 30V/6A
High Range		0 – 20V/10A	0 – 30V/4A	0 – 60V/3.3A
CONSTANT VOLTAGE OPERATION				
Regulation (% of output + offset)		Load regulation $\leq 0.01\% + 2\text{mV}$; Line regulation $\leq 0.01\% + 2\text{mV}$		
Ripple & Noise		$< 350\mu\text{Vrms}/3\text{mVpp}$	$< 350\mu\text{Vrms}/2\text{mVpp}$	$\leq 50\text{V}: < 500\mu\text{Vrms}/3\text{mVpp}$ $> 50\text{V}: < 1\text{mVrms}/3\text{mVpp}$
CONSTANT CURRENT OPERATION				
Regulation (% of output + offset)		Load regulation $\leq 0.01\% + 250\mu\text{A}$; Line regulation $\leq 0.01\% + 250\mu\text{A}$		
Ripple & Noise		$< 2\text{mArms}$		
RESOLUTION				
Programming	Voltage	1mV	1mV	2mV
	Current	1mA	0.5mA	0.5mA
Readback	Voltage	0.5mV	0.5mV	1mV
	Current	1mA	0.1mA	0.5mA
Front Panel	Voltage	1mV		
	Current	1mA(<10A), 10mA($\geq 10\text{A}$)		
OVP/OCP	Voltage	10mV		
	Current	10mA		
ACCURACY				
Programming	Voltage	0.05% + 10mV		
	Current	0.2% + 10mA		
Readback	Voltage	0.05% + 5mV		
	Current	0.15% + 5mA		
OVP/OCP	Voltage	0.1% + 10mV		
	Current	0.4% + 10mA		
TRANSIENT RESPONSE				
		$< 50\mu\text{sec}$ (for output to recover within 15mV following a change in output current from full load to half load)		
COMMAND PROCESSING TIME				
		100 ms		
VOLTAGE PROGRAMMING RESPONSE TIME (for resistive load)(10% – 90%)				
Voltage Up	Full Load	95 ms	50 ms	80 ms
	No Load	45 ms	20 ms	100 ms
Voltage Down	Full Load	30 ms	45 ms	30 ms
	No Load	450 ms	400 ms	450 ms
STABILITY (% of output + offset)				
Voltage		0.02% + 1mV		
Current		0.1% + 1mA		
MEMORY				
Store/Recall		100 sets		
TEMPERATURE COEFFICIENT PER °C \pm (% of Output + Offset)				
Voltage		0.01% + 3mV		
Current		0.02% + 3mA		
POWER SOURCE				
AC 100V/120V/220V $\pm 10\%$, 230V (- 6% – + 10%), 50/60Hz				
INTERFACE				
Standard RS-232C , GPIB				
DIMENSIONS & WEIGHT				
230(W) x 140(H) x 380(D) ; Approx. 10kg				

ORDERING INFORMATION

PSM-2010 200W Single Output, Programmable Power Supply
 PSM-6003 200W Single Output, Programmable Power Supply
 PSM-3004 120W Single Output, Programmable Power Supply

ACCESSORIES :

User manual x 1, Power cord x 1, Test lead GTL-104A x 1, European test lead GTL-204A x 1, Ground lead GTL-201A x 1 (European terminal), Sense lead GTL-202 x 1 (European Terminal)

OPTION

Opt. 01 GRA-407 Rack Mount Kit

OPTIONAL ACCESSORIES

GTL-232 RS-232C Cable, 9-pin Female to 9-pin, Null Modem for PC Computer GRA-407 Rack Mount Kit
 GTL-248 GPIB Cable, Double Shielded, 2000mm

FREE DOWNLOAD

PC Software PC Software including Data Log ; Remote Control Software
 Driver Labview Driver ; PSM VB Example ; PSM VC++ Example

Programmable Linear D.C. Power Supply



PSS-2005/3203



FEATURES

- * Digitized Programmable Interface
- * High Resolution 10mV, 1mA
- * High Stability, Low Drift
- * Over-Voltage, Over-Current, Over Temperature Protection
- * Intelligent Fan Control (Change by Output Power)
- * Built-in Buzzer Alarm
- * LabVIEW Driver
- * Standard Interface : RS-232C
- * Optional Interface : GPIB (IEEE-488.2)
- * Optional European Jack Type Terminal

European Type Jack Terminal



Rear Panel



The PSS-Series is single output, 96W or 100W, programmable linear DC power supplies. OVP, OCP, and OTP protect the PSS series and their load from unexpected conditions. The LCD panel simultaneously displays output and other parameters and the regulated cooling fan ensures low noise for comfortable operation. RS232C and GPIB interfaces, SCPI command sets and LABVIEW drivers make remote control and ATE software development easier. (Note: only RS-232C or GPIB can be installed at one time) The compact PSS series is suitable for any high resolution bench-top or rack mount application.

SPECIFICATIONS		
	PSS-2005	PSS-3203
OUTPUT		
Voltage	0 ~ 20V	0 ~ 32V
Current	0 ~ 5A	0 ~ 3A
OVP	0 ~ 21V	0 ~ 33V
LOAD REGULATION		
Voltage	$\leq 3\text{mV}$ ($\leq 5\text{mV}$, rating current $> 3.0\text{A}$)	
Current	$\leq 3\text{mA}$ ($\leq 5\text{mA}$, rating current $> 3.0\text{A}$)	
LINE REGULATION		
Voltage	$\leq 3\text{mV}$	
Current	$\leq 3\text{mA}$	
RESOLUTION		
Voltage	10mV	
Current	1mA (2mA, rating current $> 3.0\text{A}$)	
OVP	10mV	
PROGRAM ACCURACY (25 \pm 5°C)		
Voltage	$\leq 0.05\%+20\text{mV}$	
Current	$\leq 0.1\%+5\text{mA}$ (+10mA, rating current $> 3.0\text{A}$)	
OVP	$\leq 0.05\%+20\text{mV}$	
RIPPLE & NOISE (20Hz ~ 20MHz)		
Voltage	Ripple $\leq 1\text{mVrms}/3\text{mVp-p}$; Noise $\leq 2\text{mVrms}/30\text{mVp-p}$	
Current	$\leq 3\text{mA rms}$ ($\leq 5\text{mA rms}$, rating current $> 3.0\text{A}$)	
TEMPERATURE COEFFICIENT (0 ~ 40°C)		
Voltage	$\leq 100\text{ppm}+3\text{mV}$	
Current	$\leq 100\text{ppm}+3\text{mA}$	
REARBACK RESOLUTION		
Voltage	10mV	
Current	1mA (2mA, rating current $> 3.0\text{A}$)	
REARBACK ACCURACY(25 \pm 5°C)		
Voltage	$\leq 0.05\%+10\text{mV}$	
Current	$\leq 0.1\%+5\text{mA}$ (10mA rating current $> 3.0\text{A}$)	
REARBACK TEMPERATURE COEFFICIENT		
Voltage	$\leq 100\text{ppm}+10\text{mV}$	
Current	$\leq 100\text{ppm}+5\text{mA}$ (10mA rating current $> 3.0\text{A}$)	
RESPONSE TIME		
Voltage Up (10%~90%)	$\leq 100\text{mS}$	
Voltage Down (90%~10%)	$\leq 100\text{mS}$ ($\geq 10\%$ rating load)	
DRIFT		
Voltage	$\leq 100\text{ppm}+10\text{mV}$	
Current	$\leq 150\text{ppm}+10\text{mA}$	
INTERFACE		
Standard : RS-232C; Option : GPIB		
POWER SOURCE		
AC 100V/120V/220V $\pm 10\%$, 230V (+10%/-6%), 50/60Hz		
DIMENSIONS & WEIGHT		
108(W) x 142(H) x 318(D) mm, Approx. 4.8kg		

ORDERING INFORMATION

PSS-2005 100W Single Output Programmable D.C. Power Supply

PSS-3203 96W Single Output Programmable D.C. Power Supply

ACCESSORIES :

User manual x 1, Power cord x 1 Test lead GTL-104A x 1 (PSS-2005) or GTL-105A x 1 (PSS-3203)
European Test Lead GTL-204A x 1 (PSS-2005) or GTL-203A x 1 (PSS-3203)

OPTION

Opt.01 : GPIB Interface (factory installed)

OPTIONAL ACCESSORIES

GTL-232 RS-232C Cable, 9-pin Female to 9-pin, null Modem for Computer

GRA-408 Rack Adapter Panel (19" 4U)

GTL-248 GPIB Cable, Double Shielded, 2000mm

FREE DOWNLOAD

PC Software Driver PC Software including Data Log ; Remote Control Software
LabView Driver

Note : When Opt.01 GPIB interface is ordered, the standard interface RS-232C will be deleted.

Switching D.C. Power Supply



The SPS-Series is single output, 360W, switching DC power supply. OVP protects the SPS-Series and their load from unexpected conditions. High regulation is maintained at 0.01%. Remote sensing adds an extra level of precision by compensating cable losses between loads. Turning the output On/Off from external device is available through Remote control terminals. The GPS-Series is an ideal solution for power-efficient bench-top or portable applications requiring high regulation.

SPS-1230/1820/2415/3610/606



FEATURES

- * Dual Measurement Display
- * 0.01 % High Regulation
- * Constant Voltage and Constant Current Operation
- * High Efficiency
- * High Power Density
- * Over Voltage Protection
- * Remote Output ON/OFF Control

Rear Panel



SPECIFICATIONS

OUTPUT					
	SPS-1230	SPS-1820	SPS-2415	SPS-3610	SPS-606
Voltage	0 ~ 12V	0 ~ 18V	0 ~ 24V	0 ~ 36V	0 ~ 60V
Current	0 ~ 30A	0 ~ 20A	0 ~ 15A	0 ~ 10A	0 ~ 6A
CONSTANT VOLTAGE OPERATION					
Regulation	Line regulation $\leq 5\text{mV}$ Load regulation $\leq 5\text{mV}$				
Ripple & Noise	$\leq 5\text{mVrms}$, 100mVp-p 20Hz ~ 20MHz				
Recovery Time	$\leq 500\mu\text{s}$ (50% Load change, Minimum load 0.5A)				
Temp. Coefficient	$\leq 100\text{ppm}/^{\circ}\text{C}$				
Output Range	0 to rating voltage continuously adjustable				
CONSTANT CURRENT OPERATION					
Regulation	Line regulation $\leq 3\text{mA}$ Load regulation $\leq 3\text{mA}$				
Ripple Current	$\leq 3\text{mA}_{\text{rms}}$ (SPS-606) $\leq 5\text{mA}_{\text{rms}}$ (SPS-3610) $\leq 10\text{mA}_{\text{rms}}$ (SPS-2415) $\leq 10\text{mA}_{\text{rms}}$ (SPS-1820) $\leq 30\text{mA}_{\text{rms}}$ (SPS-1230)				
Output Range	0 to rating current continuously adjustable (HI/LO range switchable)				
METER					
Type	3 1/2 digit, 0.39" LED display				
Accuracy	$\pm (0.5\% \text{ of rdg} + 2\text{digits})$				
INSULATION					
Chassis and Terminal	20M Ω or above (DC 500V)				
Chassis and AC Cord	30M Ω or above (DC 500V)				
POWER SOURCE					
AC 115V/ 230V \pm 15 %, 50/60Hz					
DIMENSIONS & WEIGHT					
128(W) x 151(H) x 295(D) mm, Approx. 3.2kg					

ORDERING INFORMATION

SPS-1230	360W Switching D.C. Power Supply
SPS-1820	360W Switching D.C. Power Supply
SPS-2415	360W Switching D.C. Power Supply
SPS-3610	360W Switching D.C. Power Supply
SPS-606	360W Switching D.C. Power Supply

ACCESSORIES:

User manual x 1, Power cord x 1, Test lead GTL-203A x 1

Linear D.C. Power Supply



GPR-U Series



FEATURES

- ★ 0.01% High Regulation
- ★ Constant Voltage and Constant Current Operation
- ★ Low Ripple and Noise
- ★ Overload and Reverse Polarity Protection
- ★ 3 1/2 Digits 0.5" LED Display
- ★ Application for Material and Products Aging
- ★ Built-In Overvoltage and Overcurrent Tripped Crowbar
- ★ Ten-Turn Potentiometer

Rear Panel



GPR-3520HDA



GPR-100H05DA



GPR-3520HDA

The GPR-U Series is single output, 500W to 900W, linear DC power supplies. Overload and reverse polarity protection in addition to OVP/OCV/OTP protect the GPR-U Series and their load from unexpected conditions. High regulation and low ripple/noise are maintained at 0.01% and < 2mVrms, respectively for CV mode. The GPR-U series can be ordered with a customized output requirement from voltage rating from 8V to 1000V and current rating from 0.5–75A (under 1kVA available). The GPR-U Series is the ideal lineup for system applications requiring large output capacity and custom-made output settings, such as material testing and product copper plating.

SPECIFICATIONS

CONSTANT VOLTAGE OPERATION

Regulation	Line regulation $\leq 0.01\% + 3\text{mV}$ Load regulation $\leq 0.01\% + 5\text{mV}$ ($< 10\text{A}$) $\leq 0.02\% + 5\text{mV}$ ($\geq 10\text{A}$)
Ripple & Noise	$\leq 2\text{mVrms}$ (5Hz – 1MHz)
Recovery Time	$\leq 100\mu\text{S}$ (50% Load change, Minimum load 0.5A)
Output Range	0 to rating voltage continuously adjustable

CONSTANT CURRENT OPERATION

Regulation	Line regulation $\leq 0.2\% + 3\text{mA}$ Load regulation $\leq 0.2\% + 3\text{mA}$
Ripple Current	$\leq 5\text{mA}_{\text{rms}}$ ($\leq 20\text{A}$), $\leq 20\text{mA}_{\text{rms}}$ ($\leq 50\text{A}$) $\leq 100\text{mA}_{\text{rms}}$ ($\leq 100\text{A}$)
Output Range	0 to rating current continuously adjustable

METER

Type	3 1/2 Digits 0.5" LED display
Accuracy	$\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$

INSULATION

Chassis and Terminal	$100\text{M}\Omega$ or above (DC 1000V)
Chassis and AC Cord	$100\text{M}\Omega$ or above (DC 1000V)

POWER SOURCE

AC 120V $\pm 10\%$, 50/60Hz (AC220V or 240V order made)

DIMENSIONS

430(W) x 178(H) x 572(D) mm

ORDERING INFORMATION

Model		Output Volts(V)	Output Amps(A)	Weight(kg)	External Remote I/O
GPR-1850HDN	900W D.C. Power Supply	0 ~ 18	0 ~ 50	30	—
GPR-3520HDA	700W D.C. Power Supply	0~35V	0 ~ 20	29.5	—
GPR-6015HDA	900W D.C. Power Supply	0~60V	0 ~ 15	30	—
GPR-7510HDA	750W D.C. Power Supply	0~75V	0 ~ 10	29.5	—
GPR-16H50DA	800W D.C. Power Supply	0~160V	0 ~ 5	30.5	—
GPR-25H30DA	750W D.C. Power Supply	0~250V	0 ~ 3	29.5	—
GPR-35H20DA	700W D.C. Power Supply	0~350V	0 ~ 2	29.5	—
GPR-50H15DA	750W D.C. Power Supply	0~500V	0 ~ 1.5	29.5	—
GPR-60H15DA	900W D.C. Power Supply	0~600V	0 ~ 1.5	30.5	—
GPR-100H05DA	500W D.C. Power Supply	0~1000V	0 ~ 0.5	28.5	—
GPR-7510HDC	750W D.C. Power Supply	0~75V	0 ~ 10	29.5	✓
GPR-6015HDC	900W D.C. Power Supply	0~60V	0 ~ 15	30	✓
GPR-3520HDC	700W D.C. Power Supply	0~35V	0 ~ 20	29.5	✓

ACCESSORIES :

User manual x 1; Test lead GTL-105A x 1 ($\leq 3\text{A}$) or GTL-104A x 1 ($\leq 10\text{A}$) or Not Available ($> 10\text{A}$ or 600V)

OPTIONAL ACCESSORIES

GTL-122 Test Lead, U-type to Alligator Test Lead, Max. Current 40A, 1200mm

Note: Special order 8 volts to 1000 volts and 0.5 Amps to 75 Amps under 1kVA available.

Linear D.C. Power Supply



GPR-H Series



FEATURES

- * 0.01% High Regulation
- * Constant Voltage and Constant Current Operation
- * Internal Select for Continuous or Dynamic Load
- * Low Ripple and Noise
- * Overload and Reverse Polarity Protection
- * 3 1/2 Digit 0.5" LED Display
- * Internal Select for Continuous or Dynamic Load (for GPR-3510HD/GPR-6060D/GPR-7550D)

Rear Panel



The GPR-H Series consists of single output linear DC power supplies with voltage outputs rating from 8V to 300V. The series includes overload and reversed polarity protection to protect devices under test from being damaged due to inappropriate operation. The internal select for dynamic loads is often used for amplifier testing. It can support high pulse current derived from dynamic processes as well as support low noise and noise, which make it suitable for high-end bench-top applications requiring precision. Its rear panel supports output wiring. These features combined into one assembly allow the GPR-H Series to predominate in applications requiring high voltage or high current.

SPECIFICATIONS

CONSTANT VOLTAGE OPERATION

Regulation	Line regulation $\leq 0.01\% + 3\text{mV}$ Load regulation $\leq 0.01\% + 5\text{mV} (<10\text{A})$ $\leq 0.02\% + 5\text{mV} (\geq 10\text{A})$
Ripple & Noise	$\leq 1\text{mVrms}$ 5Hz ~ 1MHz
Recovery Time	$\leq 100\mu\text{s}$ (50% load change, minimum load 0.5A)
Output Range	0 to rating voltage continuously adjustable

CONSTANT CURRENT OPERATION

Regulation	Line regulation $\leq 0.2\% + 3\text{mA}$ Load regulation $\leq 0.2\% + 5\text{mA}$
Ripple Current	$\leq 5\text{mA}_{\text{rms}}$ ($\leq 20\text{A}$), $\leq 10\text{mA}_{\text{rms}}$ ($\leq 30\text{A}$) $\leq 20\text{mA}_{\text{rms}}$ ($\leq 50\text{A}$)
Output Range	0 to rating current continuously adjustable

METER

Type	3 1/2 Digit 0.5" LED display
Accuracy	$\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$

INSULATION

Chassis and Terminal	100M Ω or above (DC 1000V)
Chassis and AC Cord	100M Ω or above (DC 1000V)

POWER SOURCE

AC 100V/120V/220V/240V $\pm 10\%$, 50/60Hz

DIMENSIONS

254(W) x 152(H) x 456(D) mm

ORDERING INFORMATION

Model		Output Volts (V)	Output Amps (A)	Weight (kg)
GPR-0830HD	240W D.C. Power Supply	0 ~ 8	0 ~ 30	18.5
GPR-1820HD	360W D.C. Power Supply	0 ~ 18	0 ~ 20	18.5
GPR-3510HD	350W D.C. Power Supply	0 ~ 35	0 ~ 10	18.5
GPR-6060D	360W D.C. Power Supply	0 ~ 60	0 ~ 6	18.5
GPR-7550D	375W D.C. Power Supply	0 ~ 75	0 ~ 5	18.5
GPR-11H30D	330W D.C. Power Supply	0 ~ 110	0 ~ 3	13.5
GPR-30H10D	300W D.C. Power Supply	0 ~ 300	0 ~ 1	13.5

ACCESSORIES :

User manual x 1, Power cord x 1

Test lead GTL-105A x 1 ($\leq 3\text{A}$) or GTL-104A x 1 ($\leq 10\text{A}$) or Not Available ($>10\text{A}$)

OPTIONAL ACCESSORIES

GTL-122 Test Lead, U-type to Alligator Test Lead, Max. Current 40A, 1200mm

Note: **CE** Approved Only for GPR-1820HD, GPR-3510HD, GPR-7550D, GPR-11H30D

Rear-Panel Output Only for GPR-0830HD, GPR-1820HD

Linear D.C. Power Supply



GPR-M Series



FEATURES

- * 0.01% High Regulation
- * Constant Voltage and Constant Current Operation
- * Internal Select for Continuous or Dynamic Load
- * Low Ripple and Noise
- * Overload and Reverse Polarity protection
- * 3 1/2 Digit 0.5" LED Display

The GPR-M Series is single output, 180W, linear DC power supplies which featuring all the same functions as the GPR-H Series but for lower power demands. Like the GPR-H Series, the GPR-M Series is suitable for high-end precision bench top applications. Low load and line regulation for both constant voltage and constant current mode ensure reliable, predictable output. Overload and reverse polarity protection as well as internal selection for dynamic or constant load are standard.

SPECIFICATIONS

CONSTANT VOLTAGE OPERATION

Regulation	Line regulation $\leq 0.01\% + 3\text{mV}$ Load regulation $\leq 0.01\% + 5\text{mV}$ ($<10\text{A}$) Load regulation $\leq 0.02\% + 5\text{mV}$ ($\geq 10\text{A}$)
Ripple & Noise	$\leq 1\text{mVrms}$ 5Hz ~ 1MHz
Recovery Time	$\leq 100\mu\text{s}$ (50% load change, minimum load 0.5A)
Output Range	0 to rating voltage continuously adjustable

CONSTANT CURRENT OPERATION

Regulation	Line regulation $\leq 0.2\% + 3\text{mA}$ Load regulation $\leq 0.2\% + 3\text{mA}$
Ripple Current	$\leq 3\text{mA rms}$
Output Range	0 to rating current continuously adjustable

METER

Digital	3 1/2 Digits 0.5" LED display Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$
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INSULATION

Chassis and Terminal	$20\text{M}\Omega$ or above (DC 500V)
Chassis and AC Cord	$30\text{M}\Omega$ or above (DC 500V)

POWER SOURCE

AC 100V/120V/220V/240V $\pm 10\%$, 50/60Hz

DIMENSIONS

254(W) x 152(H) x 349(D) mm

ORDERING INFORMATION

Model	Output Volts (V)	Output Amps (A)	Weight (kg)
GPR-1810HD 180W D.C. Power Supply	0 ~ 18	0 ~ 10	11.5
GPR-3060D 180W D.C. Power Supply	0 ~ 30	0 ~ 6	11.5
GPR-6030D 180W D.C. Power Supply	0 ~ 60	0 ~ 3	11.5

ACCESSORIES:

User manual x 1, Power cord x 1
Test lead GTL-105A x 1 (GPR-6030D)
GTL-104A x 1 (GPR-1810HD/3060D)

OPTIONAL ACCESSORIES

GRA-401 Rack Adapter Panel (19", 4U)

Linear D.C. Power Supply



GPS-1830D/1850D/3030D



GPS-3030



GPS-3030DD



FEATURES

- * Light and Compact Design
- * 0.01% High Regulation
- * Constant Voltage and Constant Current Operation
- * Remote Control for External Programmability
- * Internal Select for Continuous or Dynamic Load
- * Low Ripple and Noise
- * Overload and Reverse Polarity Protection
- * Series or Parallel Operation
- * Optional European Type Jack Terminal for GPS-3030/GPS-3030D/GPS-3030DD

European Type Jack Terminal



The GPS-Series is single output, 54W to 90W, linear DC power supplies. The GPS-Series includes both analog and digital display meters with varying power outputs. The GPS-Series features overload and reverse polarity protection as well as high regulation and low ripple/noise that are maintained at 0.01% and < 1mVrms, respectively. Continuous or dynamic internal load selection accommodates applications such as pulsed current. Remote control terminals offer programming and operation from an external device.

SPECIFICATIONS

CONSTANT VOLTAGE OPERATION

Regulation	Line regulation $\leq 0.01\% + 3mV$ Load regulation $\leq 0.01\% + 3mV$ (rating current $\leq 3A$) $\leq 0.01\% + 5mV$ (rating current $> 3A$)
Ripple & Noise	$\leq 0.5mVrms$ 5Hz – 1MHz (rating current $\leq 3A$) $\leq 1mVrms$ 5Hz – 1MHz (rating current $> 3A$)
Recovery Time	$\leq 100\mu s$ (50% load change, minimum load 0.5A)
Temp. Coefficient	$\leq 300 ppm / ^\circ C$
Output Range	0 to rating voltage continuously adjustable

CONSTANT CURRENT OPERATION

Regulation	Line regulation $\leq 0.2\% + 3mA$ Load regulation $\leq 0.2\% + 3mA$
Ripple Current	$\leq 3mA_{rms}$
Output Range	0 to rating current continuously adjustable (Hi / Lo range switchable)

METER

Analog	V-meter and I-meter 2.5 class Dimensions 50 x 50 mm
Digital	3 1/2 digits 0.5" LED display (GPS-1830D/1850D/3030D) 3 1/2 digits 0.39" LED display (GPS-3030DD) Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$

INSULATION

Chassis and Terminal	20M Ω or above (DC 500V)
Chassis and AC Cord	30M Ω or above (DC 500V)

POWER SOURCE

AC 100V/120V/220V/240V $\pm 10\%$, 50/60Hz

DIMENSIONS

128(W) x 145(H) x 285(D) mm

ORDERING INFORMATION

	Model	Output Volts(V)	Output Amps(A)	Weight (kg)
	GPS-3030	0 – 30	0 – 3	5
	GPS-1830D	0 – 18	0 – 3	4
	GPS-1850D	0 – 18	0 – 5	5
	GPS-3030D	0 – 30	0 – 3	5
	GPS-3030DD	0 – 30	0 – 3	5
ACCESSORIES :				
User manual x 1, Power cord x 1				
Test lead GTL-105A x 1 ($\leq 3A$) or GTL-104A x 1 ($\leq 10A$)				
European test lead GTL-203A x 1 ($\leq 3A$) or GTL-204A x 1 ($\leq 10A$)				

Multiple Output Programmable Linear D.C. Power Supply



PPE-3323



PPT-1830/PPT-3615



FEATURES

- * Easy Operation with UP/DOWN Key
- * High Resolution: 10mV, 1mA
- * Over Voltage Protection, Over Current Protection (PPT-Series by Hardware, PPE-Series by Software)
- * 50 Sets Memory
- * Self Test and Software Calibration
- * Auto Step Running With Timer Setting
- * FRONT/REAR Output and Sense Switch Selectable (PPT-Series)
- * Triple Output
- * Auto Series and Parallel Operation (PPT-Series)
- * Auto Tracking
- * IEEE-488.2 and SCPI Compatible Command set (PPT-Series)
- * RS-232C Communication (PPE-3323)
- * GPIB Standard Interface (PPT-Series)
- * LabVIEW Driver Software (PPT-Series)
- * High Stability, Low Drift
- * 4 Digit Display
- * IEC Safety Regulation

Rear Panel



PPE-3323



PPT-1830

The PPE/PPT-Series are 3-channel, programmable linear DC power supplies with 207W, 138W or 126W outputs. The PPE/PPT-Series feature OVP and OCP and are compliant with all major safety standards (UL, CSA, and IEC) for safe, reliable operation. For extra precision the PPT series includes remote sensing that adds an extra level of precision by compensating cable losses between loads. The digital interface and smart features simplify operation and configuration with output limit store/recall functions, automatic tracking, automatic serial or parallel operation (PPT-Series), and auto stepping for continuous testing. The series have Labview drivers and SCPI commands as standard for remote control and PC interfacing via RS232 (PPE-3323) and GPIB (PPT-Series). The versatile PPE/PPT-Series are ideal for high-level applications requiring high resolution, multiple outputs, and an extra level of safety.

SPECIFICATIONS

MODEL	PPE-3323	PPT-1830	PPT-3615
OUTPUT			
Voltage	0-32V, 0-32V, 3.3V/5V FIXED	0-18Vx2, 0-6Vx1	0-36Vx2, 0-6Vx1
Current	0-3A, 0-3A, 3A FIXED	0-3Ax2, 0-5Ax1	0-1.5Ax2, 0-3Ax1
OVP	0-33V, 0-33V	0-20Vx2, 0-7Vx1	0-38.5Vx2, 0-7Vx1
LOAD REGULATION			
Voltage	≤6mV	≤3mV rear output (≤6mV front output)	≤3mV rear output (≤6mV front output)
Current	≤3mA	≤3mA (≤6mA rating current > 3.5A)	≤3mA (≤6mA rating current > 3.5A)
LINE REGULATION			
Voltage	≤3mV		
Current	≤3mA		
RESOLUTION			
Voltage	10mV (20mV rating voltage > 36V)		
Current	1mA (2mA rating current > 3.5A)		
OVP	10mV (20mV rating voltage > 36V)		
PROGRAM ACCURACY (25±5°C)			
Voltage	≤0.05% + 25mV (50mV rating voltage > 36V)		
Current	≤0.2% + 10mA		
OVP	≤2% + 0.6V		
RIPPLE & NOISE (20Hz ~ 20MHz)			
Voltage	Ripple 1mVrms / 3mVp-p		
Current	Noise 2mVrms / 30mVp-p		
	≤3mA rms (≤5mA rms rating current > 3.5A)		
TEMPERATURE COEFFICIENT (0-40°C)			
Voltage	≤100ppm + 3mV		
Current	≤150ppm + 3mA		
REARBACK RESOLUTION/ACCURACY (25±5°C)			
Voltage	10mV (20mV rating voltage > 36V)		
Current	1mA (2mA rating current > 3.5A)		
Voltage	≤0.05% + 25mV (50mV rating voltage > 36V)		
Current	≤0.2% + 10mA		
RESPONSE TIME			
VOLTAGE UP 10% ~ 90%	≤100mS		
VOLTAGE DOWN 90% ~ 10%	≤100mS (≥ rating load)		
REARBACK TEMPERATURE COEFFICIENT			
Voltage	≤100ppm + 10mV (20mV rating voltage > 36V)		
Current	≤150ppm + 10mA		
DRIFT			
Voltage	≤100ppm + 10mV	≤0.03% + 6mV	
Current	≤150ppm + 10mA	≤0.1% + 6mA	
TRACK OPERATION			
Tracking Error	≤0.1% + 50mV		
Series Regulation	≤50mV		
PARALLEL OPERATION (PPT-Series only)			
Program Accuracy (25±5°C)	Voltage ≤0.05% + 25mV (50mV rating voltage > 36V)		
	Current ≤0.2% + 20mA		
	OVP ≤2% + 0.6V		
Load Effect	Voltage ≤3mV rear output (≤6mV front output)		
	Current ≤6mA (≤12mA rating current > 3.5A)		
Source Effect	Voltage ≤3mV ; Current ≤6mA		
MEMORY			
Store/Recall	50 sets		
TIMER			
Setting Time	1 second ~ 255 minutes (Max. 255 minutes x 50 sets for PPT-Series)		
Resolution	1 second ~ 99 minutes (Max. 99 minutes x 50 sets for PPE-3323)		
Function	for output working loop (Auto Step running)		
STANDARD INTERFACE			
RS-232C for PPE-Series; GPIB for PPT-Series			
POWER SOURCE			
AC 100V/120V/220V/240V ±10%, 50/60Hz			
DIMENSIONS & WEIGHT			
255(W) x 145(H) x 346(D) mm; Approx. 10kg			

ORDERING INFORMATION

PPE-3323	207W Triple Output Programmable D.C. Power Supply				
PPT-1830	138W Triple Output Programmable D.C. Power Supply				
PPT-3615	126W Triple Output Programmable D.C. Power Supply				
Model	Independent	Series	Parallel	Display Type	Weight (kg)
PPE-3323	(0-32V/0-3A)x2, (5V/3A) FIXED	64V/3A	32V/6A	LED	10
PPT-1830	(0-18V/0-3A)x2, (0-6V/0-5A)x1	36V/3A	18V/6A	LED	10
PPT-3615	(0-36V/0-1.5A)x2, (0-6V/0-3A)x1	72V/1.5A	36V/3A	LED	10

ACCESSORIES:
User manual x 1, Power cord x 1, Test lead GTL-105A x 3 (PPE-3323 & PPT-3615), GTL-104A x 3 (PPT-1830)

OPTIONAL ACCESSORIES

GRA-401 Rack Mount Kit
GTL-248 GPIB Cable, Double Shielded, 2000mm
GTL-204A European test lead x 3 (for PPT-1830/PPT-3615)

FREE DOWNLOAD

PPE-3323 PC Software Remote Control Software
PPT-1830, PPT-3615 Driver LabVIEW Driver

Multiple Output Programmable Linear D.C. Power Supply



PST-3201/3202



FEATURES

- * Digitized Programmable Interface
- * High Resolution 10mV, 1mA
- * 192 x 128 LCD Display, Simultaneously Shows Settings and Measuring Result
- * Over-Voltage, Over-Current, Over Temperature Protection
- * Intelligent Fan Control (Changes by Output Power)
- * 100 Sets Memory
- * Auto Step Running With Timer Setting
- * Auto Series and Parallel Function
- * LabVIEW Driver
- * Standard Interface : RS-232C
- * Optional Interface : GPIB (IEEE-488.2)
- * Optional European Jack Type Terminal

European Type Jack Terminal



Rear Panel



PST series is 3-channel, 96W or 158W, programmable linear DC power supplies. High resolution is maintained at 10mV, 1mA (3A). OVP, OCP, and OTP protect the PST-Series and its loads from unexpected conditions. PST-Series is capable of independent, series or parallel operation for increased flexibility. The large LCD display conveniently displays all outputs and configurations simultaneously to simplify operation. The programmable interface allows automatic stepping, 100 sets of memory and comprehensive timing operations. GPIB and RS232C interfaces, Labview drivers and SCPI compatibility allow easy ATE software development and remote control. The versatile PST-Series is ideal for high resolution, multiple output, automated operations such as production testing and rack mounting systems.

SPECIFICATIONS		
	PST-3202	PST-3201
OUTPUT		
Voltage	0-32Vx2, 0-6Vx1	0-32Vx3
Current	0-2Ax2, 0-5Ax1	0-1Ax3
OVP	0-33Vx2, 0-7Vx1	0-33Vx3
LOAD REGULATION		
Voltage	≤ 3mV (≤ 5mV rating current >3.0A)	
Current	≤ 3mA (≤ 5mA rating current >3.0A)	
LINE REGULATION		
Voltage	≤ 3mV	
Current	≤ 3mA	
RESOLUTION		
Voltage	10mV	
Current	1mA (2mA, rating current >3.0A)	
OVP	10mV	
PROGRAM ACCURACY(25 ± 5 °C)		
Voltage	≤ 0.05%+20mV	
Current	≤ 0.1%+5mA (+10mA, rating current>3.0A)	
OVP	≤ 0.05%+20mV	
RIPPLE & NOISE(20Hz-20MHz)		
Voltage	Ripple: ≤ 1mVrms/3mVp-p ; Noise: ≤ 2mVrms/30mVp-p	
Current	≤ 3mA _{rms} (≤ 5mA _{rms} , rating current >3.0A)	
TEMPERATURE COEFFICIENT (0 - 40 °C)		
Voltage	≤ 100ppm+3mV	
Current	≤ 100ppm+3mA	
REARBACK RESOLUTION		
Voltage	10mV(20mV, rating voltage >36V)	
Current	1mA(2mA, rating current >3.0A)	
REARBACK ACCURACY(25 ± 5 °C)		
Voltage	≤ 0.05%+10mV(+20mV, rating voltage >36V)	
Current	≤ 0.1%+5mA(+10mA, rating current>3.0A)	
REARBACK TEMPERATURE COEFFICIENT		
Voltage	≤ 100ppm+10mV(+20mV, rating voltage >36V)	
Current	≤ 150ppm+10mA(+20mA, rating current >3.0A)	
RESPONSE TIME		
Voltage Up (10%-90%)	≤ 100mS	
Voltage Down (90%-10%)	≤ 100mS (≥ 10% rating load)	
DRIFT		
Voltage	≤ 100ppm+10mV(+20mV, rating voltage >36V)	
Current	≤ 150ppm+10mA	
TRACK OPERATION		
Tracking Error	≤ 0.1%+20mV	
Series(Load Effect)	≤ 20mV	
PARALLEL OPERATION		
Program Accuracy(25± 5 °C)	Voltage ≤ 0.05%+20mV,Current ≤ 0.1%+10mA, OVP ≤ 0.05%+20mV	
Load Effect	Voltage ≤ 3mV(≤ 5mV, rating current>3.0A); Current≤ 6mA	
Source Effect	Voltage ≤ 3mV;Current ≤ 6mA	
MEMORY		
Store/Recall	100 Sets	
TIMER		
Setting Time	0.1 second-99 Minutes 59 second (Max. 99 Minutes 59 second x 100)	
Resolution	0.1 second	
Function	Auto step running (for output working loop)	
INTERFACE		
Standard : RS-232C ; Option: GPIB (IEEE488.2)		
POWER SOURCE		
AC 100V/120V/220V± 10%, 230V(+10%/-6%), 50/60Hz		
DIMENSIONS & WEIGHT		
230(W) x 140(H) x 380(D) mm , Approx.10kg		

ORDERING INFORMATION

PST-3202	158W Triple Output Programmable D.C. Power Supply				
PST-3201	96W Triple Output Programmable D.C. Power Supply				
Model	Independent	Series	Parallel	Display Type	Weight (kg)
PST-3201	(0-32V/0-1A)x3	64V/1A	32V/2A	LCD	10
PST-3202	(0-32V/0-2A)x2, (0-6V/0-5A)x1	64V/2A	32V/4A	LCD	10

ACCESSORIES :
User manual x 1, Power cord x 1, Test lead: GTL-104A x 3 (PST-3202) or GTL-105A x 3 (PST-3201)
European test lead: GTL-204A x 3 (PST-3202) or GTL-203A x 3 (PST-3201)

OPTION

Opt.01 GPIB Interface (factory installed)

OPTIONAL ACCESSORIES

GRA-407 Rack Mount Kit
GTL-248 GPIB Cable, Double Shielded, 2000mm
GTL-232 RS-232C Cable, 9-pin Female to 9-pin, null Modem for Computer

FREE DOWNLOAD

PC Software
Driver
PC Software including Data Log ; Remote Control Software
LabVIEW Driver

Multiple Output Programmable Linear D.C. Power Supply



GPD-2303S/3303S/ 4303S/3303D



FEATURES

- ✧ 2, 3 and 4 Independent Isolated Output
- ✧ 4 LED Display Sets : 3 Digits After Decimal Point (GPD-2303S/3303S/4303S)
- ✧ Minimum Resolution :
GPD-2303S/3303S/4303S (1mV/1mA)
GPD-3303D (100mV/10mA)
- ✧ Digital Panel Control (Rotary Encoder Switch, Rubber Key With Indicator)
- ✧ User-Friendly Operation, Coarse / Fine Volume Control
- ✧ 4 Sets Save / Recall
- ✧ Key-Lock
- ✧ Output ON/OFF
- ✧ Tracking Series and Parallel Mode
- ✧ Smart Cooling Fan Achieving Low Noise
- ✧ Compact Design
- ✧ PC Software & USB Driver
- ✧ USB Standard Interface
- ✧ Optional European Jack Type Terminal

European Type Jack Terminal



Rear Panel



The GPD-Series is cutting edge, economical, high resolution programmable power supplies. They are equipped with 2, 3 and 4 independent output channels and support a maximum output from 180Watt to 195Watt. The power supplies include four sets of memory for voltage and current setting, a USB remote interface, high resolution (GPD-2303S / GPD-3303S / GPD-4303S) and intelligent fan control to reduce noise. The durable features along with the free output monitoring software make the GPD-Series suitable for any lab as well as the LED industry.

SPECIFICATIONS

	GPD-2303S		GPD-3303S		GPD-4303S				GPD-3303D			
OUTPUT												
Channel	CH1	CH2	CH1	CH2	CH3	CH1	CH2	CH3	CH4	CH1	CH2	CH3
Voltage	0-30V	0-30V	0-30V	0-30V	2.5/3.3/5.0V	0-30V	0-30V	0-5V or 5.001V-10V	0-5V	0-30V	0-30V	2.5/3.3/5.0V
Current	0-3A	0-3A	0-3A	0-3A	0-3A	0-3A	0-3A	0-3A or 0-1A	0-1A	0-3A	0-3A	0-3A
CONSTANT VOLTAGE OPERATION												
Regulation	Line regulation $\leq 0.01\%+3mV$ Load regulation $\leq 0.01\%+3mV$ (rating current $\leq 3A$); $\leq 0.02\%+5mV$ (rating current $>3A$)											
Ripple & Noise	$\leq 1mVrms$ (5Hz-1MHz)											
Recovery Time	$\leq 100\mu s$ (50%Load change, Minimum load 0.5A)											
Temp.Coefficient	$\leq 300ppm / ^\circ C$											
Output Range	0 to rating voltage continuously adjustable											
CONSTANT CURRENT OPERATION												
Regulation	Line regulation $\leq 0.2\%+3mA$; Load regulation $\leq 0.2\%+3mA$											
Ripple Current	$\leq 3mA_{rms}$											
Output Range	0 to rating current continuously adjustable											
TRACKING OPERATION												
Regulation of	Line regulation $\leq 0.01\%+3mV$											
PAR.	Load regulation $\leq 0.01\%+3mV$ (rating current $\leq 3A$); $\leq 0.02\%+5mV$ (rating current $>3A$)											
Regulation of	Line regulation $\leq 0.01\%+5mV$											
SER.	Load regulation $\leq 300mV$											
Tracking Error	$\leq 0.5\%\pm 10mV$ (10 ~ 30V no load) with load added $\leq 300mV$ $\leq 0.5\%\pm 30mV$ (0 ~ 9.99V no load) with load added $\leq 300mV$)											
METER												
Tracking error	$\leq 0.5\% + 10mV$								$\leq 0.5\% + 50mV$			
Display	Voltage: 4 3/4 digits 0.4" LED Display Current: 3 3/4 digits 0.4" LED Display								Voltage:2 3/4 digits 0.4"LED Display Current:2 3/4 digits 0.4"LED Display			
Resolution	Voltage: 1mV Current: 1mA								Voltage:100mV Current:10mA			
Program	Voltage: $\pm(0.03\%$ of RDG +10 digits)								Voltage: $\pm(0.5\%$ of RDG+2 digits)			
Accuracy(25 $^\circ C$)	Current: $\pm(0.3\%$ of RDG +10 digits)								Current: $\pm(0.5\%$ of RDG+2 digits)			
Readback	Voltage: $\pm(0.03\%$ of RDG +10 digits)								Voltage: $\pm(0.5\%$ of RDG+2 digits)			
Accuracy(25 $^\circ C$)	Current: $\pm(0.3\%$ of RDG +10 digits)								Current: $\pm(0.5\%$ of RDG+2 digits)			
CH3 SPECIFICATIONS												
Output Voltage			(2.5V/3.3V/5V) $\pm 8\%$			0-5V / 5-10V			(2.5V/3.3V/5V) $\pm 8\%$			
Output Current			3A			0-3A / 0-1A			3A			
Regulation			Line regulation \leq			Line regulation \leq			Line regulation \leq			
(25 $\pm 5^\circ C$)	-		0.01%+3mV			0.01%+3mV			0.01%+3mV			
			Load regulation \leq			Load regulation \leq			Load regulation \leq			
			0.01%+3mV			0.01%+3mV			0.01%+3mV			
Repple & Noise			$\leq 1mVrms$ (5Hz-1MHz)			$\leq 2mVrms$ (5Hz-1MHz)			$\leq 1mVrms$ (5Hz-1MHz)			
KEY LOCK												
Yes												
MEMERY SAVE/RECALL												
4 sets												
POWER SOURCE												
AC100V/120V/220V/230V $\pm 10\%$, 50/60Hz												
DIMENSION & WEIGHT												
210(W) x 130 (H) x 265(D) mm ; Approx. 7kg												

ORDERING INFORMATION

GPD-2303S GPD-2303S 2 Channels, 180W Programmable Linear DC Power Supply
GPD-3303S GPD-3303S 3 Channels, 195W Programmable Linear DC Power Supply
GPD-4303S GPD-4303S 4 Channels, 195W Programmable Linear DC Power Supply
GPD-3303D GPD-3303D 3 Channels, 195W Programmable Linear DC Power Supply

ACCESSORIES:

User Manual x 1, Power cord x 1

GPD-2303S Test Lead GTL-104A x 2, European Test Lead GTL-204Ax2, GTL-201A x 1

GPD-3303S Test Lead GTL-104A x 2, GTL-105A x 1; European Test Lead GTL-203A x 1, GTL-204A x 2, GTL-201A x 1

GPD-4303S Test Lead GTL-104A x 2, GTL-105A x 2; European Test Lead GTL-203A x 2, GTL-204A x 2, GTL-201A x 1

GPD-3303D Test Lead GTL-104A x 2, GTL-105A x 1; European Test Lead GTL-203A x 1, GTL-204A x 2, GTL-201A x 1

OPTIONAL ACCESSORIES

GTL-246 USB Cable

FREE DOWNLOAD

PC Software PC Software including Data Log
Driver Labview Driver

Multi-output Programmable D.C. Power Supply



GPP-Series

NEW



FEATURES

- ✧ 4.3" TFT LCD Display
- ✧ Supports Setting Value, Measurement Value and Output Waveform Display
- ✧ Load Function (CC, CV, CR Mode)
- ✧ Setting Resolution: 1mV/0.1mA; Read Back Resolution: 0.1mV/0.1mA
- ✧ Low Ripple Noise: $\leq 350\text{mVrms}/\leq 2\text{mArms}$
- ✧ Transient Response Time: $\leq 50\text{ms}$
- ✧ Tracking Series and Parallel Function without Additional External Wiring
- ✧ Utilizing Hardware to Realize Over Voltage Protection/Over Current Protection/Over Temperature Protection
- ✧ Delay Function/Output Monitoring Function/Output Recorder Function
- ✧ Intelligent Temperature Control Fan Effectively Reduces Noise
- ✧ Sequential Output Function and Built-in 8 Template Waveforms
- ✧ The Output Recorder Function Records The Output Voltage & Current Parameters with A Minimum Recording Interval of 1 Second
- ✧ Provides 10 Sets of Memory for Each Sequence /Delay/Recorder/Panel Setting Condition
- ✧ GPP-3323 Supports A USB(Type A) Output Terminal
- ✧ Standard: RS-232, USB, Ext I/O; Optional (Manufacturer Installed Only): LAN, GPIB+LAN
- ✧ Compatible with Commands of GPD-X303S Series

With the maximum output power of 217W, the GPP-Series, the multi-channel programmable DC power supply, includes four models: GPP-1326 (0-32V/0-6A) for single-channel output and GPP-2323 for dual-channel output (CH1: 0-32V/0-3A, CH2: 0-32V/0-3A), GPP-3323 for three-channel output (CH1: 0-32V/0-3A, CH2: 0-32V/0-3A, CH3: 1.8V, 2.5V, 3.3V, 5.0V/5A) and GPP-4323 for four-channel output (CH1: 0-32V/0-3A, CH2: 0-32V/0-3A, CH3: 0-5V/0-1A, CH4: 0-15V/0-1A). This series not only provides high program resolution (1mV/0.1mA) and read back resolution (0.1mV/0.1mA), but also features optimal low-ripple noise characteristics $\leq 350\text{uVrms}/\leq 2\text{mArms}$ and output transient recovery capability $\leq 50\mu\text{s}$. Independent output on-off switch is provided for each channel.

For series and parallel applications of CH1 and CH2, the tracking function of the GPP-Series utilizes the internal circuit to automatically switch the output to serial or parallel output without additional external wiring, providing users with convenience not only in operating procedures but also a more stable output. The tracking function design of other brands requires additional external wiring connections for the output in series or parallel. However, excessively long, thin or inconsistent external wiring may cause inaccurate voltage or current output.

The GPP-Series offers a variety of display modes, including single or multi-channel setting values, measurement values, and waveform displays. The Monitor function of the GPP-Series allows users to set monitoring conditions according to requirements, sound alarms or stop output during the measurement process, and stop measurement and protect the customer's DUT. The GPP-Series provides output recorder function, which records the voltage/current of the output process to the internal memory, and the result can be stored as a (*.REC) or (*.CSV) file, which can then be transferred to the USB flash drive. The stored *.CSV can be exported to the Excel to conduct the future analysis.

The CH1/CH2 of the GPP-Series are designed with the load function. A single power supply can set one channel as the power output, and one channel for the load function to consume the power of the DUT so as to meet the basic charging and discharging test requirements for battery. Channel 1 and channel 2 not only provide 32V/3A power output, but also feature built-in maximum 32V constant voltage load (CV), maximum 3.2A constant current load (CC) and maximum 1k Ω constant resistance load (CR) function.

The GPP-Series provides the sequential output function on Channel 1 and Channel 2. This function not only allows users to edit the power output waveform, but also allows users to set the sequential constant voltage (CV) or constant current (CC) load waveform, i.e. a serial power output or a simulation test of a dynamic load. In order to simplify the setting of waveform editing, the GPP-Series has 8 built-in Template waveforms in the sequence output function for users to directly apply for output, including Sine, Pulse, Ramp, Stair Up, Stair UpDn, Exp Rise, Exp Fall waveforms.

The sound protection functions include OVP/OCP/OPP/OTP, in which the protection mechanism for OVP/OCP/OTP is implemented by hardware circuit that has the advantage of faster response time compared with competitors who adopt software to achieve protections. The OVP/OCP functions allow users to set the protection action point (except CH3 of GPP-3323) according to the conditions of the DUT. The OPP is only activated during the operation of the load function. The Delay Function sets the length of time during channel 1 or channel 2 power output on or during power output off.

In addition, the Trigger In/ Trigger Out functions synchronize external devices. The GPP-3323 channel 3 adds a 3A USB (Type A) output terminal for USB charging test. The intelligent temperature-controlled fan can adjust the speed according to the temperature of the power transistor so as to reduce unnecessary noise. The output value setting and the Sequence/Delay/Recorder functions provide 10 sets of internal memory for use, and can be loaded/stored using a USB flash drive. In addition to the standard RS-232 and USB remote interfaces, the GPP-Series also has an optional LAN or LAN+GPIB interface to facilitate different requirements. The commands of the GPP-Series conform to SCPI requirements and are compatible with the commands of the GPD-X303S Series.

SPECIFICATIONS												
		GPP-4323				GPP-3323			GPP-2323		GPP-1326	
OUTPUT MODE												
Number of Channel		CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH1	CH2	CH1	
Voltage		0-32V	0-32V	0-5V	0-15V	0-32V	0-32V	1.8/2.5/3.3/5.0V	0-32V	0-32V	0-32V	
Current		0-3A	0-3A	0-1A	0-1A	0-3A	0-3A	5A	0-3A	0-3A	0-6A	
Tracking Series Voltage		0-64V			0-64V			0-64V				
Tracking Parallel Current		0-6A			0-6A			0-6A				
CONSTANT VOLTAGE OPERATION												
Line Regulation		≤0.01%+3mV										
Load Regulation		≤0.01%+3mV(rating current ≤3A); ≤0.02%+5mV(rating current >3A)										
Ripple & Noise(5Hz-1MHz)		≤350μVrms		≤1mVrms		≤350μVrms		≤2mVrms		≤350μVrms		
Recovery Time		≤50μs		≤50μs		≤50μs		≤100μs		≤50μs		
CONSTANT CURRENT OPERATION												
Line Regulation		≤0.2%+3mA										
Load Regulation		≤0.2%+3mA										
Ripple & Noise		≤2mArms				≤2mArms			≤2mArms		≤4mArms	
PROGRAMMING RESOLUTION												
Voltage		1mV				1mV		-		1mV		
Current		0.1mA				0.1mA				0.2mA		
TRACKING OPERATION (CH1,CH2)												
Tracking Error		≤0.1%+10mV of Master(0-32V, No Load, with Load add Load regulation ≤100mV)										
Parallel Regulation		Line : ≤0.01%+3mV Load : ≤0.01%+3mV(rating current≤3A); ≤0.02%+5mV(rating current>3A)										
Series Regulation		Line : ≤0.01%+5mV; Load : ≤100mV										
Ripple & Noise		≤1mVrms, 5Hz-1MHz										
CH3 OPERATION FOR (GPP-3323)												
Output Voltage		1.8V/2.5V/3.3V/5.0V, ±5%										
Output Current		5A										
Line Regulation		≤3mV										
Load Regulation		≤5mV										
Ripple & Noise		2mVrms(5Hz-1MHz)										
Transient Recovery Time		100μs										
USB Port Output		1.8V/2.5V/3.3V/5.0V, ±0.35V, 3A										

Multi-output Programmable D.C. Power Supply

Rear Panel (LAN+GPIB)



Rear Panel (LAN)



Rear Panel



GPP-1326



GPP-2323



GPP-3323



GPP-4323

SPECIFICATIONS

	GPP-4323	GPP-3323	GPP-2323	GPP-1326
METER				
Voltage Resolution	0.1mV	0.1mV	0.1mV	0.1mV
Current Resolution	0.1mA	0.1mA	0.1mA	0.2mA
Setting Accuracy	$\leq \pm(0.03\%+10mV)$	$\leq \pm(0.03\%+10mV)$	$\leq \pm(0.03\%+10mV)$	$\leq \pm(0.03\%+10mV)$
Readback Accuracy	$\leq \pm(0.30\%+10mA)$	$\leq \pm(0.30\%+10mA)$	$\leq \pm(0.30\%+10mA)$	$\leq \pm(0.30\%+10mA)$
DC LOAD CHARACTERISTIC				
Channel	2	2	2	1
Display Power	0-50.00W	0-50.00W	0-50.00W	0-100.00W
Display Voltage	1-33.00V	1-33.00V	1-33.00V	1-33.00V
Display Current	0-3.200A	0-3.200A	0-3.200A	0-6.200A
CV Mode Setting Range	1.500V-33.00V	1.500V-33.00V	1.500V-33.00V	1.500V-33.00V
Resolution	10mV	10mV	10mV	10mV
Set Accuracy	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$
Read Accuracy	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$	$\leq 0.1\%+30mV$
CC Mode Setting Range	0-3.200A	0-3.200A	0-3.200A	0-6.200A
Resolution	1mA	1mA	1mA	1mA
Set Accuracy	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$
Read Accuracy	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$	$\leq 0.3\%+10mA$
CR Mode Setting Range	1-1k Ω	1-1k Ω	1-1k Ω	1-1k Ω
Resolution	1 Ω	1 Ω	1 Ω	1 Ω
Set Accuracy	$\leq 0.3\%+1\Omega$	$\leq 0.3\%+1\Omega$	$\leq 0.3\%+1\Omega$	$\leq 0.3\%+1\Omega$
Read Accuracy	(Voltage $\geq 0.1V$ and current $\geq 0.1A$)	(Voltage $\geq 0.1V$ and current $\geq 0.1A$)	(Voltage $\geq 0.1V$ and current $\geq 0.1A$)	(Voltage $\geq 0.1V$ and current $\geq 0.1A$)
INSULATION				
Chassis and Terminal	20M Ω or above (DC 500V)			
Chassis and AC Cord	30M Ω or above (DC 500V)			
ENVIRONMENT CONDITION				
Operation Temp	0-40 $^{\circ}C$			
Storage Temp	-10-70 $^{\circ}C$			
Operating Humidity	$\leq 80\%$ RH			
Storage Humidity	$\leq 70\%$ RH			
EXTERNAL CONTROL				
Yes				
INTERFACE				
Std: RS-232/USB(CDC), Opt(Manufacturer installed only): LAN/ GPIB+LAN				
POWER SOURCE				
AC100V/120V/220V/230V $\pm 10\%$, 50/60Hz				
DIMENSION & WEIGHT				
213(W) x 145(H) x 312(D) mm; Approx. 7.5kg				

OPERATING RANGE

Model Number	Number of Outputs	CH1	CH2	CH3	CH4
GPP-1326	1	0-32V/0-6A			
GPP-2323	2	0-32V/0-3A	0-32V/0-3A		
GPP-3323	3	0-32V/0-3A	0-32V/0-3A	1.8V/2.5V/3.3V/5V/5A	
GPP-4323	4	0-32V/0-3A	0-32V/0-3A	0-5V/0-1A	0-15V/0-1A

OUTPUT FUNCTION LIST

Model Number	GPP-4323			
	GPP-3323			
	GPP-2323	GPP-1326		
Number of Outputs	CH1	CH2	CH3	CH4
Sequence Output Function	✓	✓		
Load Functions (CC, CV, CR mode)	✓	✓		
Output Delay Function	✓	✓		
Output Monitoring Monitor(10 sets)	✓	✓	(GPIB2 required)	✓
Output Recorder Function	✓	✓	(GPIB2 required)	✓
Panel Save/Recall	✓	✓	✓	✓

ORDERING INFORMATION

GPP-1326	(32V/6A) Single-Output Programmable DC Power Supply
GPP-2323	(32V/3A*2) Dual-Output Programmable DC Power Supply
GPP-3323	(32V/3A*2; 1.8V or 2.5V or 3.3V or 5V/5A*1) Three-Output Programmable DC Power Supply
GPP-4323	(32V/3A*2; 5V/1A; 15V/1A) Four-Output Programmable DC Power Supply
ACCESSORIES:	
User Manual x 1, Power cord x 1	
GPP-1326	Test Lead GTL-104A x 1, GTL-105A x 1
GPP-4323	Test Lead GTL-104A x 2, GTL-105A x 2
European Test Leads:	
GPP-1326	GTL-203A x 1, GTL-204A x 1, GTL-201A x 1
GPP-4323	GTL-203A x 2, GTL-204A x 2, GTL-201A x 1
GPP-2323	GTL-204A x 2, GTL-201A x 1
GPP-3323	GTL-204A x 3, GTL-201A x 1

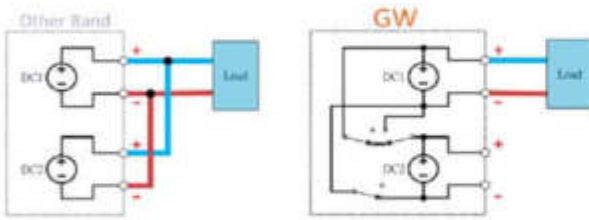
OPTIONAL ACCESSORIES

GTL-246 USB Cable

OPTIONS (Manufacturer Installed Only)

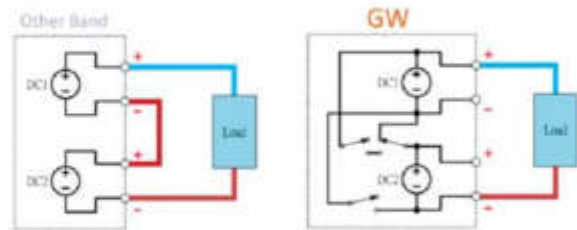
LAN Interface; GPIB+LAN Interface

A. TRACKING SERIES AND PARALLEL FUNCTION



Output in Parallel Connections

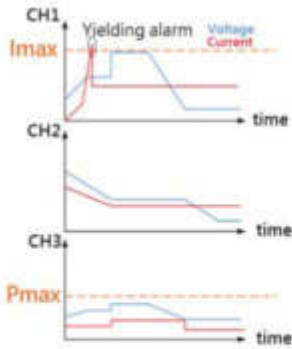
For series and parallel applications of CH1 and CH2, the tracking function of the GPP-Series utilizes the internal circuit to automatically switch the output to serial or parallel output without additional external wiring, providing users with convenience not only in operating procedures but also a more stable output.



Output in Series Connections

The tracking function design of other brands requires additional external wiring connections for the output in series or parallel. However, excessively long, thin or inconsistent external wiring may cause inaccurate voltage or current output.

B. OUTPUT MONITORING FUNCTION



Output Monitoring

The output monitoring function allows users to set the monitoring conditions according to the requirements, including the voltage, current, and power greater than or less than the setting and the logical relationship of AND, OR. It also allows users to sound



Monitoring Function Setting

alarms or stop the output during the measurement process, stop the measurement, and protect the customer's DUT. Each Channel could be monitored simultaneously as well.

* Channel 3 of GPP-3323 does not support the output monitoring function.

C. SEQUENCE OUTPUT FUNCTION



Output Waveform of the GPP-X323 Series

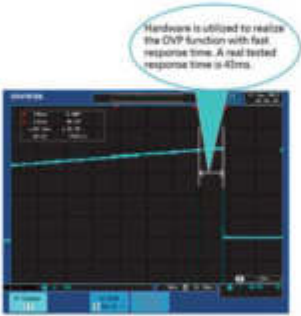
The GPP-Series provides a sequential output function on Channel 1 and Channel 2. This function not only allows users to edit the power output waveform, but also allows users to set the sequential constant voltage (CV) or constant current (CC) load waveform, i.e. a serial power output or a simulation test of a dynamic load. The maximum settable points for sequence function are 2048, and interval range of each point can be set from 1 to 300 seconds. In order to simplify the setting of waveform editing, the GPP-Series has 8 built-in Templet waveforms in sequence output function for

users to directly apply for output, including Sine, Pulse, Ramp, Stair Up, Stair Dn, Stair UpDn, Exp Rise, and Exp Fall waveforms.

The editing data of the sequence output can be stored in the internal 10 sets of the memory, or to be saved by USB flash drive (Save/Recall) and saved as *.SEQ or *.CSV file; The stored *.CSV can be exported into Excel for editing and analysis. The final edited file can be imported to (Save/Recall) of the power supply using a USB flash drive.

Multi-output Programmable D.C. Power Supply

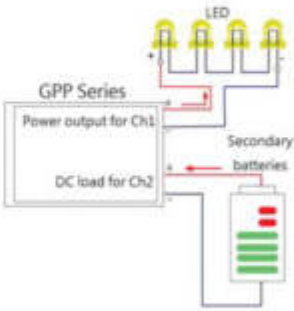
D. HARDWARE PROTECTION FUNCTION(OVP/OCV/OTP)



OVP Trigger

The protection mechanism of OVP/OCV/OTP is implemented by hardware circuit, which has the advantage of faster response time than competitors who use software to achieve protection. When it is detected that the voltage of the DUT exceeds the setting value of the OVP, the output of the power supply can be stopped in a short time to achieve the purpose of protecting the DUT.

E. LOAD FUNCTION



GPP-Series Application

The CH1/CH2 of the GPP-Series is designed with the load function. A single power supply can meet the basic battery charging and discharging test requirements. It can provide 32V/3A power output in channel 1 and channel 2. The maximum 32V constant voltage load (CV), maximum 3.2A constant current load (CC) and maximum 1kΩ constant resistance load (CR) function are built-in to allow users do conduct discharging test without using an electronic load. In application, users can also set either that one channel of the single GPP series as the power output, one channel as the load function to consume the power of the DUT, or that both channels as load functions to consume the power of different loads simultaneously.

F. OUTPUT DELAY FUNCTION

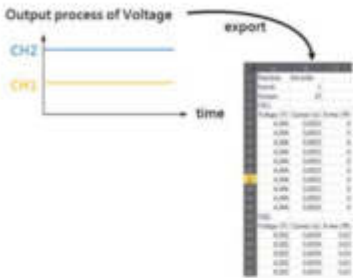


GPP-Series Delayed Waveform

Output delay function allows users to edit the timing waveform of the power output on/off when the front panel voltage and current settings are unchanged. In order to simplify the setting of waveform editing, the GPP-Series has three built-in timing modes in the delay output function, including Fixtime, Increase, Decline for users to apply directly. The editing data of the output delay can be stored in

the internal 10 sets of memory, or to be saved by USB flash drive (Save/Recall) and saved as *.DLY or *.CSV file. The stored *.CSV can be exported into Excel for editing and analysis. The final edited file can be exported to (Save/Recall) of the power supply using a USB flash drive.

G. OUTPUT RECORDER FUNCTION



Schematic Diagram for Recorder Function

The output recorder function records the voltage & current parameters of the output process. The recording interval of each point can be set according to user's requirements, and the shortest interval is 1 second and the longest is 300 seconds. The results can be stored in *.REC or *.CSV format to the power supply or directly



Recorder Function Setting



Save as *.REC

saved in the USB flash drive. The stored *.CSV can be exported into Excel to conduct the future analysis. (*.REC can be saved to 2018 records, *.CSV can be saved to 614400 records)

* Channel 3 of GPP-3323 does not support the output recorder function

Multiple Output Dual Range D.C. Power Supply



SPD-3606



FEATURES

- * Three Independent, Isolated Output
- * CH1/CH2 : Dual Output Range of 30V/6A or 60V/3A
- * CH3 Adjustable Output : 0.1~5V/3A
- * High Efficiency Power Conversion (Up to 25% Than Traditional Power Supply)
- * Remote Output On/Off Control
- * OVP to Protect the DUT
- * OTP to Protect SPD-3606 for Reducing the Repair Rate
- * Automatically Switches AC 115V/230V Source
- * Full Safety Design: Reverse Polarity, CH3 Overload Protection, Safe Output Setting, C.C./C.V. Mode
- * Compact Size, Light Weight
- * Low Fan Acoustic Noise with Fan Speed Control Circuit
- * Voltage/Current Protection Knob(Optional)
- * Optional European Jack Type Terminal

European Type Jack Terminal



Rear Panel



GPS-001

Voltage/Current protection Knob



The SPD-3606 DC power supply provides 375W output capacity, three isolated outputs with dual-range for CH1 & CH2, highly efficient power conversion, low noise, high reliability, thorough protection, excellent value and a compact size. SPD-3606 creates a new bench mark for satisfying mainstream power supply demands. CH1 & CH2 offer dual-range output either at 30V/6A or 60V/3A per channel to accommodate a wide range of applications. SPD-3606 supports series and parallel tracking, allowing the CH1 and CH2 to be internally connected in series or parallel providing flexible output (30V/12A, 60V/6A, or 120V/3A). High power density and high power conversion efficiency lets SPD-3606 consume less energy making for a greener power supply. In addition, the high power density makes SPD-3606 weigh less than half and occupy much less space compared to linear power supplies. To avoid damage caused by improper operation, it also has OVP and OTP. The dual range AC input accepts both 115V and 230V inputs. When the instrument is on, devices can be connected and voltage/current levels can be adjusted safely from the front panel by turning off the output using the Output on/off key. The optional voltage/current protection knobs can be used to prevent accidentally changing the output levels. These knobs are useful for automated testing at fixed output levels, such as in assembly lines or product inspections.

SPECIFICATIONS

OUTPUT RATINGS

CH1/CH2 Independent	0 ~ 30V / 0 ~ 6A ; 0 ~ 60V / 0 ~ 3A
CH1/CH2 Series	0 ~ 60V / 0 ~ 6A ; 0 ~ 120V / 0 ~ 3A
CH1/CH2 Parallel	0 ~ 30V / 0 ~ 12A ; 0 ~ 60V / 0 ~ 6A
CH3	0.1 ~ 5V / 3A

VOLTAGE REGULATION

Line	$\leq 0.01\% + 3\text{mV}$
Load	$\leq 0.01\% + 5\text{mV}$ (rating current $\leq 6\text{A}$) $\leq 0.01\% + 8\text{mV}$ (rating current $\leq 12\text{A}$)
Ripple & Noise	$\leq 5\text{mVrms}$ (5Hz ~ 1MHz) ; $\leq 50\text{mVpp}$ (20Hz ~ 20MHz)
Recovery Time	$\leq 100\mu\text{s}$ (50% load change, minimum load 0.5A)

CURRENT REGULATION

Line	$\leq 0.2\% + 3\text{mA}$
Load	$\leq 0.2\% + 3\text{mA}$
Ripple & Noise	$\leq 3\text{mA}_{\text{rms}}$

TRACKING OPERATION

Tracking Error	$\leq 0.5\% + 10\text{mV}$ of master
Series Regulation	$\leq 300\text{mV}$
Ripple & Noise	$\leq 10\text{mVrms}$ (5Hz ~ 1MHz) ; $\leq 100\text{mVpp}$ (20Hz ~ 20MHz)

OUTPUT ON/OFF RESPONSE TIME

Voltage Up (10% ~ 90%)	$\leq 100\text{ms}$ ($\leq 95\%$ rating load)
Voltage Down (90% ~ 10%)	$\leq 100\text{ms}$ ($\geq 10\%$ rating load)

OVP

Accuracy	$\pm (0.5\% \text{ of reading} + 0.5\text{V})$
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METER

Type	3 1/2 digit 0.5" LED display
Accuracy	$\pm (0.5\% \text{ of reading} + 2 \text{ digits})$
Resolution	100mV/10mA

INSULATION

Chassis & Terminal	100M Ω or above (DC 1000V)
Chassis & AC code	100M Ω or above (DC 1000V)

TEMPERATURE COEFFICIENT

Voltage	$\leq 100\text{ppm}/^\circ\text{C} + 3\text{mV}$
Current	$\leq 150\text{ppm}/^\circ\text{C} + 3\text{mA}$

REMOTE CONTROL

Output On/Off

FAN NOISE

$\leq 50\text{dB}$

OPERATION ENVIRONMENT

Ambient temperature 0 ~ 40 $^\circ\text{C}$; Relative humidity $\leq 80\%$

STORAGE ENVIRONMENT

Ambient temperature -10 ~ 70 $^\circ\text{C}$; Relative humidity $\leq 70\%$

POWER SOURCE

AC 115V/230V $\pm 15\%$, 50/60Hz

DIMENSIONS & WEIGHT

255 (W) x 145 (H) x 265 (D) mm ; Approx. 6kg

ORDERING INFORMATION

SPD-3606 Multiple Output Dual Range D.C. Power Supply

ACCESSORIES :

User manual x 1, Power code x 1, Test lead GTL-104A x 2, GTL-105A x 1
European Test Lead GTL-201A x 1, GTL-203A x 1, GTL-204A x 2

OPTIONAL ACCESSORIES

GPS-001 Voltage/Current protection Knob

Multiple Output Linear D.C. Power Supply



GPE-X323 Series



FEATURES

- * 1/2/3/4 Independent Isolated Output
- * 4.3 Inch LCD Display
- * Setting & Read Back Resolution 100mV/10mA (*1)
- * Output ON/OFF Switch
- * Analog Control (Remote I/O) For Output ON/OFF
- * Set View Function For Checking an Original V/I Setting During Output On
- * Key Lock Function
- * Tracking Series And Parallel Operation
- * Smart Cooling Fan Achieving Low Noise
- * Optional European Jack Type Terminal

The GPE-X323 series is cutting edge, economical linear DC Power supplies. The GPE-X323 series features output power from 192 to 217 watts, three independent isolated output channels (for GPE-3323), high resolution, low noise, high reliability, and compact size.

The GPE-X323 series has a built-in digital panel control design to replace conventional control method. This unique design allows the GPE-X323 series linear DC power supply to provide users with more efficient functionalities, including set view and key lock so as to expedite the operation process. The key lock function protects DUTs by preventing others from changing voltage and current parameters. Additionally, output key light facilitates users in clearly reading the operational status of power supply.

SPECIFICATIONS

GPE-4323				GPE-3323			GPE-2323		GPE-1326	
OUTPUT MODE										
Number of Channel	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH1	CH2	CH1
Voltage	0-32V	0-32V	0-5V	0-15V	0-32V	0-32V	5V	0-32V	0-32V	0-32V
Current	0-3A	0-3A	0-1A	0-1A	0-3A	0-3A	5A	0-3A	0-3A	0-6A
Tracking Series Voltage	0-64V		-		0-64V		-	0-64V		-
Tracking Parallel Current	0-6A				0-6A			0-6A		
CONSTANT VOLTAGE OPERATION										
Line Regulation	≤ 0.01%+3mV									
Load Regulation	≤ 0.01%+3mV(rating current ≤ 3A) ≤ 0.02%+5mV(rating current > 3A)									
Ripple & Noise	≤ 1mVrms(5Hz~1MHz)									
Recovery Time	≤ 100μs(50% Load Change, minimum load 0.5A)									
CONSTANT CURRENT OPERATION										
Line Regulation	≤ 0.2%+3mA									
Load Regulation	≤ 0.2%+3mA									
Ripple & Noise	≤ 3mArms									
TRACKING OPERATION (CH1,CH2)										
Tracking Error	≤ 0.1%+10mV of Master(0-32V) No Load , with Load add load regulation≤ 100mV									
Parallel Regulation	Line : ≤ 0.01%+3mV Load : ≤ 0.01%+3mV(rating current≤ 3A) ≤ 0.02%+5mV(rating current> 3A)									
Series Regulation	Line : ≤ 0.01%+5mV Load : ≤ 100mV									
Ripple & Noise	≤ 2mVrms , 5Hz – 1MHz									
CH3 OPERATION FOR (GPE-3323)										
Output Voltage	5.0V, ±5%									
Output Current	5A									
Line Regulation	≤ 3mV									
Load Regulation	≤ 5mV									
Ripple & Noise	1mVrms(5Hz~1MHz)									
METER										
Voltage Resolution	100mV (*1)									
Current Resolution	10mA (*1)									
Setting Accuracy	Voltage±(0.1% of reading +30mV); Current±(0.3% of reading +6mA)									
Readback Accuracy	Voltage±(0.1% of reading +30mV); Current±(0.3% of reading +6mA)									
INSULATION										
Chassis and Terminal	20MΩ or above (DC 500V)									
Chassis and AC Cord	30MΩ or above (DC 500V)									
ENVIRONMENT CONDITION										
Operation Temp	0~40℃									
Storage Temp	-10~70℃									
Operating Humidity	≤ 80% RH									
Storage Humidity	≤ 70% RH									
OTHER										
Power Source	AC100V/120V/220V±10%; 230V(+10%—6%); 50/60Hz									
Dimensions & Weight	210(W)x 155(H) x 306(D) mm ; Approx. 7kg									



GPE-X323 Series

ORDERING INFORMATION

GPE-1326	Single Channel, 192W Linear DC Power Supply
GPE-2323	2 Channels, 192W Linear DC Power Supply
GPE-3323	3 Channels, 217W Linear DC Power Supply
GPE-4323	4 Channels, 212W Linear DC Power Supply

ACCESSORIES :

User Manual (CD) x 1 ; Power Cord x 1

GPE-1326 Test Lead GTL-104A x 1 ; GTL-105A x 1 ; or European GTL-204A x 1, GTL-203A x 1

GPE-2323 Test Lead GTL-104A x 2 ; or European GTL-204A x 2

GPE-3323 Test Lead GTL-104A x 3 ; or European GTL-204A x 3

GPE-4323 Test Lead GTL-104A x 2 ; GTL-105A x 2 or European GTL-204A x 2 , GTL-203A x 2

Note : (※1) For a higher resolution (10mV/1mA), please follow the setting procedure of the user manual on p35.
When using a higher resolution, the current or voltage adjustment may be limited by the knob sensibility.

A. TRACKING SERIES AND PARALLEL OPERATION

In addition to independent output channels, the GPE-X323 series provides tracking series and parallel operation (For GPE-2323/GPE-3323/GPE-4323). The series and parallel connections allow power supplies to output 32V/6A (Parallel Connection) and 64V/3A (Series Connection).



Internal connection for tracking Series and Parallel operation via control panel

B. CONVENIENT FUNCTION

The GPE-X323 series has a built-in set view and key lock so as to expedite the operation process. The key lock function protects DUTs by preventing others from changing voltage/current parameters.



The key lock function prevent DUTs from unnecessary damages caused by mis-operation.

C. REMOTE I/O FOR OUTPUT ON/OFF FUNCTION

The GPE-X323 Series also provides the analog control (Remote I/O) function for external output On/Off control.



For controlling the output On/Off function through the specific pin assignment of remote control connector which is in rear panel.

Rear Panel



European Type Jack Terminal



Multiple Output Linear D.C. Power Supply



GPS-2303/3303/4303



FEATURES

- * 2, 3 and 4 Independent Isolated Output
- * Four "3 Digits" LED Displays
- * 0.01% Load and Line Regulation
- * Low Ripple and Noise
- * Tracking Operation and Auto Series/Parallel Operation
- * Output ON/OFF Switch
- * Output Voltage and Current Setting When Output Disable (Except for GPS-2303)
- * Fan Speed Control Circuit to Minimize Fan Noise
- * Over Load and Reverse Polarity Protection
- * Optional European Jack Type Terminal

European Type Jack Terminal



GPS-001

Voltage/Current protection Knob



Rear Panel



GPS-3303

The GPS Series linear power supplies have 2-4 independent output channels, 180W to 200W output, overload and reverse polarity protection as well as an output ON/OFF switch for safety. The tracking mode switches allow voltage/current to be output in parallel or series and the intelligent fan reduces noise. The GPS-Series is entry level general purpose power supplies recognized for their affordability in education, laboratories and industry.

SPECIFICATIONS

		GPS-4303				GPS-3303			GPS-2303	
OUTPUT MODE										
		CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH1	CH2
Voltage		0 – 30V	2.2 – 5.2V	8 – 15V		0 – 30V	5V Fixed		0 – 30V	
Current		0 – 3A	1A Max.	1A Max.		0 – 3A	3A Max.		0 – 3A	
Tracking Series Voltage		0 – 60V	----			0 – 60V	----		0 – 60V	
Tracking Parallel Current		0 – 6A				0 – 6A			0 – 6A	
CONSTANT VOLTAGE OPERATION (CH1, CH2)										
Line Regulation		≤ 0.01% + 3mV								
Load Regulation		≤ 0.01% + 3mV (rating current ≤ 3A) ≤ 0.02% + 5mV (rating current > 3A)								
Ripple & Noise		≤ 1mVrms , 5Hz ~ 1MHz								
Recovery Time		≤ 100µS (50% Load change, Minimum load 0.5A)								
CONSTANT CURRENT OPERATION (CH1, CH2)										
Line Regulation		≤ 0.2% + 3mA								
Load Regulation		≤ 0.2% + 3mA								
Ripple & Noise		≤ 3mArms								
TRACKING OPERATION (CH1, CH2)										
Tracking Error		≤ 0.5% + 10mV of CH1								
Series Regulation		≤ 0.01% + 5mV								
Load Regulation		≤ 300mV								
Ripple & Noise		≤ 2mVrms , 5Hz ~ 1MHz								
CH3 OPERATION (for GPS-3303/4303)										
CH3 Voltage		GPS-4303 : 2.2V – 5.2V , GPS-3303 : 5V Fix								
Line Regulation		≤ 5mV								
Load Regulation		≤ 15mV								
Ripple & Noise		≤ 2mVrms, 5Hz ~ 1MHz								
Current Output		GPS-4303 : 1A, GPS-3303 : 3A								
CH4 OPERATION (for GPS-4303)										
CH4 VOLTAGE		8V – 15V								
Line Regulation		≤ 5mV								
Load Regulation		≤ 10mV								
Ripple & Noise		≤ 2mVrms, 5Hz ~ 1MHz								
Current Output		1A								
METER										
Digital		3 digits 0.5" LED display GPS-4303/3303 Out ON Accuracy ± (0.5% of rdg + 2 digits) GPS-4303/3303 Out OFF Accuracy ± (0.5% of rdg + 8 digits) GPS-2303 Accuracy ± (0.5% of rdg + 2 digits)								
INSULATION										
Chassis and Terminal		≥ DC 500V / 20MΩ								
Chassis and AC Cord		≥ DC 500V / 30MΩ								
POWER SOURCE										
AC 100V/120V/220V±10%, 230V(+10%—6%), 50/60Hz										
DIMENSIONS & WEIGHT										
255(W) x 145(H) x 265(D) mm, Approx. 7 kg										

ORDERING INFORMATION

- GPS-4303 4-channels, 200W Multiple Output Linear DC Power Supply
GPS-3303 3-channels, 195W Multiple Output Linear DC Power Supply
GPS-2303 2-channels, 180W Multiple Output Linear DC Power Supply

ACCESSORIES :

- User manual x 1, Power cord x 1,
GPS-4303 : Test lead GTL-104A x 2, GTL-105A x 2 ; European test lead GTL-203A x 2, GTL-204A x 2, GTL-201 x 1
GPS-3303 : Test lead GTL-104A x 2, GTL-105A x 1 ; European test lead GTL-203A x 1, GTL-204A x 2, GTL-201 x 1
GPS-2303 : Test lead GTL-104A x 2 ; European test lead GTL-204A x 2, GTL-201A x 1

OPTIONAL ACCESSORIES

- GPS-001 Voltage/Current Protection Knob

Triple Output Linear D.C. Power Supply



GPC-1850D/3030D/3060D/6030D



(Note: GPC 3060D/6030D are not CE approved.)



GPC-3030DQ



FEATURES

- ✧ Four Digital Panel Meters (GPC-3030DQ)
- ✧ Triple Output
- ✧ Auto Tracking
- ✧ Auto Series and Parallel Operation
- ✧ Constant Voltage and Constant Current Operation
- ✧ Low Ripple and Noise
- ✧ Internal Select for Continuous or Dynamic Load
- ✧ Overload and Reverse Polarity Protection
- ✧ 3 1/2 Digits 0.39" LED Display(GPC-3030DQ)
- ✧ 3 1/2 Digits 0.5" LED Display(GPC-1850D/3030D/3060D/6030D)
- ✧ 5V, 3A Fixed Output

The GPC-Series is triple output, 195W to 375W, linear DC power supplies. Channel 1 and 2 are fully adjustable (model dependant) and channel 3 is fixed at 5V/3A with ripple and noise at less than 2mVrms. Overload and reverse polarity protection keep GPC-Series and its loads safe from unexpected conditions. GPC-3030DQ contains a temperature controlled cooling fan for thermal protection. GPC features continuous or dynamic internal load selection and series or parallel tracking for application flexibility. The GPC-Series is an ideal solution for inexpensive bench-top applications requiring low noise and multiple outputs.

SPECIFICATIONS	
OPERATION MODE	
Independent	Two independent outputs and 5V fixed output
Series	Output from 0 to rating volts and 0 to rating amperes
Parallel	Output from 0 to \pm rating volts at rating amperes each Output from 0 to double rating volts at rating amperes
CONSTANT VOLTAGE OPERATION	
Regulation	Line regulation $\leq 0.01\% + 3\text{mV}$ Load regulation $\leq 0.01\% + 3\text{mV}$ (rating current $\leq 3\text{A}$) $\leq 0.01\% + 5\text{mV}$ (rating current $\leq 10\text{A}$) $\leq 0.02\% + 5\text{mV}$ (rating current $\geq 10\text{A}$)
Ripple & Noise	$\leq 1\text{mVrms}$ 5Hz ~ 1MHz
Recovery Time	$\leq 100\mu\text{s}$ (50% Load change, Minimum load 0.5A)
CONSTANT CURRENT OPERATION	
Regulation	Line regulation $\leq 0.2\% + 3\text{mA}$ Load regulation $\leq 0.2\% + 3\text{mA}$ (for GPC-1850D/GPC-3030D/GPC-3030DQ) Load regulation $\leq 0.2\% + 5\text{mA}$ (for GPC-3060D/GPC-6030D)
Ripple Current	$\leq 3\text{mA}_{\text{rms}}$
5V FIXED OUTPUT	
Regulation	Line regulation $\leq 5\text{mV}$ Load regulation $\leq 10\text{mV}$
Ripple & Noise	$\leq 2\text{mVrms}$
Voltage Accuracy	$5\text{V} \pm 0.25\text{V}$
Output Current	3A
TRACKING OPERATION	
Tracking Error	$\leq 0.5\% + 10\text{mV}$ of the master
Series Regulation	$\leq 300\text{mV}$
METER	
Digital	3 1/2 digits 0.5" LED display 3 1/2 digits 0.39" LED display (for GPC-3030DQ) Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$
INSULATION	
Chassis and Terminal	20M Ω or above (DC 500V) 100M Ω or above (DC 1000V) (for GPC-3060D/6030D)
Chassis and AC Cord	30M Ω or above (DC 500V) 100M Ω or above (DC 1000V) (for GPC-3060D/6030D)
POWER SOURCE	
AC 100V/120V/220V/240V $\pm 10\%$, 50/60Hz	
DIMENSIONS	
255(W) x 145(H) x 420(D) mm	

ORDERING INFORMATION

	Model	Independent	Series	Parallel	Weight (kg)
GPC-1850D	195W D.C. Power Supply	(0 ~ 18V/0 ~ 5A) x 2, (5V/3A MAX) x 1	36V 5A	18V 10A	11.5
GPC-3030D	195W D.C. Power Supply	(0 ~ 30V/0 ~ 3A) x 2, (5V/3A MAX) x 1	60V 3A	30V 6A	11.5
GPC-6030D	375W D.C. Power Supply	(0 ~ 60V/0 ~ 3A) x 2, (5V/3A MAX) x 1	120V 3A	60V 6A	18.5
GPC-3060D	375W D.C. Power Supply	(0 ~ 30V/0 ~ 6A) x 2, (5V/3A MAX) x 1	60V 6A	30V 12A	18.5
GPC-3030DQ	195W D.C. Power Supply	(0 ~ 30V/0 ~ 3A) x 2, (5V/3A MAX) x 1	60V 3A	30V 6A	11.5
ACCESSORIES :					
User manual x 1, Power cord x 1					
Test lead GTL-105A x 1 ($\leq 3\text{A}$) or GTL-104A x 2 ($\leq 10\text{A}$)					
OPTIONAL ACCESSORIES					
GRA-401	Rack Mount Kit				



ACCESSORIES

MODEL	DESCRIPTION	APPLICABLE DEVICE
APS-001	GPIO interface card	APS-7000 Series
APS-002	RS-232 / USB interface card	APS-7050, APS-7100
APS-003	Output Voltage Capacity (0 ~ 600Vrms)	APS-7000 Series
APS-004	Output Frequency Capacity (45~999.9Hz)	APS-7000 Series
APS-007	RS-232 interface card	APS-7200, APS-7300
GET-001	Extended terminal for 30V/80V/160V models	PSW-Series
GET-002	Extended terminal for 250V/800V models	PSW-Series
GPS-001	Knob, Voltage/Current Protection Knob	GPS-x303 Series, SPD-3606
GPW-001	UL/CSA Power Cord, 3000mm	PSU-Series
GPW-002	VDE Power Cord, 3000mm	PSU-Series
GPW-003	PSE Power Cord, 3000mm	PSU-Series
GRA-401	Rack Mount Kit, 19", 4U Size	GPC-Series, GPR-M Series, PPE-3323, PPS-3635, PPT-Series, PEL-300
GRA-403	Rack Mount Kit, 19", 4U Size	PSH-Series
GRA-407	Rack Mount Kit, 19", 4U Size	PSM-Series, PST-Series
GRA-408	Rack Mount Kit, 19", 4U Size	PSS-Series
GRA-409	Rack Mount Kit, 19", 5U Size	APS-1102A
GRA-410-E	Rack Mount Kit (EIA), 19", 3U Size	PSW-Series
GRA-410-J	Rack Mount Kit (JIS), 19", 3U Size	PSW-Series
GRA-413-E	Rack Mount Kit (EIA), 19", 3U Size	PEL-3211/3211H
GRA-413-J	Rack Mount Kit (JIS), 19", 3U Size	PEL-3211/3211H
GRA-414-E	Rack Mount Kit (EIA), 19", 3U Size	PEL-3021(H)/3041(H)/3111(H), PEL-3000E Series
GRA-414-J	Rack Mount Kit (JIS), 19", 3U Size	PEL-3021(H)/3041(H)/3111(H), PEL-3000E Series
GRA-418-E	Rack Mount Kit (EIA), 19", 3U Size	PSB-1000 Series
GRA-418-J	Rack Mount Kit (JIS), 19", 3U Size	PSB-1000 Series
GRA-419-E	Rack Mount Kit (EIA), 19", 2U Size	PCS-1000I
GRA-419-J	Rack Mount Kit (JIS), 19", 2U Size	PCS-1000I
GRA-423	Rack Mount Kit, 19", 2U Size	APS-7000/7000E Series
GRA-424	Rack Mount Kit, 19", 3U Size	PSB-2000 Series
GRA-427	Rack Mount Kit, 19", 3U Size	PLR-Series
GRA-429	Rack Mount Kit, 7U Size	APS-7200 Series
GRA-430	Rack Mount Kit, 9U Size	APS-7300 Series
GRA-431-J	Rack Mount Kit (JIS)	PFR-Series
GRA-431-E	Rack Mount Kit (EIA)	PFR-Series
GRJ-1101	Module Cable (0.5m)	PSB-2000 Series, PLR-Series
GRJ-1102	Module Cable (1.5m)	PLR-Series
GRM-001	Slide bracket 2pcs/set	PSU-Series
GTL-104A	Test Lead, U-type to Alligator Test Lead, Max. Current 10A, 1000mm	PFR/PSM/PSP/PSJ/PSY/GPC/GPD/GPP/GPR/GPS/GPE/PPT-Series, PPS-3635, SPD-3606
GTL-105A	Test Lead, Alligator to Banana Test Lead, Max. Current 3A, 1000mm	PFR/PSJ/PSY/GPC/GPD/GPP/GPR/GPS/GPE/PPT-Series, PEL-2000A, PPE-3323, SPD-3606, PCS-1000I
GTL-117	Test Lead, Banana to Probe Test Lead, 1200mm	PPH-1503/1503D/1506D
GTL-120	Test Lead, O-type to O-type Test Lead, Max. 40A, 1200mm	PEL-3000/3000H Series, PEL-2000A Series
GTL-121	Sense Lead, O-type to free Lead, 1200mm	PEL-2000A Series
GTL-122	Test Lead, U-type to Alligator Test Lead, Max. Current 40A, 1200mm	PSH-Series, GPR-U Series, GPR-H Series
GTL-123	Test Lead, O-type to O-type Test Lead, 1200mm	PSW-Series, APS-7000 Series, PSB-1000 Series
GTL-130	Test leads: 2 x red, 2 x black, for 250V/800V models, 1200mm	PSW-Series
GTL-134	Test leads for rear panel, 1200mm, 10A, 16 AWG	PFR-Series
GTL-201A	Ground Lead, Banana to Banana, European Terminal, 200mm	APG-200/100 Series, PSM Series, GPD-Series, GPP-Series, GPS-X303 Series, SPD-3606
GTL-202	Sense Lead, Banana to Banana Lead, European Terminal, 200mm	PSM-Series
GTL-203A	Test Lead, Banana to Alligator, European Terminal, Max. Current 3A, 1000mm	PSS/PSY/GPD/GPP/GPS/SPS-Series, SPD-3606, PPH-1503/1503D/1506D
GTL-204A	Test Lead, Banana to Alligator, European Terminal, Max. Current 10A, 1000mm	PSM/PSJ/PSY/GPS/GPE/PPT/PSY/GPD/GPP-Series, SPD-3606, PPH-1503/1503D/1506D
GTL-207A	Test Lead, Banana to Probe Test Lead, 800mm	PCS-1000I
GTL-232	RS-232C Cable, 9-pin, F-F Type, null modem, 2000mm	PSH/PSM/PSJ/PSY-Series, APS-7000 Series, PEL-2000A Series
GTL-232A	RS-232C Cable, 9-pin, F-F Type, null modem, 2000mm	PSP-Series
GTL-234	RS-232C Cable, 9-pin, F-F Type, 2000mm	APS-1102A
GTL-240	USB Cable, USB 2.0, A-B Type (L Type), 1200mm	PSW-Series, PSU-Series, APS-1102A, APS-7000 Series, PCS-1000I
GTL-246	USB Cable, USB 2.0, A-B Type, 1200mm	PFR-Series, PSU-Series, PSB-2000 Series, PPH-1503/1503D, GPD-Series, GPP-Series, APS-1102A, APS-7000 Series, PEL-3000/3000H Series, PEL-3000E, PEL-2000A Series, PLR-Series
GTL-248	GPIO Cable, Double Shielded, 2000mm	PSB-2000 Series, PPH-1503, PSW/PSU/PSH/PSM/PSJ/PSY/PPT-Series, PPS-3635, APS-7000 Series, PEL-3000/3000H Series, PEL-3000E Series, PEL-2000A Series, PLR-Series
GTL-249	Frame Link Cable, 300mm	PEL-2000A Series
GTL-250	GPIO Cable, Double Shielded, 600mm	PSW/PSU/PSH-Series, PSB-2000 Series, APS-7000 Series
GTL-251	USB-GPIO Adapter, GPIO-USB-HS	PSB-2000 Series, PPH-1503, PSW/PSU/PSH/PSM/PSJ/PSY/PPT-Series, PPS-3635, APS-7000 Series, PEL-3000/3000H Series, PEL-3000E Series, GPP-Series
GTL-255	Frame Link Cable, 300mm	PEL-3000/3000H Series
GTL-258	GPIO Cable, 25 pins Micro-D Connector	PFR-Series
GUG-001	GPIO-USB Adaptor, GPIO to USB adaptor	GDS-3000 Series, PSW-Series
GUR-001	RS232-USB Cable, 300mm	PSW-Series
PCS-001	Basic Accessory Kit	PCS-1000I
PEL-001	GPIO Card	PEL-2000A Series
PEL-011	Load Input Terminal Cover	PEL-3000/3000H Series
PEL-012	Terminal Fittings Kits	PEL-3000/3000H Series
PEL-013	Flexible Terminal Cover	PEL-3000/3000H Series
PEL-014	I/J/Z Protection Plug	PEL-3000/3000H Series
PEL-002	Rack Mount Kit, PEL-2000 Series Rack Mount Kit	PEL-2000A Series
PEL-003	Panel Cover	PEL-2000A Series
PEL-004	GPIO Card	PEL-3000/3000H Series, PEL-3000E Series
PEL-005	Connect Cu Plate	PEL-3000/3000H Series
PEL-006	Connect Cu Plate	PEL-3000/3000H Series
PEL-007	Connect Cu Plate	PEL-3000/3000H Series
PEL-008	Connect Cu Plate	PEL-3000/3000H Series
PEL-009	Connect Cu Plate	PEL-3000/3000H Series

ACCESSORIES

MODEL	DESCRIPTION	APPLICABLE DEVICE
PEL-010	Dust filter	PEL-3000/3000H Series, PEL-3000E Series
PLR-GU	GPIO/USB Interface Card	PLR-Series
PLR-LU	LAN/USB Interface Card	PLR-Series
PLR-ARC	External Analog Control Interface Card	PLR-Series
PLR-001	Parallel Connection Signal Cable(2~3 units)	PLR-Series
PLR-002	Series Connection Signal Cable	PLR-Series
PSB-001	GPIO Card	PSB-2000 Series, PSB-1000 Series
PSB-003	Parallel connection kit (for horizontal installation), Kit includes: (PSB-007 Joint Kit, Horizontal bus bar x 2, PSB-005 x1)	PSB-2000 Series, PSB-1000 Series
PSB-004	Parallel connection kit (for vertical installation) Kit includes: (PSB-007 Joint Kit, Vertical bus bar x 2, PSB-005 x 1)	PSB-2000 Series, PSB-1000 Series
PSB-005	Parallel Connection Signal Cable	PSB-2000 Series, PSB-1000 Series
PSB-006	Serial Connection Signal Cable	PSB-2000 Series, PSB-1000 Series
PSB-007	Joint Kit: Includes 4 joining plates, [M3x6]screws x 4 ; [M3x8]screw x 2	PSB-2000 Series
PSB-008	RS232C Cable (PSB-2000 Only)	PSB-2000 Series
PSB-101	Cable for 2 units of PSB-1000 units in parallel mode connection	PSB-1000 Series
PSB-102	Cable for 3 units of PSB-1000 units in parallel mode connection	PSB-1000 Series
PSB-103	Cable for 4 units of PSB-1000 units in parallel mode connection	PSB-1000 Series
PSB-104	Cable for 2 units of PSB-1000 units in series mode connection	PSB-1000 Series
PSB-105	GPIO card	PSB-1000 Series
PSB-106	basic accessory kit : M4 terminal screws and washers x 2, M8 terminal bolts, nuts and washers x 2, analog control protection dummy x 1, analog control lock level x 2, short bar x 1	PSB-1000 Series
PSU-01A	Joins a vertical stack of 2 PSU units together. 2U-sized handles x2, joining plates x2	PSU-Series
PSU-01B	Bus Bar for 2 units in parallel operation	PSU-Series
PSU-01C	Cable for 2 units in parallel operation	PSU-Series
PSU-02A	Joins a vertical stack of 3 PSU units together. 3U-sized handles x2, joining plates x2	PSU-Series
PSU-02B	Bus Bar for 3 units in parallel operation	PSU-Series
PSU-02C	Cable for 3 units in parallel operation	PSU-Series
PSU-03A	Joins a vertical stack of 4 PSU units together. 4U-sized handles x2, joining plates x2	PSU-Series
PSU-03B	Bus Bar for 4 units in parallel operation	PSU-Series
PSU-03C	Cable for 4 units in parallel operation	PSU-Series
PSU-232	RS232 Cable with DB9 connector kit	PSU-Series, PFR-Series
PSU-485	RS485 Cable with DB9 connector kit	PSU-Series, PFR-Series
PSU-GPIB	PSU GPIB Interface Card (Factory Installed)	PSU-Series
PSU-ISO-I	Isolated Current Remote Control Card (Factory Installed)	PSU-Series
PSU-ISO-V	Isolated Voltage Remote Control Card (Factory Installed)	PSU-Series
PSW-001	Accessory Kits	PSW-Series, PSB-1000 Series
PSW-002	Simple IDC Tool	PSW-Series, PSB-1000 Series
PSW-003	Contact Removal Tool	PSW-Series, PSB-1000 Series
PSW-004	Basic Accessory Kit for 30V/80V/160V models	PSW-Series
PSW-005	Series Operation Cable for 2 units. (30V/80V/160V models moly)	PSW-Series
PSW-006	Parallel Operation Cable for 2 units.	PSW-Series
PSW-007	Parallel Operation Cable for 3 units.	PSW-Series
PSW-008	Basic Accessory Kit for 250V/800V models	PSW-Series
PSW-009	Output terminal cover for 30V/80V/160V models	PSW-Series
PSW-010	Large filter (Type II/III)	PSW-Series
PSW-011	Output terminal cover for 250V/800V models	PSW-Series
PSW-012	High voltage output terminal for 250V/800V model	PSW-Series

ACCESSORIES

<p>GTL-101</p> 	<p>GTL-105A</p> 	<p>GTL-104A</p> 
<p>GTL-120</p> 	<p>GTL-121</p> 	<p>GTL-122</p> 
<p>GTL-123</p> 	<p>GTL-201A</p> 	<p>GTL-202</p> 
<p>GTL-203A</p> 	<p>GTL-204A</p> 	<p>GTL-232</p> 
<p>GTL-232A</p> 	<p>GTL-240</p> 	<p>GTL-246</p> 
<p>GTL-248</p> 	<p>GTL-250</p> 	<p>GTL-253</p> 
<p>GRA-401 Rack Mount Kit</p>  		<p>GRA-408 Rack Mount Kit</p>  