

PSU-Series

Programmable Switching D.C. Power Supply

FEATURES

- Voltage Rating : 6V/12.5V/20V/40V/60V
- Output Power Rating : 1200W ~ 1520W
- C.V/C.C Priority; Particularly Suitable for the Battery and LED Industry
- Adjustable Slew Rate
- Series and Parallel Operation (2 Units in Series/4 Units in Parallel Maximum)
- High Efficiency and High Power Density
- 19" Rack Mount Size Design
- Standard Interface : LAN, RS-232 & RS485, USB (Device/Host), Analog Control Interface
- Optional Interface : GPIB/Analog Control Interface (Isolated Voltage Control)/Analog Control Interface (Isolated Current Control)

GW INSTEK
Simply Reliable

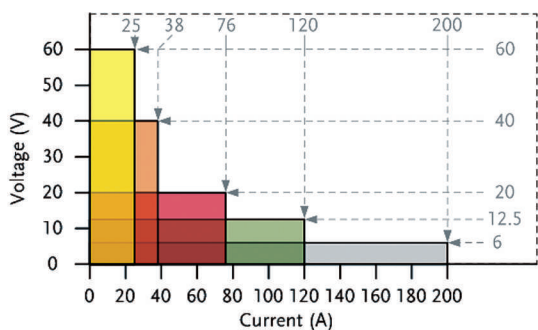
The PSU-Series is a single output programmable switching DC power supply covering a power range up to 1520W. This series of products include five models with the combination from 6V to 60V rated voltages. As the PSU-Series can be connected in series for maximum 2 units or in parallel for maximum 4 units, the capability of connecting multiple PSU-Series units for higher voltage or higher current output provides a broad coverage of applications.

The C.V / C.C priority selection of the PSU-Series is a very useful feature for DUT protection. The conventional power supply normally operates under C.V mode when the power supply 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. Though the current becomes stable after the C.C mode is 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 PSU-Series is able to run under C.C priority to limit the current spike occurred at the threshold voltage and therefore protects DUT from the inrush current damage.

The OVP and OCP protections can prevent the DUT damage, Both OVP and OCP levels can be selected the range of minimum setting to 110%, with the default level set at 110%, of the rated voltage/current of the power supply. The PSU-Series provides USB Host / Device, LAN, RS-232 with RS-485 and Analog Control Interfaces as standard. The LabView is also available at the rear panel for external control of the power On/Off and the external monitoring of power output voltage and current.

The adjustable slew rate of the PSU-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. The facilitate the characteristic verification of a DUT during voltage or current level changes with controllable slew rates. Most manufacturing tests of lighting device or large capacitance 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.

A. OPERATION RANGE



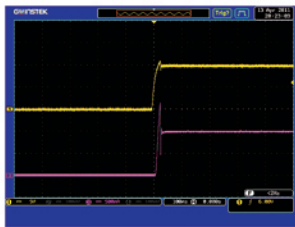
Legend	
PSU 60-25	
PSU 40-38	
PSU 20-76	
PSU 12.5-120	
PSU 6-200	

PSU 6-200	Single Channel 1200W / 6V / 200A
PSU 12.5-120	Single Channel 1500W / 12.5V / 120A
PSU 20-76	Single Channel 1520W / 20V / 76 A
PSU 40-38	Single Channel 1520W / 40V / 38A
PSU 60-25	Single Channel 1500W / 60V / 25A

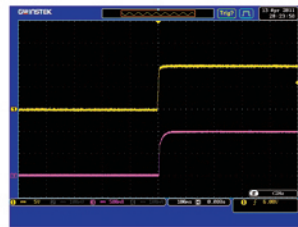
The PSU-Series programmable switching D.C. power supply consists of five models with rated output voltage including 6V, 12.5V, 60V, 20V, 40V and rated output current 200A,

120A, 25A, 76A, 38A, making the output power capacity from 1200W to 1520W.

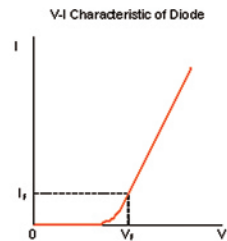
B. C.V/ C.C PRIORITY SELECTION



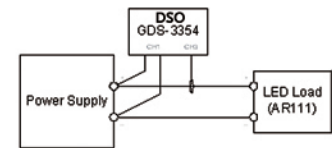
The Inrush Current and Surge Voltage occur at LED Forward Voltage(V_f) Under C.V Priority



The CC Priority Feature Effectively Limits the Occurrence of Inrush Current and Surge Voltage when the Supplied Voltage Rises to the LED Forward Voltage



V-I Characteristic of Diode

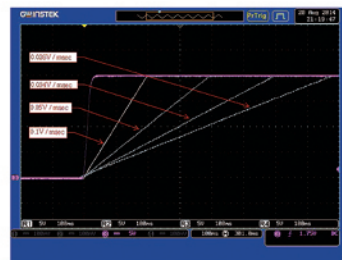


Using GDS-3354 DSO to Test LED Operation Under C.V Priority and C.C Priority Respectively

The PSU-Series provides CV mode and CC mode to fit various applications in the general purpose market. To get into critical application niches, however the power supply needs to provide advanced features to meet the specific requirements.

The C.C and C.V priority selection enable the power supply to run under C.C priority, rather than normal CV priority, at the output on stage.

C. ADJUSTABLE SLEW RATE

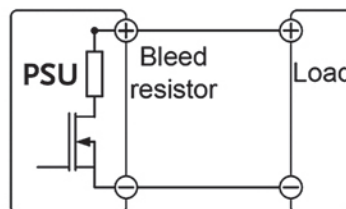


The Adjustable Rise Time of The PSU-Series

The PSU-Series has adjustable slew rate for the level transition of both current and voltage. This gives the PSU-Series power supply ability to set specific rise and fall time of the voltage and current drawn from the power supply to verify DUT performance during the voltage / current level transition.

The feature also provides the benefit to slow down the voltage transition at the power output onto protect DUT from inrush current damage. This is especially useful for the test of heavy current drawn device like capacitors.

D. BLEEDER CONTROL



PSU-Series Built-in Bleed Resistor

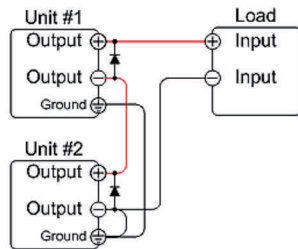
The PSU-Series employs a bleed resistor in parallel with the output terminal. Bleed resistor is designed to dispatch the power from the power supply filter capacitors when power is turned off and the load is disconnected. Without a bleed resistor, power terminal may remain charged on the filter capacitors

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.

E. SERIES AND PARALLEL CONNECTIONS

SERIES OPERATION

Model	Single Unit	Two Units
PSU 6-200	6V/200A	12V/200A
PSU 12.5-120	12.5V/120A	25V/120A
PSU 20-76	20V/76A	40V/76A
PSU 40-38	40V/38 A	80V/38A
PSU 60-25	60V/25A	120V/25A

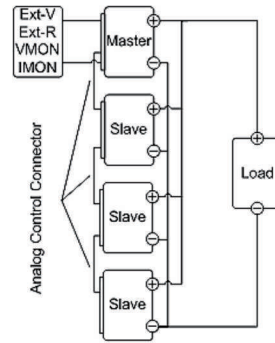


Series Connection

To increase power output capacity, the PSU-Series could be connected in Series mode to perform double voltage rating or in parallel mode to perform four times current rating for each model. With Series / Parallel connection capability,

PARALLEL OPERATION

Model	Single Unit	Two Units	Three Units	Four Units
PSU 6-200	6V/200A	6V/400A	6V/600A	6V/800A
PSU 12.5-120	12.5V/120A	12.5V/240A	12.5V/360A	12.5V/480A
PSU 20-76	20V/76A	20V/152A	20V/228A	20V/304A
PSU 40-38	40V/38 A	40V/76A	40V/114A	40V/152A
PSU 60-25	60V/25A	60V/50A	60V/75A	60V/100A



Parallel Connection

the PSU-Series is a high power density and cost effective equipment for the tests of DC power modules, batteries and components in a broad power range.

F. 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

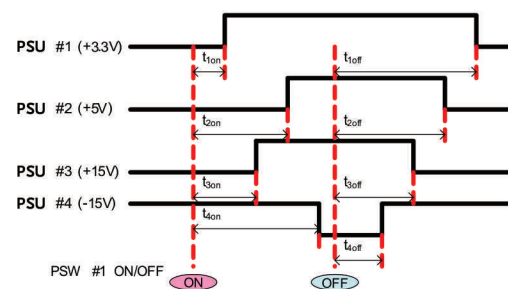
G. USING THE RACK MOUNT KIT



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.

H. 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.

PANEL INTRODUCTION

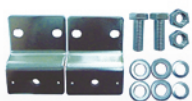


- | | | |
|--------------------------------------|------------------------------|--|
| 1. AC Power Switch (AC Power On/Off) | 7. DC Output Terminal | 12. Single Option Slot(Select One From the Following Interface)GPIB Interface Card/ Isolate Voltage Remote Control Card/ Isolate Current Remote Control Card |
| 2. USB A Port | 8. USB | |
| 3. Voltage Knob | 9. LAN | |
| 4. Display Area | 10. RS 485/RS 232 | |
| 5. Current Knob | 11. Analog Control Interface | |
| 6. AC Input (Wire Clamp Connector) | 13. Remote Sense | |

OPTIONAL ASSESSORIES

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-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-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



SPECIFICATIONS					
Model	PSU 6-200	PSU 12.5-120	PSU 20-76	PSU 40-38	PSU 60-25
OUTPUT RATINGS					
Voltage	0 ~ 6V	0 ~ 12.5V	0 ~ 20V	0 ~ 40V	0 ~ 60V
Current	0 ~ 200A	0 ~ 120A	0 ~ 76A	0 ~ 38A	0 ~ 25A
Power	1200W	1500W	1520W	1520W	1500W
OUTPUT RIPPLE AND NOISE					
CV p-p (10~20MHz)	60mV	60mV	60mV	60mV	60mV
CV rms (5Hz~1MHz)	8mV	8mV	8mV	8mV	8mV
CC rms (5Hz~1MHz)	400mA	240mA	152mA	95mA	75mA
LOAD REGULATION					
Voltage	2.6mV	3.25mV	4mV	6mV	8mV
Current	45mA	29mA	20.2mA	12.6mA	10mA
LINE REGULATION (change from 85 to132 VAC input or 170-265 VAC)					
Voltage	2.6mV	3.25mV	4mV	6mV	8mV
Current	22mA	14mA	9.6mA	5.8mA	4.5mA
PROGRAMMING ACCURACY					
Voltage 0.05% + (mV)	3mV	6.25mV	10mV	20mV	30mV
Current 0.2% + (mA)	200mA	120mA	76mA	38mA	25mA
MEASUREMENT ACCURACY					
Voltage 0.1% + (mV)	6mV	12.5mV	20mV	40mV	60mV
Current 0.2% + (mA)	400mA	240mA	152mA	76mA	50mA
LOAD TRANSIENT RECOVERY TIME					
Time	1.5ms	1ms	1ms	1ms	1ms
OUTPUT RESPONSE TIME					
Rise Time (No Load & Full Load)	80ms	80ms	80ms	80ms	80ms
Fall Time (No Load)	500ms	700ms	800ms	1000ms	1100ms
Fall Time (Full Load)	10ms	50ms	50ms	80ms	80ms
PROGRAMMING/MEASUREMENT RESOLUTION					
Voltage	0.2mV	0.4mV	0.7mV	1.3mV	2mV
Current	6mA	4mA	2.5mA	1.2mA	0.8mA
TEMPERATURE COEFFICIENT (after a 30 minute warm-up)					
Voltage	100PPM/°C after 30 minutes warm up				
Current	100PPM/°C after 30 minutes warm up				
SERIES AND PARALLEL OPERATION					
Parallel Operation	Up to 4 units including master unit				
Series Operation	Up to 2 units including master unit				
ENVIRONMENTAL CONDITIONS					
Environment	Indoor use, installation cateogry II (AC Input), pollution degree 2				
Operating Temperature Range	0°C ~ 50°C				
Storage Temperature Range	-25°C ~ 70°C				
Operating Humidity Range	20% to 85% RH				
Storage Humidity Range	Up to 90% or less relative humidity (no condensation)				
AC INPUT					
Normalinl Input	100Vac ~ 240Vac, 50Hz ~ 60Hz, single phase				
Input Range	85Vac ~ 265Vac				
Power Factor (100Vac/200Vac)	0.99/0.98				
Maximum Input Current (100Vac/200Vac)	21A/11A				
Inrush Current	≤ 50A				
Efficiency(100Vac/200Vac)	77%/79%	82%/85%	83%/86%	84%/87%	84%/87%
DIMENSIONS & WEIGHT					
Analog Control (Non-Isolated)	YES				
PC Remote Interface (Standard)	USB (Device/Host)/RS-232 with RS-485/LAN				
PC Remote Interface (Optional)	GPIB/Analog Control Interface (Isolated Voltage Control)/Analog Control Interface (Isolated Current Control); Note : Selection one of three				
Cooling Fan	Forced air cooling by internal fan				
Dimensions & Weight	423(W) x 43.6(H) x 447.2(D) ; Approach 8.7kg				

Specifications subject to change without notice. SU-SeriesGD1BH

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
ACCESSORIES	
User Manual x 1, Basic Accessories Kit x 1	
FREE DOWNLOAD	
Driver	LabView Driver

OPTIONAL ASSESSORIES	
GTL-248	GPIB Cable (2m)
GTL-246	USB Cable, USB 2.0A-B TYPE CABLE, 4P
GTL-251	GPIB-USB-HS (High Speed)
PSU-01B	Bus bar for 2 units in parallel connection
PSU-01C	Cable for 2 units in parallel connection
PSU-02B	Bus bar for 3 units in parallel connection
PSU-02C	Cable for 3 units in parallel connection
PSU-03B	Bus bar for 4 units in parallel connection
PSU-03C	Cable for 4 units in parallel connection
PSU-232	Rs232 Cable with DB9 connector kit
PSU-485	Rs485 Cable with DB9 connector kit
GRM-001	Slide bracket 2pcs/set ,PSU option
PSU-GPIB	GPIB Interface card (factory option)
PSU-ISO-I	Isolate current remote control card(factory option)
PSU-ISO-V	Isolate voltage remote control card(factory option)
GPW-001	UL/CSA power cord 3m ,PSU option
GPW-002	VDE power cord 3m ,PSU option
GPW-003	PSE power cord 3m ,PSU option

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