## PROGRAMMABLE SWITCHING D.C. POWER SUPPLY





GW Instek PSU-series power supply with 1U height is highly praised by various markets and it is widely utilized by system integrators. The PSU-series provides 10 models including 6V/200A,12.5V/ 120A, 20V/76A, 40V/38A, 60V/25A, 100V/15A, 150V/10A, 300V/5A, 400V/3.8A, and 600V/2.6A. Via 4 units of the same models in parallel connection, the maximum output current at 6V reaches 800A. It meets the demands of low voltage and high current, and high power density. PSU is suitable for electric components manufacturers to verify withstanding current tests of 100A and above. Such tests include micro-resistor, relay, shunt resistors etc. The high voltage models of the PSU-series, with maximum voltage output of 600V and power output of 1560 watts, not only can fully satisfy the extensive voltage demands of 1U power supply market but also provides system integrators with more flexible system integration.

The flexible arrangement of the PSU-series can reduce investment on test equipment facing different voltage and current test regulations. 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 because it can protect DUT from being damaged by inrush current occurred at turn-on.

Comparing with other 1U power supplies available in the market, PSU-series 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-series 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 equipment.

The PSU-series is ideal for the primary input of DC/DC converter and servo motor production application. PSU-series 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 with pulse width of 1 ~ 60ms. Trigger input controls PSU-series to output or upload preset voltage, current and memory parameters. While outputting or uploading preset voltage, current and memory parameters express can produce corresponding Trigger output signals.



# **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)

#### **APPLICATIONS**

- The Primary Input of DC/DC Converter
- Servomotor Manufacturing Equipment
- Aging Test Equipment for Capacitors
- Aging Test Equipment for Diodes
- Power Supply for Communications
   Equipment

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# **PSU-Series**

### PANEL INTRODUCTION



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

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)										
СVp-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
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 ar	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%									
Shutdown Control	Accuracy: $\pm 1\%$									
Output On/Off Control	Turns the output of with a LOW ( $VV$ to $U.SV$ ) or short-circuit									
	(4 5V to 5V	or open-circuit	· Turn the out	nut on using	a HIGH (4 5	V to 5V) or o	pen-circuit t	urn the outp	ut off using a	
	(0) to 5%) or open-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 votage = 2V, Maximum sink current = 8mA									
FRONT PANEL										
Display, 4 digits, Voltage Accuracy 0.1%+	12mV	25mV	40mV	80mV	120mV	200mV	300mV	600mV	800mV	1200mV
Current Accuracy 0.2%+	600mA	360mA	228mA	114mA	75mA	45mA	30mA	15mA	11.4mA	7.8mA
Indications	GREEN LED	's: CV, CC, V, A,	VSR, ISR, DL	, RMT, LAN,	M1, M2, M3	, RUN, Outp	ut ON; RED I	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								

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
TRANSIENT RESPONSE TIME (*10)										
Transient Response Time	1.5ms	lms	lms	lms	lms	1ms	2ms	2ms	2ms	2ms
OUTPUT RESPONSE TIME			r					1		
Rise Time(*8) Rated 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 MEASUREM	NTS (RS-23	2/485, USB, L	AN, GPIB)					1		
Output Voltage Programming Accuracy 0.05%+	3mV	6.25mV	10mV	20mV	30mV	50mV	75mV	150mV	200mV	300mV
Output Voltage Programming Resolution	0.2mV	0.4mV	0.7mV	1 3mV	25mA 2mV	3 4mV	5 2mV	10.2mV	13.6mV	2.0mA 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	/6mA 1.3mV	50mA 2mV	30mA 3.4mV	20mA	10 2mV	7.6mA	5.2mA
Output Current Measurement Resolution	6mA	4mA	2.5mA	1.2mA	0.8mA	0.5mA	0.34mA	0.19mA	0.13mA	0.09mA
TEMPERATURE COEFFICIENCE								•		
Voltage & Current	100ppm/°0	C after a 30 min	ute warm-up							
REMOTE SENSE COMPENSATION \	OLTAGE(SI	NGLE WIRE)	I					1	1	
Voltage	۱۷	1V	1V	2V	3V	5V	5V	5V	5V	5V
PROTECTION FUNCTION		1								
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
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 ou	utput off.								
I ow AC Input Protection (AC-FAII) Operation	Turn the ou	utput off.								
Shutdown (SD) Operation	Turn the output off.									
Power Limit (POWER LIMIT) Operation	Over powe	r limit								
Value (Fixed)	Approx. 105% of rated output power									
INTERFACE CAPABILITIES										
USB	TypeA: Ho	st, TypeB: Slave	Speed: 1.1/2	.0, USB Class	s: CDC (Com	nunications	Device Class	s)		
LAN PS-232 / PS-485	MAC Addr	ess, DNS IP Ad	dress, User Pa	assword, Gat	eway IP Add	ress, Instrum	ient IP Addre	ess, Subnet I	Mask	
GPIB (Factory Option)	Complies with the EIA232D / EIA485 Specifications SCPL 1993 IEEE 488.2 compliant interface									
ISOLATED ANALOG CONTROL INTE	RFACE (FAC	TORY OPTIC	N)							
Voltage Control	Using 0-5V	′ or 0-10V signa	ls for program	nming and m	easurement					
Current Control	Using 4-20	mA current sig	hals for progra	amming and	measureme	nt				
Operating Temperature	0°C 50°C	~								
Storage Temperature	-25°C ~ 70	°َc								
Operating Humidity	20% ~ 85% RH; No condensation									
Storage Humidity	90% RH oi Maximum	less; No conde	ensation							
	Iviaximum	2000111								
Nominal Input Rating	100Vac to	240Vac 50Hz to	60Hz single	phase						
Input Voltage Range	85Vac ~ 26	5Vac		F						
Input Frequency Range	47Hz ~ 63	Hz								
Maximum Input Current 100Vac/200Vac(A)	21/11   Less than !	504								
Maximum Input Power	2000VA									
Power Factor 100Vac/200Vac	0.99/0.98									
Hold-up Time	20ms or gr	eater	00.000	0.4.407	0.4.407	0.4.407	04/07	0.4.107	0.4.407	0.4.407
Efficiency (*13) 100Vac/200Vac(%)	////9	82/85	83/86	84/8/	84/8/	84/8/	84/8/	84/8/	84/8/	84/8/
DIMENSIONS & WEIGHT	(22()))	42 ((11) 447	2(D)							
	423(W) X	43.b(H) × 447.	Z(D)mm, Ap	prox. 8.7kg						
Note : *1. Minimum voltage is guaranteed to maximum 0.2% *2. Minimum current is guaranteed to maximum 0.4%	of the rated output of the rated output	t voltage.   *8. From 1( t current.   *9. From 9(	0%~90% of rated ou 0%~10% of rated ou	ıtput voltage, with ıtput voltage, with	rated resistive loa rated resistive loa	<ul> <li>d. Specificat</li> <li>d.</li> </ul>	ions subject to	change withou	it notice. SU-S	eriesGDTDS
*3. At 85~132Vac or 170~265Vac, constant load. *4. From No-load to Full-load, constant input voltage		*10. Time f	or output voltage to	recover within 0.5	5% of its rated	*12 For 6V mode	al the ripple is me	asured at 2-6V or	itout voltage and fi	.II
Measured at the sensing point in Remote Sense.		curren	t. Voltage set point	from 10%~100% o	of rated output.	output curre	nt. For other mod	els, the ripple is r	neasured at 10~10	0%
*5. Measure with JEITA RC-9131B (1:1) probe. *6. Measurement frequency bandwidth is 10Hz~20MF	z.	×II. For loa consta	id voltage change, e nt input voltage.	qual to the unit vo	iltage rating,	*13. At rated out	ge and full output put power.	current.		
*7. Measurement frequency bandwidth is 5Hz~1MHz.										
ORDERING INFORMATION			OPTI	ONAL ACCE	SSORIES		071 044			
PSU 6-200 1200W Programmable	Switching DO	Power Supply	PSU-0	IB Bus bar for IC Cable for 2	2 units in para units in paralle	llel connection	GIL-246	USB Cable, Slide brack	USB 2.0A-B ly at 2pcs/set PS	pe Cable, 4P
PSU 12.5-120 1500W Programmable	Switching DO	Power Supply	PSU-0	2B Bus bar for	3 units in para	llel connection	PSU-GPI	B GPIB Interfa	ce card (factory	option)
PSU 20-76 1520W Programmable	Switching DC	Power Supply	PSU-0	2C Cable for 3	units in paralle	l connection	GPW-001	UL/CSA pov	ver cord 3m ,PS	U option
PSU 60-25 1500W Programmable	Switching DC Power Supply PSU-03B Bus bar for 4 units in parallel connection GPW-002 VDE power cord 3m ,PSU option						ption			
PSU 100-15 1500W Programmable	Switching DO	Power Supply	units in paralle	l connection	GPW-003	B PSE power of	ord 3m ,PSU op	otion		
PSU 150-10 1500W Programmable	Switching DC Power Supply PSU-232 RS232 Cable with DB9 connector kit									
PSU 300-5 1500W Programmable	e Switching DC Power Supply PSU-485 RS485 Cable with DB9 connector kit								plator v2	
PSU 600-2.6 1560W Programmable	Switching DC	2 Power Supply	PSU-0	2A joins a ver	tical stack of	3 PSU units	together 311	-sized handl	es x2, joiriirig es x2, ioining	plates x2
ACCESSORIES		cuppiy	PSU-0	3A Joins a ver	tical stack of	4 PSU units	together. 4U	-sized handl	es x2, joining	plates x2
CD-ROM x 1 (User Manual Programming Ma	ual), Output t	erminal cover v 1	PSU-IS	O-I Isolate c	urrent remo	te control ca	rd (factory of	ption)	,,	
Analog connector plug kit x 1,Output terminal	M8 bolt set(6)	/~60V model),	PSU-IS	<b>O-V</b> Isolate v	oltage remo	te control ca	rd(factory op	otion)		
Input terminal cover x 1,1U Handle (RoHS),1U	Bracket(LEFT,	RoHS),1U Bracke	et FRE	DOWNLC	DAD					
(KIGHI, KOHS), Power Cord (10A) x 1			Drive	<b>r</b> LabView	Driver					

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