Notes: \*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. Measured at the sensing point in Remote Sense.
- \*5. Measure with JEITA RC-9131B (1:1) probe
- \*6. Measurement frequency bandwidth is 10Hz to 20MHz.
- \*7. Measurement frequency bandwidth is 5Hz to 1MHz.
- \*8. From 10% to 90% of rated output voltage, with rated resistive load.
- \*9. From 90% to 10% of rated output voltage, with rated resistive load.

#### ORDERING INFORMATION

OILD EILII 10 .		
PSU 6-200	1200W	Programmable Switching DC Power Supply
PSU 8-180	1440W	Programmable Switching DC Power Supply
PSU 12.5-120	1500W	Programmable Switching DC Power Supply
PSU 15-100	1500W	Programmable Switching DC Power Supply
PSU 20-76	1520W	Programmable Switching DC Power Supply
PSU 30-50	1500W	Programmable Switching DC Power Supply
PSU 40-38	1520W	Programmable Switching DC Power Supply
PSU 50-30	1500W	Programmable Switching DC Power Supply
PSU 60-25	1500W	Programmable Switching DC Power Supply
PSU 80-19	1520W	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

CD-ROM x 1 (User Manual, Programming Manual), Output terminal cover x 1 Analog connector plug kit x1, 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) provided for certain regions only

- \*10. Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current Voltage set point from 10% to 100% of rated output.
- \*11. For load voltage change, equal to the unit voltage rating, constant input voltage.
- \*12. For 6V~20V model the ripple is measured at 2V ~ rated output voltage and full output current. For other models, the ripple is measured at 10~100% output voltage and full output current.
- \*13. At rated output power.
- \*14. If install the front panel filter kit, the temperature is guaranteed to 40°C.

PSU-01B Bus bar for 2 units in parallel connection GTL-246 USB Cable, USB 2.0A-B PSU-01C Cable for 2 units in parallel connection PSU-02B Bus bar for 3 units in parallel connection GTL-258 GPIB Cable, 2000mm PSU-02C Cable for 3 units in parallel connection GTL-259 RS-232 Cable with DB9 PSU-03B Bus bar for 4 units in parallel connection connector to RJ45 PSU-03C Cable for 4 units in parallel connection GTL-260 RS-485 Cable with DB9 PSU-232 RS232 Cable with DB9 connector kit connector to RJ45 PSU-485 RS485 Cable with DB9 connector kit GTL-262 RS-485 Slave cable PSU-001 Front panel filter kit(factory Installed)

PSU-01A Joins a vertical stack of 2 PSU units together. 2U-sized handles x2, joining plates x2 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

PSU-ISO-I Isolate current remote control card(factory option)
PSU-ISO-V Isolate voltage remote control card(factory option) PSU-GPIB GPIB Interface card (factory option)

GRM-001 Slide bracket 2pcs/set ,PSU option GPW-001 LIL/CSA power cord 3m PSLL option GPW-002 VDE power cord 3m, PSU option GPW-003 PSE power cord 3m, PSU option

Driver LabView Driver

Specifications subject to change without notice. PSU-SeriesGD1BH

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India Subsidiary

#### GW INSTEK INDIA LLP.

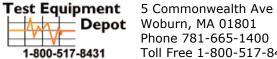
No.2707/B&C, 1st Floor UNNATHI Building, E-Block, Sahakara Nagar, Bengaluru-560 092. India T +91-80-6811-0600 F +91-80-6811-0626





# **PSU-Series**

## **Programmable Switching D.C. Power Supply**



**Depot** Woburn, MA 01801 Phone 781-665-1400 Toll Free 1-800-517-8431



#### **FEATURES**

- Voltage Output: 6V/8V/12.5V/15V/20V/30V/40V/50V/60V/80V/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-Series, a DC power supply with high power density design, is 1U in height and compatible with 19" Rack Mount Size. The series is suitable for test system installation or system integration by flexibly selecting models for the integration into the existing test system. The PSU-Series, featuring superior voltage and current control functions, comprises fifteen models with output voltage/current ranging from 6V/200A to 600V/2.6A. The Series is suitable for different test conditions and DUTs, including electronic components testing, micro resistors, relays, shunt resistors, 12V/24V/48V battery simulation, and automotive electronic device testing.

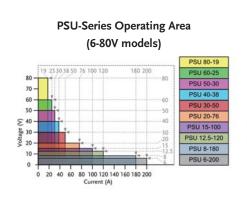
The PSU-HV series is ideal for the primary input of DC/DC converter and servomotor production application. PSU is often integrated into component test systems such as aging test equipment for capacitors; 600V DC bias applications; aging test equipment for diode; semiconductor production equipment; automotive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

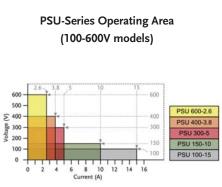
Utilizing same model units of the PSU-Series to conduct series and parallel connections can increase total output power, total current or total voltage. The wide voltage and current output ranges of the PSU-Series can fully satisfy various voltage and current measurement requirements. The PSU-Series 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 PSU-Series provides users with flexible settings of High/Low Level or Trigger input/Trigger output signals with pulse width of  $1 \sim 60$ ms. 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.





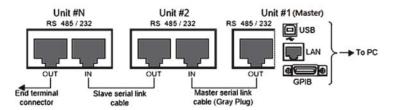
Model Name	Voltage	Current	Power
PSU 6-200	6V	200A	1200W
PSU 8-180	8V	180A	1440W
PSU 12.5-120	12.5V	120A	1500W
PSU 15-100	15V	100A	1500W
PSU 20-76	20V	76A	1520W
PSU 30-50	30V	50A	1500W
PSU 40-38	40V	38A	1520W
PSU 50-30	50V	30A	1500W
PSU 60-25	60V	25A	1500W
PSU 80-19	80V	19A	1520W
PSU 100-15	100V	15A	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

#### SERIES/PARALLEL OPERATION AND HIGH POWER DENSITY

Series	1 unit	2 units	Series	1 unit	2 units	3 units	4 units	
Connection			Connection					
Height of sets	10	2U	Height of sets	10	2U	3U	4U	
PSU 6-200	6V	12V	PSU 6-200	6V	6V	6V	6V	
	200A	200A		200A	400A	600A	A008	
PSU 8-180	8V	16V	PSU 8-180	8V	8V	8V	8V	
	180A	180A		180A	360A	540A	720A	
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 15-100	15V	30V	PSU 15-100	15V	15V	15V	15V	
	100A	100A		100A	200A	300A	400A	
PSU 20-76	20V	40V	PSU 20-76	20V	20V	20V	20V	
	76A	76A		76A	152A	228A	304A	
PSU 30-50	30V	60V	PSU 30-50	30V	30V	30V	30V	
	50A	50A		50A	100A	150A	200A	
PSU 40-38	40V	80V	PSU 40-38	40V	40V	40V	40V	
	38A	38A		38A	76A	114A	152A	
PSU 50-30	50V	100V	PSU 50-30	50V	50V	50V	50V	
	30A	30A		30A	60A	90A	120A	
PSU 60-25	60V	120V	PSU 60-25	60V	60V	60V	60V	
	25A	25A		25A	50A	75A	100A	
PSU 80-19	80V	160V	PSU 80-19	80V	80V	80V	80V	
	19A	19A		19A	38A	57A	76A	
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	NA	PSU 400-3.8	400V	400V	400V	400V	
	3.8A	NA		3.8A	7.6A	11.4A	15.2A	
PSU 600-2.6	600V	NA	PSU 600-2.6	600V	600V	600V	600V	
	2.6A	NA		2.6A	5.2A	7.8A	10.4A	

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.

#### 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



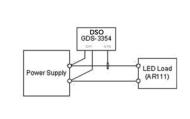
Under the conventional C.V mode, inrush current and surge voltage appeared at forward voltage(Vf) of LED.

Voltage curve

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

V-I Characteristic of Diode

V-I Characteristic of Diode



istic 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

The CC p
produce inrush current and surge voltage at turn-on. The PSUseries 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.

#### D. ADJUSTABLE SLEW RATE

VOLTAGE SLEW RATE	CURRENT SLEW RATE
0.001V~0.060V/msec (PSU 6-200)	0.001A~2.000A / msec (PSU 6-200)
0.001V~0.080V/msec(PSU 8-180)	0.001A~1.800A / msec (PSU 8-180)
0.001V~0.125V/msec (PSU 12.5-120)	0.001A~1.200A / msec (PSU 12.5-120)
0.001V~0.150V/msec(PSU 15-100)	0.001A~1.000A / msec(PSU 15-100)
0.001V~0.200V/msec (PSU 20-76)	0.001A~0.760A / msec (PSU 20-76)
0.001V~0.300V/msec(PSU 30-50)	0.001A~0.500A / msec(PSU 30-50)
0.001V~0.400V/msec (PSU 40-38)	0.001A~0.380A / msec (PSU 40-38)
0.001V~0.500V/msec(PSU 50-30)	0.001A~0.300A / msec(PSU 50-30)
0.001V~0.600V/msec (PSU 60-25)	0.001A~0.250A / msec (PSU 60-25)
0.001V~0.800V/msec(PSU 80-19)	0.001A~0.190A / msec(PSU 80-19)
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.

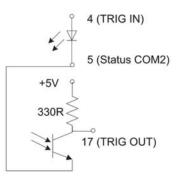
#### E. OVP,OCP AND UVL

#### **SETTING RANGE**

MODEL	ОСР	OVP	UVL
PSU 6-200	5 ~ 220A	0.6 ~ 6.6V	0 ~ 6.3V
PSU 8-180	5 ~ 198A	0.8 ~ 8.8V	0 ~ 8.4V
PSU 12.5-120	5 ~ 132A	1.25 ~ 13.75V	0 ~ 13.12V
PSU 15-100	5 ~ 110A	1.5 ~ 16.5V	0 ~ 15.75V
PSU 20-76	5 ~ 83.6A	2 ~ 22V	0 ~ 21V
PSU 30-50	5 ~ 55A	3 ~ 33V	0 ~ 31.5V
PSU 40-38	3.8 ~ 41.8A	4 ~ 44V	0 ~ 42V
PSU 50-30	3 ~ 33A	5 ~ 55V	0 ~ 52.5V
PSU 60-25	2.5 ~ 27.5A	5 ~ 66V	0 ~ 63V
PSU 80-19	1.9 ~ 20.9A	5 ~ 88V	0 ~ 84V
PSU 100-15	1.5 ~ 16.5A	5 ~ 110V	0 ~ 105V
PSU 150-10	1 ~ 11A	5 ~ 165V	0 ~ 157.5V
PSU 300-5	0.5 ~ 5.5A	5 ~ 330V	0 ~ 315V
PSU 400-3.8	0.38 ~ 4.18A	5 ~ 440V	0 ~ 420V
PSU 600-2.6	0.26 ~ 2.86A	5 ~ 660V	0 ~ 630V

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.

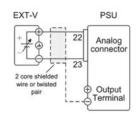
#### Trigger Input function:

- 1. Allow users to set the effective pulse width from  $0\sim60ms$  for trigger input (0: the LOW or HIGH signal of DC level for trigger input)
- Receive trigger input to control PSU-series output or to output preset voltage and current.
- 3. Receive trigger input to upload preset memory parameters.

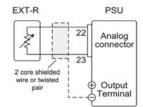
#### **Trigger Output function:**

- 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
- PSU produces trigger output signal when setting output or changing preset value or uploading preset memory parameters.

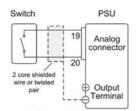
#### **EXTERNAL ANALOG CONTROL FUNCTION**



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



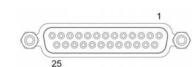
- Pin22 → EXT-R
- Pin23 → EXT-R
- Wire shield → negative (-) output terminal



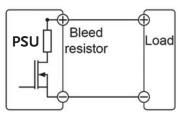
- Pin19 → Switch
- Pin20 → Switch
- Wire shield  $\rightarrow$  negative (-) output terminal

#### 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.



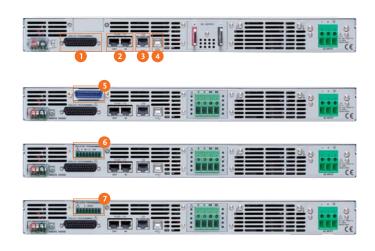
#### H. BLEEDER CONTROL



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.

#### **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

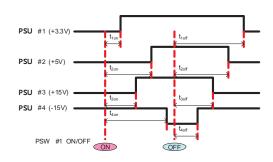
#### **USING THE RACK MOUNT KIT**



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.

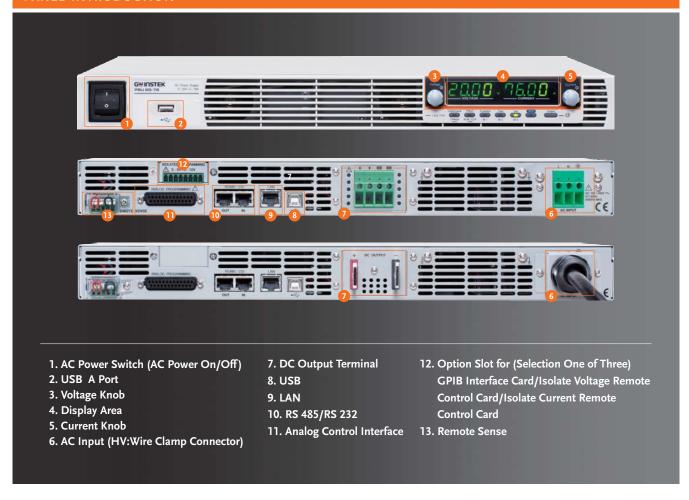
### **OUTPUT ON / OFF DELAY**



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



#### **OPTIONAL ASSESSORIES**

#### PSU-001

PSU-01B

connection

. . . .

Front panel filter kit (factory Installed)



# connector kit

# Bus bar for 2 units in parallel



#### PSU-02B Bus bar for 3 units in parallel



## PSU-01C

Cable for 2 units in parallel connection



#### PSU-232 RS232 Cable with DB9



# RS485 Cable with DB9



#### GRM-001 Slide bracket 2pcs/set, PSU option

### PSU-02C

Cable for 3 units in parallel connection



### PSU-03B Bus bar for 4 units in parallel



#### PSU-03C Cable for 4 units in parallel

connection



## GPW-001

UL/CSA power cord 3m, PSU option



#### **GPW-002** VDE power cord 3m,



#### **GPW-003** PSE power cord 3m.



## PSU-03A

PSU-01A

PSU-02A

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

Joins a vertical stack of 3 PSU

units together. 3U-sized handles x2, joining plates x2

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



SPECIFICATIONS	DCLL C CCC	DCI I O TOO	DCI 122 F 125	DCLL 35 TOS	DCI LOC TO	DCI   20 TC	DCI 1 46 66	DCI I TO 1						
MODEL	PSU 6-200	PSU 8-180	PSU 12.5-120	PSU 15-100	PSU 20-76	PSU 30-50	PSU 40-38	PSU 50-3						
OUTPUT RATINGS rated Output Voltage (*1)	6V	8V	12.5V	15V	20V	30V	40V	50V						
Rated Output Current (*2)	200A	180A	12.5V	100A	76A	50A	38A	30A						
Rated Output Power	1200W	1440W	1500W	1500W	1520W	1500W	1520W	1500W						
RIPPLE AND NOISE(*5)						I								
CVp-p( 10 ~ 20MHz) p-p (*6)	60mV	60mV	60mV	60mV	60mV	60mV	60mV	60mV						
CVrms(5Hz ~ 1MHz) r.m.s. (*7) CCrms(5Hz ~ 1MHz) r.m.s.(*12)	8mV 400mA	8mV 360mA	8mV 240mA	8mV 200mA	8mV 152mA	8mV 125mA	8mV 95mA	8m\ 85mA						
OAD REGULATION														
/oltage(*4)	2.6mV	2.8mV	3.25mV	3.5mV	4mV	5mV	6mV	7mV						
Current(*11)	45mA	41mA	29mA	25mA	20.2mA	15mA	12.6mA	11mA						
INE REGULATION			T			I	1							
/oltage(*3) Current(*3)	2.6mV 22mA	2.8mV 20mA	3.25mV 14mA	3.5mV 12mA	4mV 9.6mA	5mV 7mA	6mV 5.8mA	7m\ 5m <i>A</i>						
ANALOG PROGRAMMING AND MC		201171	141107	121171	3.01171	71171	3.01171	31117						
external Voltage Control Output Voltage		linearity:±0.5% o	f rated output volta	ıge										
External Voltage Control Output Current														
external Resistor Control Output Voltage External Resistor Control Output Current			ated output voltage f rated output curre											
Output Voltage Monitor	Accuracy: ±1%		rated output curre	erit										
Output Current Monitor	Accuracy: ±1%	6												
hutdown Control Output On/Off Control	Turns the outp Possible logic		/ (0V to 0.5V) or sh	ort-circuit										
			V (0V to 0.5V) or sh	nort-circuit, turn t	he output off us	sing a HIGH (4	.5V to 5V) or op	en-circuit;						
			H (4.5V to 5V) or o		the output off u	ısing a LOW(0\	/ to 0.5V) or sho	ort-circuit						
larm Clear Control V/CC/ALM/PWR ON/OUT ON Indicator			0.5V) or short-circ tput; Maximum vo		um sink current	8mA								
rigger Out	Maximum low	v level output = 0.8	BV; minimum high	level output = 2V	; Maximum sou	urce current = 8								
rigger In	Maximum low	level input voltag	ge = 0.8V; minimur	n high level input	votage = 2V, M	aximum sink cı	urrent = 8mA							
RONT PANEL	12	36 11	25	20.11	40.11	60.11	80.11	300						
isplay, 4 digits, Voltage Accuracy 0.1%+ Current Accuracy 0.2%+	12mV 600mA	16mV 540mA	25mV 360mA	30mV 300mA	40mV 228mA	60mV 150mA	80mV 114mA	100m <sup>3</sup>						
idications			R, ISR, DLY, RMT, L					201111						
uttons	Lock/Local(Ur	nlock), PROT(ALM	1_CLR), Function(N				.,							
nobs SB Port	Voltage, Curre Type A USB co													
RANSIENT RESPONSE TIME (*10)	туре А озв се	Jilliectoi												
ransient Response Time	1.5ms	1.5ms	1ms	1ms	1ms	1ms	1ms	1m						
UTPUT RESPONSE TIME														
se Time(*8) Rated load	80ms	80ms	80ms	80ms	80ms	80ms	80ms	80m						
No load Ill Time(*9) Rated load	80ms 10ms	80ms 50ms	80ms 50ms	80ms 50ms	80ms 50ms	80ms 80ms	80ms 80ms	80m 80m						
No load	500ms	600ms	700ms	700ms	800ms	900ms	1000ms	1100m						
ROGRAMMING AND MEASUREME				75.11	70.1/	75. \	20.1/	05.						
utput Voltage Programming Accuracy 0.05%+ utput Current Programming Accuracy 0.2%+	3mV 200mA	4mV 180mA	6.25mV 120mA	7.5mV 100mA	10mV 76mA	15mV 50mA	20mV 38mA	25m <sup>3</sup>						
utput Voltage Programming Resolution	0.2mV	0.27mV	0.4mV	0.5mV	0.7mV	1mV	1.3mV	1.7m\						
utput Current Programming Resolution	6mA	6mA	4mA	3.3mA	2.5mA	1.7mA	1.2mA	1m/						
utput Voltage Measurement Accuracy 0.1%+ utput Current Measurement Accuracy 0.2%+	6mV 400mA	8mV 360mA	12.5mV 240mA	15mV 200mA	20mV 152mA	30mV 100mA	40mV 76mA	50m 60m						
utput Voltage Measurement Resolution	0.2mV	0.27mV	0.4mV	0.5mV	0.7mV	1mV	1.3mV	1.7m\						
utput Current Measurement Resolution	6mA	6mA	4mA	3.3mA	2.5mA	1.7mA	1.2mA	1m/						
EMPERATURE COEFFICIENCE oltage & Current	100ppm/°C a	fter a 30 minute v	varm-up											
EMOTE SENSE COMPENSATION V			variii-up											
oltage	1V	1V	1V	1V	1V	1.5V	2V	2\						
ROTECTION FUNCTION							-							
ver Voltage Protection(OVP) Setting Range	0.6~6.6V	0.8~8.8V	1.25~13.75V	1.5~16.5V	2~22V	3~33V	4~44V	5~55\						
Setting Accuracy ver Current Protection(OCP) Setting Range	60mV 5~220A	80mV 5~198A	125mV 5~132A	150mV 5~110A	200mV 5~83.6A	300mV 5~55A	400mV 3.8~41.8A	500m\ 3~33A						
ver Current Protection (OCP) Setting Range Setting Accuracy	4000mA	3600mA	2400mA	2000mA	1520mA	3~33A 1000mA	760mA	600m						
nder Voltage Limit(UVL) Setting Range	0~6.3V	0~8.4V	0~13.12V	0~15.75V	0~21V	0~31.5V	0~42V	0~52.5						
ver Temperature Protection(OHP) Operation	Turn the outp													
correct Sensing Connection Protection(SENSE) Operation DW AC Input Protection (AC-FAIL) Operation	Turn the outpo													
nutdown (SD) Operation	Turn the outp													
ower Limit (POWER LIMIT) Operation	Over power lin													
Value (Fixed)	Approx. 105%	of rated output p	oower											
NTERFACE CAPABILITIES			1											
SB AN			ed: 1.1/2.0, USB C s, User Password, (				hnot Mack							
S-232 / RS-485			IA485 Specification		ss, mstrument	ir Address, 30	IDITEL IVIASK							
PIB (Factory Option)	SCPI - 1993, II	EEE 488.2 compli												
OLATED ANALOG CONTROL INTE														
oltage Control urrent Control			programming and											
Current Control Using 4-20mA current signals for programming and measurement  ENVIRONMENTAL CONDITIONS														
NVIRONMENTAL CONDITIONS	0°C ~ 50°C (*	14)												
perating Temperature	-25°C ~ 70°C													
perating Temperature corage Temperature		20% ~ 85% RH; No condensation												
perating Temperature orage Temperature perating Humidity	20% ~ 85% RI		Storage Humidity 90% RH or less; No condensation  Altitude Maximum 2000m											
perating Temperature orage Temperature perating Humidity orage Humidity	20% ~ 85% RI 90% RH or les	ss; No condensat	1011											
perating Temperature torage Temperature perating Humidity torage Humidity lititude IPUT CHARACTERISTICS	20% ~ 85% RI 90% RH or les	ss; No condensat	1011											
perating Temperature torage Temperature operating Humidity torage Humidity lititude NPUT CHARACTERISTICS ominal Input Rating	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240	ss; No condensat 00m Vac, 50Hz to 60H												
perating Temperature torage Temperature perating Humidity torage Humidity lititude NPUT CHARACTERISTICS ominal Input Rating put Voltage Range	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va	ss; No condensat 00m Vac, 50Hz to 60H												
perating Temperature torage Temperature perating Humidity torage Humidity lititude NPUT CHARACTERISTICS ominal Input Rating put Voltage Range put Frequency Range	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va 47Hz ~ 63Hz	ss; No condensat 00m Vac, 50Hz to 60H												
Iltitude NPUT CHARACTERISTICS Iominal Input Rating Input Voltage Range Input Frequency Range Iaximum Input Current 100Vac/200Vac(A) Inrush Current	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va	ss; No condensat 00m Vac, 50Hz to 60H ac												
perating Temperature torage Temperature perating Humidity torage Humidity lititude NPUT CHARACTERISTICS ominal Input Rating put Voltage Range put Frequency Range laximum Input Current 100Vac/200Vac(A) trush Current laximum Input Power	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va 47Hz ~ 63Hz 21/11 Less than 50A 2000VA	ss; No condensat 00m Vac, 50Hz to 60H ac												
perating Temperature torage Temperature perating Humidity torage Humidity lititude NPUT CHARACTERISTICS ominal Input Rating uput Voltage Range uput Frequency Range laximum Input Current 100Vac/200Vac(A) irush Current laximum Input Power ower Factor 100Vac/200Vac	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va 47Hz ~ 63Hz 21/11 Less than 50A 2000VA 0.99/0.98	ss; No condensat 00m Vac, 50Hz to 60H ac												
perating Temperature torage Temperature perating Humidity torage Humidity littude IPUT CHARACTERISTICS ominal Input Rating put Voltage Range put Frequency Range aximum Input Current 100Vac/200Vac(A) rush Current aximum Input Power	20% ~ 85% RI 90% RH or les Maximum 200 100Vac to 240 85Vac ~ 265Va 47Hz ~ 63Hz 21/11 Less than 50A 2000VA	ss; No condensat 00m Vac, 50Hz to 60H ac		82/85	83/86	83/86	84/87	84/87						

CRECIFICATIONS								
SPECIFICATIONS MODEL	PSU 60-25	PSU 80-19	PSU 100-15	PSU 150-10	PSU 300-5	PSU 400-3.8	PSU 600-2.6	
OUTPUT RATINGS	F30 00-23	F30 60-13	F30 100-13	F30 130-10	F30 300-3	F30 400-3.8	r 30 000-2.0	
Rated Output Voltage (*1)	60V	80V	100V	150V	300V	400V	600V	
Rated Output Current (*2) Rated Output Power	25A 1500W	19A 1520W	15A 1500W	10A 1500W	5A 1500W	3.8A 1520W	2.6A 1560W	
RIPPLE AND NOISE(*5)	1300 W	1320 W	1300W	1300W	1300 W	1320W	1300W	
CVp-p( 10 ~ 20MHz) p-p (*6)	60mV	80mV	80mV	100mV	150mV	200mV	300mV	
CVrms(5Hz ~ 1MHz) r.m.s. (*7) CCrms(5Hz ~ 1MHz) r.m.s.(*12)	8mV 75mA	8mV 57mA	8mV 45mA	10mV 35mA	25mV 25mA	40mV 17mA	60mV 12mA	
LOAD REGULATION	731117	3711171	431174	331171	231101	171171	121171	
Voltage(*4)	8mV	10mV	12mV	17mV	32mV	42mV	62mV	
Current(*11)	10mA	8.8mA	8mA	7mA	6mA	5.76mA	5.52mA	
Voltage(*3)	8mV	10mV	12mV	17mV	32mV	42mV	62mV	
Current(*3)	4.5mA	3.9mA	3.5mA	3mA	2.5mA	2.38mA	2.26mA	
ANALOG PROGRAMMING AND MO								
External Voltage Control Output Voltage External Voltage Control Output Current		earity:±0.5% of rate earity:±1% of rated						
External Resistor Control Output Voltage	Accuracy and lin	earity:±1% of rated	output voltage					
External Resistor Control Output Current Output Voltage Monitor	Accuracy and line Accuracy: ±1%	earity:±1.5% of rate	d output current					
Output Current Monitor	Accuracy: ±1%							
Shutdown Control Output On/Off Control	Turns the output Possible logic se	off with a LOW (0V lections:	to 0.5V) or short-ci	ircuit				
,	Turn the output	on using a LOW (0V						
Alarm Clear Control		on using a HIGH (4. h a LOW (0V to 0.5V		circuit, turn the out	put off using a LC	OW (0V to 0.5V) or	short-circuit	
CV/CC/ALM/PWR ON/OUT ON Indicator	Photocoupler op	en collector output;	Maximum voltage					
Trigger Out Trigger In		evel output = 0.8V; m evel input voltage = 0						
FRONT PANEL								
Display, 4 digits, Voltage Accuracy 0.1%+	120mV	160mV	200mV	300mV	600mV	800mV	1200mV	
Current Accuracy 0.2%+ Indications	75mA GREEN LED's: C	57mA V, CC, V, A, VSR, ISR	45mA	30mA 41 M2 M3 RUN	15mA	11.4mA	7.8mA	
Buttons	Lock/Local(Unlo	ck), PROT(ALM_CL				LLD 3. ALWI, LKK		
Knobs USB Port	Voltage, Current Type A USB conr							
TRANSIENT RESPONSE TIME (*10)	Type A OSB com	iccioi						
Transient Response Time	lms	1ms	1ms	2ms	2ms	2ms	2ms	
OUTPUT RESPONSE TIME	00	150	150	150	150	200	250	
Rise Time(*8) Rated load No load	80ms 80ms	150ms 150ms	150ms 150ms	150ms 150ms	150ms 150ms	200ms 200ms	250ms 250ms	
Fall Time(*9) Rated load No load	80ms 1100ms	150ms 1200ms	150ms 1500ms	150ms 2000ms	150ms 2500ms	200ms 3000ms	250ms 4000ms	
PROGRAMMING AND MEASUREME				20001115		30001113	10001115	
Output Voltage Programming Accuracy 0.05%+ Output Current Programming Accuracy 0.2%+	30mV	40mV	50mV	75mV 10mA	150mV	200mV	300mV	
Output Voltage Programming Resolution	25mA 2mV	19mA 2.7mV	15mA 3.4mV	5.2mV	5mA 10.2mV	3.8mA 13.6mV	2.6mA 20.4mV	
Output Current Programming Resolution Output Voltage Measurement Accuracy 0.1%+	0.8mA 60mV	0.65mA 80mV	0.5mA 100mV	0.34mA 150mV	0.19mA 300mV	0.13mA 400mV	0.09mA 600mV	
Output Current Measurement Accuracy 0.2%+	50mA	38mA	30mA	20mA	10mA	7.6mA	5.2mA	
Output Voltage Measurement Resolution Output Current Measurement Resolution	2mV 0.8mA	2.7mV 0.65mA	3.4mV 0.5mA	5.2mV 0.34mA	10.2mV 0.19mA	13.6mV 0.13mA	20.4mV 0.09mA	
TEMPERATURE COEFFICIENCE	0.01117	0.031117	0.51177	0.54117	0.15111/	0.131171	0.0511171	
Voltage & Current		r a 30 minute warm	-up					
REMOTE SENSE COMPENSATION V			F\/	F)/	F\/	F)/	F)/	
PROTECTION FUNCTION	3V	4V	5V	5V	5V	5V	5V	
Over Voltage Protection(OVP) Setting Range	5~66V	5~88V	5~110V	5~165V	5~330V	5~440V	5~660V	
Setting Accuracy Over Current Protection(OCP) Setting Range	600mV 2.5~27.5A	800mV 1.9~20.9A	1000mV 1.5~16.5A	1500mV 1~11A	3000mV 0.5~5.5A	4000mV 0.38~4.18A	6000mV 0.26~2.86A	
Setting Accuracy	500mA	380mA	300mA	200mA	100mA	76mA	52mA	
Under Voltage Limit(UVL) Setting Range Over Temperature Protection(OHP) Operation	0~63V Turn the output	0~84V	0~105V	0~157.5V	0~315V	0~420V	0~630V	
Incorrect Sensing Connection Protection(SENSE) Operation	Turn the output							
Low AC Input Protection (AC-FAIL) Operation Shutdown (SD) Operation	Turn the output Turn the output							
Power Limit (POWER LIMIT) Operation	Over power limi							
Value (Fixed)		f rated output powe	r					
INTERFACE CAPABILITIES								
USB LAN		oeB: Slave, Speed: 1 ONS IP Address, Use						
RS-232 / RS-485	Complies with the	he EIA232D / EIA48	5 Specifications	,		,		
GPIB (Factory Option) ISOLATED ANALOG CONTROL INTE		E 488.2 compliant in	nterface					
Voltage Control			gramming and mea	surement				
Current Control	Current Control Using 4-20mA current signals for programming and measurement							
ENVIRONMENTAL CONDITIONS Operating Temperature	0°C ~ 50°C (*14	1)						
Storage Temperature	-25 °C ~ 70 ° C	•						
Operating Humidity Storage Humidity	g Humidity 20% ~ 85% RH; No condensation							
Altitude	Maximum 2000i							
INPUT CHARACTERISTICS	1001/	FOLL : 57::						
Nominal Input Rating Input Voltage Range	100Vac to 240Va 85Vac ~ 265Vac	ic, 50Hz to 60Hz, si	ngle phase					
Input Frequency Range	47Hz ~ 63Hz							
Maximum Input Current 100Vac/200Vac(A) Inrush Current	21/11 Less than 50A							
Maximum Input Power	2000VA							
Power Factor 100Vac/200Vac Hold-up Time	0.99/0.98 20ms or greater							
Efficiency (*13) 100Vac/200Vac(%)	84/87	84/87	84/87	84/87	84/87	84/87	84/87	
DIMENSIONS & WEIGHT	422.22	11) 4(7.0)	A 0 =:					
	423(W) × 43.6(	H) × 447.2(D)mm	, Approx. 8./kg					