

PSU Series Specifications

Model	PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Rated output voltage (*1)	V	6	12.5	20	40	60	100	150	300	400	600
Rated output current (*2)	A	600	360	228	114	75	45	30	15	11.4	7.8
Rated output power	W	3600	4500	4560	4560	4500	4500	4500	4500	4560	4680

Constant Voltage Mode		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Line regulation (*3)		mV	0.01% of rated output voltage +2mV									
Load regulation (*4)		mV	0.01% of rated output voltage +5mV									
Ripple and noise (*5)	p-p (*6)	mV	75	75	75	75	75	100	120	300	300	500
	r.m.s. (*7)	mV	10	10	10	10	10	15	25	35	35	120
Temperature coefficient		ppm/°C	100ppm/°C after a 30 minute warm-up									
Temperature stability			0.05% of rated output voltage over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.									
Warm-up drift			Less than 0.05% of rated output voltage +2mV over 30 minutes following power on.									
Remote sense compensation voltage (single wire)		V	1	1	1	2	3	5	5	5	5	5
Rise time (*8)	Rated load	ms	80	80	80	80	80	150	150	150	200	250
	No load	ms	80	80	80	80	80	150	150	150	200	250
Fall time (*9)	Rated load	ms	10	50	50	80	80	150	150	150	200	250
	No load	ms	500	700	800	1000	1100	1500	2000	2500	3000	4000
Transient response time (*10)		ms	3	3	3	3	3	3	3	3	3	3

Constant Current Mode		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Line regulation (*3)		mA	0.1% of rated output current				0.05% of rated output current					
Load regulation (*11)		mA	0.1% of rated output current				0.075% of rated output current					
Load regulation thermal drift			Less than 0.1% of rated output current over 30 minutes following load change.									
Ripple and noise (*12)	r.m.s.	mA	1400	1060	900	275	138	92	81	30	20	15
Temperature coefficient		ppm/°C	100ppm/°C after a 30 minute warm-up									
Temperature stability			0.05% of rated output current over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.									
Warm-up drift			6~12.5V model : Less than 0.5% rated output current over 30 minutes following power on. 20~600V model : Less than 0.25% rated output current over 30 minutes following power on.									

Protection Function		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Over voltage protection (OVP)	Setting range	V	0.6 - 6.6	1.25 - 13.75	2 - 22	4 - 44	5 - 66	5 - 110	5 - 165	5 - 330	5 - 440	5 - 660
	Setting accuracy	mV	60	125	200	400	600	1000	1500	3000	4000	6000
Over current protection (OCP)	Setting range	A	5 - 660	5 - 396	5 - 250.8	5 - 125.4	5 - 82.5	4.5 - 49.5	3 - 33	1.5 - 16.5	1.14 - 12.54	0.78 - 8.58
	Setting accuracy	A	12	7.2	4.56	2.28	1.5	0.9	0.6	0.3	0.228	0.156
Under voltage limit (UVL)	Setting range		0 - 6.3	0 - 13.12	0 - 21	0 - 42	0 - 63	0 - 105	0 - 157.5	0 - 315	0 - 420	0 - 630
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									

Front Panel		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8	
Display, 4 digits	Voltage accuracy	0.1% +	mV	12	25	40	80	120	200	300	600	800	1200
	Current accuracy	0.2% +	mA	1800	1080	684	342	225	135	90	45	34.2	23.4
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										

Programming and Measurement (RS-232/485, USB, LAN, GPIB)		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Output voltage programming accuracy	0.05% +	mV	3	6.25	10	20	30	50	75	150	200	300
Output current programming accuracy	0.2% +	mA	600	360	228	114	75	45	30	15	11.4	7.8
Output voltage programming resolution		mV	0.2	0.4	0.7	1.3	2	3.4	5.2	10.2	13.6	20.4
Output current programming resolution		mA	18	12	7.5	3.6	2.4	1.5	1.02	0.57	0.39	0.27
Output voltage measurement accuracy	0.1% +	mV	6	12.5	20	40	60	100	150	300	400	600
Output current measurement accuracy	0.2% +	mA	1200	720	456	228	150	90	60	30	22.8	15.6
Output voltage measurement resolution		mV	0.2	0.4	0.7	1.3	2	3.4	5.2	10.2	13.6	20.4
Output current measurement resolution		mA	18	12	7.5	3.6	2.4	1.5	1.02	0.57	0.39	0.27

Input Characteristics		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Nominal input rating			B type : 1P2W 200V models · C type : 3P3W 200V models · D type : 3P4W 400V models									
Input voltage range			B type : 1P2W 170-265Vac · C type : 3P3W 180-253Vac · D type : 3P4W 360-440Vac									
Input frequency range			47Hz ~ 63Hz									
Maximum input current		200Vac / 400Vac	A	B type : 33A · C type : 19A · D type 11A								
Inrush current			B type : 1P2W 200V models Less than 150A. C type : 3P3W 200V model Less than 100A. D type : 3P4W 400V model Less than 50A.									
Power factor		200Vac / 400Vac		0.98 @1 Phase 200Vac / 0.95 @ 3 Phase 200/400Vac								
Efficiency (*13)			%	78.5	85	86	87	87	87	87	87	87
Hold-up time			20ms or greater									

Interface Capabilities		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
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									

Environmental Conditions		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Operating temperature			0 °C to 50 °C (*14)									
Storage temperature			-25 °C to 70 °C									
Operating humidity			20% to 85% RH; No condensation									
Storage humidity			90% RH or less; No condensation									
Altitude			Maximum 2000m									

General Specifications		PSU	6-600	12.5-360	20-228	40-114	60-75	100-45	150-30	300-15	400-11.4	600-7.8
Weight	main unit only	kg	Less than 28.7kg									
Dimensions	(W×H×D)	mm <sup>3</sup>	423×130.8×447.2									
Cooling			Forced air cooling by internal fan.									
EMC												
Safety												
Withstand voltage			AC to Chassis : 1500Vac / 1min AC to Output terminal : 3000Vac / 1min Vout ≤ 150V Output terminal to Chassis : 1000Vdc / 1min 150 < Vout ≤ 600 Output terminal to Chassis : 1500Vdc / 1min									
Insulation resistance			Chassis and output terminal; chassis and AC input; AC input and output terminal: 100MΩ or more (DC 1000V)									

**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) Single phase 200V models: 170-265Vac. Three phase 200V models : 180-253Vac. Three phase 400V models : 360-440Vac.

(\*4) From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.

(\*5) Measured at rated output voltage and current with JEITA RC-9131B 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.

(\*10) Time for output voltage to recover within 2% of its rated output for a load change from 50 to 100% 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) Single phase and three phase 200V models : at 200Vac input voltage. Three phase 400V models : at 400Vac input voltage. At rated output power.

(\*14) If install the front panel filter kit, the temperature is guaranteed to 40 °C.