

## PSW-Series Specifications

The specifications apply when the PSW-Series is powered on for at least 30 minutes under +20°C~+30°C.

PSW-360W						
Model	PSW	30-36	80-13.5	160-7.2	250-4.5	800-1.44
Rated Output Voltage	V	30	80	160	250	800
Rated Output Current	A	36	13.5	7.2	4.5	1.44
Rated Output Power	W	360	360	360	360	360
Power Ratio	--	3	3	3.2	3.125	3.2
<b>Constant Voltage Mode</b>	<b>PSW</b>	<b>30-36</b>	<b>80-13.5</b>	<b>160-7.2</b>	<b>250-4.5</b>	<b>800-1.44</b>
Line Regulation (*1)	mV	18	43	83	128	403
Load Regulation (*2)	mV	20	45	85	130	405
Ripple and Noise (*3)						
p-p (*4)	mV	60	60	60	80	150
r.m.s (*5)	mV	7	7	12	15	30
Temperature coefficient	ppm/°C	100ppm/°C of rated output voltage, after a 30 minute warm-up.				
Remote sense compensation voltage	V/wire	0.6	0.6	0.6	1	1
Rise Time (*6)						
Rated Load	ms	50	50	100	100	150
No Load	ms	50	50	100	100	150
Fall Time (*7)						
Rated Load	ms	50	50	100	150	300
No Load	ms	500	500	1000	1200	2000
Transient response time (*8)	ms	1	1	2	2	2
<b>Constant Current Mode</b>	<b>PSW</b>	<b>30-36</b>	<b>80-13.5</b>	<b>160-7.2</b>	<b>250-4.5</b>	<b>800-1.44</b>
Line regulation (*1)	mA	41	18.5	12.2	9.5	6.44
Load regulation (*9)	mA	41	18.5	12.2	9.5	6.44
Ripple and noise						
r.m.s (*5)	mA	72	27	15	10	5
Temperature coefficient	ppm/°C	200ppm/°C of rated output current, after a 30 minute warm-up.				
<b>Protection Function</b>	<b>PSW</b>	<b>30-36</b>	<b>80-13.5</b>	<b>160-7.2</b>	<b>250-4.5</b>	<b>800-1.44</b>
Over voltage protection (OVP)						
Setting range	V	3-33	8-88	16-176	20-275	20-880
Setting accuracy		± (2% of rated output voltage)				
Over current protection (OCP)						
Setting range	A	3.6-39.6	1.35-14.85	0.72-7.92	0.45-4.95	0.144-1.584
Setting accuracy		± (2% of rated output current)				
Over temperature protection (OTP)						
Operation		Turn the output off.				
Low AC input protection (AC-FAIL)						
Operation		Turn the output off.				
Power limit (POWER LIMIT)						
Operation		Over power limit.				
Value (fixed)		Approx. 105% of rated output power				
<b>Front Panel</b>	<b>PSW</b>	<b>30-36</b>	<b>80-13.5</b>	<b>160-7.2</b>	<b>250-4.5</b>	<b>800-1.44</b>
Display, 4 digits						
Voltage accuracy 0.1% +	mV	20	20	100	200	400
Current accuracy 0.1% +	mA	40	20	5	5	2
<b>Programming and Measurement (Interface)</b>	<b>PSW</b>	<b>30-36</b>	<b>80-13.5</b>	<b>160-7.2</b>	<b>250-4.5</b>	<b>800-1.44</b>
Voltage programming accuracy 0.1% +	mV	10	10	100	200	400

Current programming accuracy 0.1% +	mA	30	10	5	5	2
Voltage programming resolution	mV	1	2	3	5	14
Current programming resolution	mA	1	1	1	1	1
Voltage measurement accuracy 0.1% +	mV	10	10	100	200	400
Current measurement accuracy 0.1% +	mA	30	10	5	5	2
Voltage measurement resolution	mV	1	2	3	5	14
Current measurement resolution	mA	1	1	1	1	1
<b>PSW-720W</b>						
<b>Model</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Rated Output Voltage	V	30	80	160	250	800
Rated Output Current	A	72	27	14.4	9	2.88
Rated Output Power	W	720	720	720	720	720
Power Ratio	--	3	3	3.2	3.125	3.2
<b>Constant Voltage Mode</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Line Regulation (*1)	mV	18	43	83	128	403
Load Regulation (*2)	mV	20	45	85	130	405
Ripple and Noise (*3)						
p-p (*4)	mV	80	80	80	100	200
r.m.s (*5)	mV	11	11	15	15	30
Temperature coefficient	ppm/°C	100ppm/°C of rated output voltage, after a 30 minute warm-up.				
Remote sense compensation voltage	V/wire	0.6	0.6	0.6	1	1
Rise Time (*6)						
Rated Load	ms	50	50	100	100	150
No Load	ms	50	50	100	100	150
Fall Time (*7)						
Rated Load	ms	50	50	100	150	300
No Load	ms	500	500	1000	1200	2000
Transient response time (*8)	ms	1	1	2	2	2
<b>Constant Current Mode</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Line regulation (*1)	mA	77	32	19.4	14	7.88
Load regulation (*9)	mA	77	32	19.4	14	7.88
Ripple and noise						
r.m.s (*5)	mA	144	54	30	20	10
Temperature coefficient	ppm/°C	200ppm/°C of rated output current, after a 30 minute warm-up.				
<b>Protection Function</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Over voltage protection (OVP)						
Setting range	V	3-33	8-88	16-176	20-275	20-880
Setting accuracy		± (2% of rated output voltage)				
Over current protection (OCP)						
Setting range	A	5-79.2	2.7-29.7	1.44-15.84	0.9-9.9	0.288-3.168
Setting accuracy		± (2% of rated output current)				
Over temperature protection (OTP)						
Operation		Turn the output off.				
Low AC input protection (AC-FAIL)						
Operation		Turn the output off.				
Power limit (POWER LIMIT)						
Operation		Over power limit.				
Value (fixed)		Approx. 105% of rated output power				
<b>Front Panel</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Display, 4 digits						
Voltage accuracy 0.1% +	mV	20	20	100	200	400

Current accuracy 0.1% +	mA	70	40	30	10	4
<b>Programming and Measurement (Interface)</b>	<b>PSW</b>	<b>30-72</b>	<b>80-27</b>	<b>160-14.4</b>	<b>250-9</b>	<b>800-2.88</b>
Voltage programming accuracy 0.1% +	mV	10	10	100	200	400
Current programming accuracy 0.1% +	mA	60	30	15	10	4
Voltage programming resolution	mV	1	2	3	5	14
Current programming resolution	mA	2	2	2	1	1
Voltage measurement accuracy 0.1% +	mV	10	10	100	200	400
Current measurement accuracy 0.1% +	mA	60	30	15	10	4
Voltage measurement resolution	mV	1	2	3	5	14
Current measurement resolution	mA	2	2	2	1	1
<b>PSW-1080W</b>						
<b>Model</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Rated Output Voltage	V	30	80	160	250	800
Rated Output Current	A	108	40.5	21.6	13.5	4.32
Rated Output Power	W	1080	1080	1080	1080	1080
Power Ratio	--	3	3	3.2	3.125	3.2
<b>Constant Voltage Mode</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Line Regulation (*1)	mV	18	43	83	128	403
Load Regulation (*2)	mV	20	45	85	130	405
Ripple and Noise (*3)						
p-p (*4)	mV	100	100	100	120	200
r.m.s (*5)	mV	14	14	20	15	30
Temperature coefficient	ppm/°C	100ppm/°C of rated output voltage, after a 30 minute warm-up.				
Remote sense compensation voltage	V/wire	0.6	0.6	0.6	1	1
Rise Time (*6)						
Rated Load	ms	50	50	100	100	150
No Load	ms	50	50	100	100	150
Fall Time (*7)						
Rated Load	ms	50	50	100	150	300
No Load	ms	500	500	1000	1200	2000
Transient response time (*8)	ms	1	1	2	2	2
<b>Constant Current Mode</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Line regulation (*1)	mA	113	45.5	26.6	18.5	9.32
Load regulation (*9)	mA	113	45.5	26.6	18.5	9.32
Ripple and noise						
r.m.s (*5)	mA	216	81	45	30	15
Temperature coefficient	ppm/°C	200ppm/°C of rated output current, after a 30 minute warm-up.				
<b>Protection Function</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Over voltage protection (OVP)						
Setting range	V	3-33	8-88	16-176	20-275	20-880
Setting accuracy		± (2% of rated output voltage)				
Over current protection (OCP)						
Setting range	A	5-118.8	4.05-44.55	2.16-23.76	1.35-14.85	0.432-4.752
Setting accuracy		± (2% of rated output current)				
Over temperature protection (OTP)						
Operation		Turn the output off.				
Low AC input protection (AC-FAIL)						
Operation		Turn the output off.				
Power limit (POWER LIMIT)						
Operation		Over power limit.				

Value (fixed)	Approx. 105% of rated output power					
<b>Front Panel</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Display, 4 digits						
Voltage accuracy 0.1% +	mV	20	20	100	200	400
Current accuracy 0.1% +	mA	100	50	30	20	6
<b>Programming and Measurement (Interface)</b>	<b>PSW</b>	<b>30-108</b>	<b>80-40.5</b>	<b>160-21.6</b>	<b>250-13.5</b>	<b>800-4.32</b>
Voltage programming accuracy 0.1% +	mV	10	10	100	200	400
Current programming accuracy 0.1% +	mA	100	40	20	15	6
Voltage programming resolution	mV	1	2	3	5	14
Current programming resolution	mA	3	3	3	1	1
Voltage measurement accuracy 0.1% +	mV	10	10	100	200	400
Current measurement accuracy 0.1% +	mA	100	40	20	15	6
Voltage measurement resolution	mV	1	2	3	5	14
Current measurement resolution	mA	3	3	3	1	1
<b>Common Specification</b>						
<b>Input Characteristics</b>	<b>PSW</b>	<b>30V</b>	<b>80V</b>	<b>160V</b>	<b>250V</b>	<b>800V</b>
Nominal input rating	100Vac to 240Vac, 50Hz to 60Hz, single phase					
Input voltage range	85Vac ~ 265Vac					
Input voltage range	47Hz ~ 63Hz					
Maximum input current						
100Vac	A	360W: 5A, 720W: 10A, 1080W: 15A				
200Vac	A	360W: 2.5A, 720W: 5A, 1080W: 7.5A				
Inrush current	A	< 25A for 360W, < 50A for 720W, < 75A for 1080W				
Maximum input power	VA	360W: 500VA, 720W: 1000VA, 1080W: 1500VA				
Power factor						
100Vac	0.99					
200Vac	0.97					
Efficiency						
100Vac	%	77	78	79	79	80
200Vac	%	79	80	81	81	82
Hold-up time	20ms or greater					
<b>Analog Programming and Monitoring</b>	<b>PSW</b>	<b>30V</b>	<b>80V</b>	<b>160V</b>	<b>250V</b>	<b>800V</b>
External voltage control output voltage	Accuracy and linearity: $\pm 0.5\%$ of rated output voltage.					
External voltage control output current	Accuracy and linearity: $\pm 1\%$ of rated output current.					
External resistor control output voltage	Accuracy and linearity: $\pm 1.5\%$ of rated output voltage.					
External resistor control output current	Accuracy and linearity: $\pm 1.5\%$ of rated output current.					
Output voltage monitor						
Accuracy	%	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 2$	$\pm 2$
Output current monitor						
Accuracy	%	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 2$	$\pm 2$
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.					
CV/CC/ALM/PWR ON/OUT ON indicator	Photocoupler open collector output; Maximum voltage 30V, maximum sink current 8mA.					
Series and Parallel Capability	PSW	30V	80V	160V	250V	800V
Parallel number	Units	3	3	3	3	3
Series Number	Units	2	2	2	None	None
Front Panel						
Indications	GREEN LED's:					

		CV, CC, VSR, ISR, DLY, RMT, 20, 40, 60, 80, 100, %W, W, V, A RED LED's: ALM
Buttons		Function, OVP/OCP, Set, Test, Lock/Local, PWR DSPL, Output
Knobs		Voltage, Current
USB port		Type A USB connector
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
GPIB		Optional: GUG-001 ( GPIB to USB Adapter)
Environmental Conditions		
Operating temperature		0°C to 50°C
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		
Weight (main unit only)	kg	Approx. 3kg for 360W, Approx. 5.3kg for 720W, Approx. 7.5kg for 1080W
Dimensions (WxHxD)	mm3	360W: 71×124×350mm, 720W: 142×124×350mm, 1080W: 214×124×350mm
Cooling		Forced air cooling by internal fan.
EMC		Complies with the European EMC directive 2004/108 /EC for Class A test and measurement products.
Safety		Complies with the European Low Voltage Directive 2006 /95/EC and carries the CE-marking.
Withstand voltage		Between input and chassis: No abnormalities at 1500 Vac for 1 minute.
		Between input and output: No abnormalities at 3000 Vac for 1 minute.
		Between output and chassis: No abnormalities at 500 Vdc for 1 minute for 30V, 80V, 160V models.
		No abnormalities at 1500 Vdc for 1 minute for 250V, 800V models.
Insulation resistance		Between input and chassis: 500 Vdc, 100MΩ or more
		Between input and output: 500 Vdc, 100MΩ or more
		Between output and chassis: 500 Vdc, 100MΩ or more for 30V, 80V, 160V and 250V models.
		1000Vdc, 100MΩ or more for 800V models.

**Notes**

- \*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 JEITA RC-9131B (1:1) probe
- \*4: Measurement frequency bandwidth is 10Hz to 20MHz.
- \*5: Measurement frequency bandwidth is 5Hz to 1MHz.
- \*6: From 10% to 90% of rated output voltage, with rated resistive load.
- \*7: From 90% to 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.