

New Flagship Bench-top DC Power Supply

New Compact Wide Range DC Power Supply PWR-01 Series

A wide range of voltage and current settings can be combined within its output power rating (3 to 4 times) LAN (LXI compliant) /USB/RS232C as standard interface Sequence creation software : Wavy for PWR-01 All models are equipped with front output terminals as standard Variable internal resistance function

The Bench-top

New flagship bench-top DC power supply

L, ML, MH, and H voltage types. Lineup of 12 models in total!

The PWR-01 is a series of high performance, multifunctional, compact, wide-range DC power supplies. It consists of 12 models in total with 4 maximum voltage outputs (L, ML, MH, and H) and 3 maximum power outputs (400 W, 800 W, and 1200 W). The series is equipped with LAN (LXI), USB, and RS232C as standard interfaces that are essential for system integration. The PWR-01 also features front-facing output terminals, variable internal resistance, bleeder ON/OFF functions, CC/CV priority switching function, synchronized operation, various protections, and programmable internal memory.



Lineup

40 V type

Туре	Model	Voltage output	Current output	Power output	
L	PWR401L		0 A to 40 A	400 W	
	PWR801L	0 V to 40 V	0 A to 80 A	800 W	
	PWR1201L		0 A to 120 A	1200 W	

80V type

Туре	Model	Voltage output	Current output	Power output	
	PWR401ML		0 A to 20 A	400 W	
ML	PWR801ML	0 V to 80 V	0 A to 40 A	800 W	
	PWR1201ML		0 A to 60 A	1200 W	

240 V type

Туре	Model	Voltage output	Current output	Power output	
	PWR401MH		0 A to 5 A	400 W	
MH	PWR801MH	0 V to 240 V	0 A to 10 A	800 W	
	PWR1201MH		0 A to 15 A	1200 W	

650V type

Туре	Model	Voltage output	Current output	Power output	
	PWR401H		0 A to 1.85 A	400 W	
н	PWR801H	0 V to 650 V	0 A to 3.70 A	800 W	
	PWR1201H		0 A to 5.55 A	1200 W	



Universal Communication Interface Combined with Wide Range Output Coverage!

Sequence Function

Wide Range

Synchronized operation using trigger signals

Communication Interface

LAN (LXI compliant) /USB/RS232C as standard interface

Front Output Terminals

Equipped with front output terminal as standard *Up to 10 A

3 to 4 times coverage ratio for voltage and current range

Variable Internal Resistance Function

Convenient sequence generation for the **PWR-01**

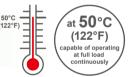
Sequence Creation Software

SD027-PWR-01 (Wavy for PWR-01)

Easy simulation of power supplies carrying internal resistance made possible

Durable Performance

Operating temperature guaranteed up to 50 °C.



For details please refer to page 15



1200 W model

800 W model

400 W model



Safe and easy to use front-facing output terminals

All models are equipped with front-facing output terminals (up to 10 A) optimized for bench-top use. Please connect to the output terminals with a safety plug. *This product's specifications were recorded using the back-side output terminals.



Safety plugs (Options)



1000 V/ CATII max 32 A

TL41 (screw connection type) Red and black, one set each Red and black.

TL42 (solder connection type) Red and black, one set each 1000 V/ CATII max 32 A

Sequence function

The sequence function allows you to automatically execute programs that you have set in advance one operation at a time. However, you cannot create sequences using only the panel. Sequence programs are created using commands from a PC. Once a sequence is executed via remote control, the program is saved onto the PWR-01's internal memory and then can be executed directly from the front panel without a PC.

Synchronized operation

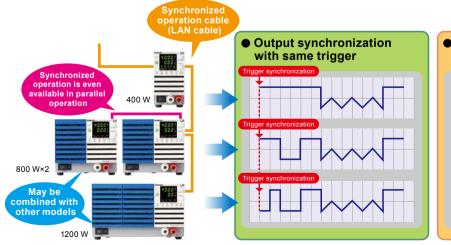
Synchronized operation allows for settings and sequence programs to be synchronized via trigger signals. Different PWR-01 models (e.g., 400 W model and 800 W model) can be easily mixed and matched with no difficulties. Synchronized operation is also possible in parallel operation. In order to successfully synchronize your power supplies, please configure various settings using remote control commands. After completing configuration, synchronized operation can be performed without a PC.

Standard communication interface

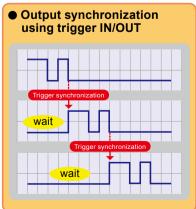
The series has been equipped with LAN (LXI), USB, and RS232C as standard interfaces, essential for system integration. When using RS232C, please order the D-sub 9P-RJ45 transformation cable (RD-8P/9P) option, sold seperately. The PWR-01 has also been equipped with J1/J2 connectors for analog control.



Rear Panel : 400 W model



Sequence Function/Synchronized Operation Concept Map



Output changes can be synchronized with the same trigger signal.

Other PWR-01 series sequences can be restarted in synchronization with the PWR-01 series trigger output.

Bleeder ON/OFF function

The PWR-01's capacitor is connected to its output terminals, with a bleeder circuit equipped that discharges electricity when the OUTPUT is set to OFF. For example, when a battery is connected to the output terminal, when the bleeder circuit is set to ON, the bleeder circuit will discharge electricity from the battery even when OUTPUT is OFF. In cases like these, excessive electric discharge can be prevented by setting the bleeder circuit to OFF.

This makes it possible to prevent current backflow from a battery without using a diode.

Bleeder circuit	Description
Off *1	Bleeder circuit off
Normal bleeder	Bleeder circuit on
Hyper bleeder *2	When a normal bleeder is used, falling time with no load can be shortened to approximately 70% and eliminate test cycle time. This is effective for situations in which one wants to operate ON/OFF with capacitive load as quickly as possible.

*1. Even if the output terminals are open and the output is turned off or the voltage setting is at 0 V, up to several hundred millivolts of voltage may appear across the output terminals.

*2. The fan speed is fixed to the maximum speed.

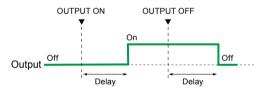
Customizable startup when turning on output

You can choose the priority operation mode (CC priority/CV priority) when the output is turned ON.

This can prevent overshoot when turning on the output.

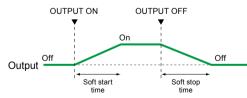
Output ON/OFF delay function

You can set the delay (DELAY TIME) from when the OUTPUT key is turned on or off to when the output actually turns on or off. This is useful for tests where precise timing/order of rise and drop voltage is essential according to the load characteristics.



Soft start/stop function

You can set the rise time and fall time of output current. This is useful when the load cannot follow the sudden rise or fall in the output current or when you want to avoid the overcurrent protection from being activated.



Master-slave parallel operation

One-control parallel operation is performed by designating one "master" device and connecting it to one or more of the same models being the "slave" devices. The entire system can then be controlled by operating the master machine. Output current can be greatly amplified (maximum output current: single rated output current x number of parallel units) with one-control parallel operation. The maximum number of parallel units including the master device is 3 units for the 400 W and 800 W models and 2 units for the 1200 W models. Differences in output voltage and output current between the master and slave devices are within approximately 5% of their respective rated output.



Series operation

Up to two units can be connected in series (excluding the H type). The total combined output voltage of the two units is applied to the load. The voltage setting accuracy is the same as the accuracy of an individual unit. *You cannot perform master-slave configuration in series operation.

Preset memory function

The preset memory function of the PWR-01 allows you to save up to three combinations of each of the voltage, current, OVP, OCP and UVL values. The saved preset values can be recalled from the preset memory found on the front panel.

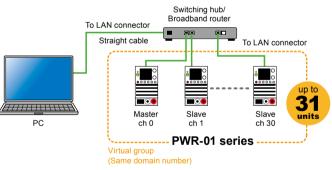
CONFIG setting shortcut function

You can register CONFIG setting parameters to the front panel's SC keys. You can perform tests efficiently by registering CONFIG parameters that you use frequently without consulting the CONFIG menu. Up to three parameters can be registered.

Multi-channel (VMCB)* *virtual multi-channel bus (VMCB)

When multi-channel (VMCB) is used, one personal computer can be connected to multiple PWR-01 series machines (up to 31 units) to construct a virtual multi-channel power source system. This is effective for matching the control timing of multiple PWR-01 series units and for saving communication ports.

•Basic configuration with LAN interface and VMCB (example)



Easy access with a built-in web server

Use a browser from a PC, smartphone, or tablet to access the web server built into the PWR-01 series for convenient control and monitoring.

[Recommended browser]

- Requires for the Internet Explorer version 9.0
- or later ● Requires for the firefox 8.0 or later
- Requires for the safari/mobile Safari 5.1 or later
- Requires for the Chrome 15.0 or later
- Requires for the Opera 11.0 or later

* Connecting with a smartphone, tablet, etc. requires a Wi-Fi environment (wireless LAN router etc.).



*Screen sample

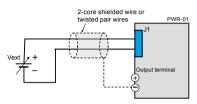
External analog control function

The PWR-01 series is equipped with external voltage/resistance control, which is necessary for external analog control and monitoring applications for power supply testing. The input external signal and the output status signal can be accessed through the J1/J2 connectors on the rear panel. When using the J1/J2, please purchase the J1/J2 connector plug kit (OP01-PWR-01) option, sold separately.

•Controlling the output voltage & output current.

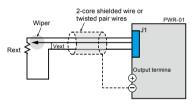
▼Control using an external voltage.

It is possible to control the output voltage/output current of the PWR-01 series by using an external voltage.



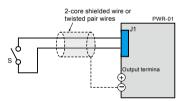
▼Control using an external resistance.

It is possible to control the output voltage/output current of the PWR-01 series by using an external variable resistor.



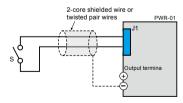
▼Turning output on and off using an external contact.

It is possible to turn the output ON/OFF of the PWR-01 series by using an external contact.



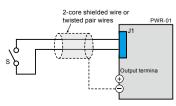
▼Output shutdown control using an external contact.

It is possible to turn the output OFF of the PWR-01 series by using an external contact.



▼Clearing alarms using an external contact.

It is possible to clear the alarm of the PWR-01 series by using an external contact.



Monitoring operation modes.

External monitoring of the output voltage and output current.

	nnector rangement	
Pin No.	Signal name	Description
J1-1	VPGM	Terminal used to control the output voltage with an external voltage or external resistance. 0 V to 5 V; 0 % to 100 % of the rated output voltage (CF12: LO). 0 V to 10 V; 0 % to 100 % of the rated output voltage (CF12: HI).
J1-2	VMON	Output voltage monitor. 0 % to 100 % of the rated output voltage generated as a voltage between 0 V and 5 V (CF13: LO) or a voltage between 0 V and 10 V (CF13: HI).
J1-3	REF OUT	Reference voltage for external resistance control. 5.25 V (CF12: LO) / 10 V (CF12: HI), maximum output current: 2.5 mA.
J1-4	PRL ON	On when parallel operation is in use and when output is on (output throug an open-collector photo-coupler)
J1-5	A GND	External signal common for pins 1 to 3, 6 to 9, 11, 12, 14, 16, and 20. When remote sensing is not used, this is at the same electric potential is the negative output terminal. When remote sensing is used, this is at the same electric potential as the negative electrode (-S) of sensing input.
J1-6	ALM CLEAR	Alarm clear terminal. Alarms are cleared when a low level signal (0 V to 0 V) is received or shorted.
J1-7	I SUM	Current output terminal for parallel operation.
J1-8	PRL OUT	Positive output terminal for parallel operation.
J1-9	PRL COMP IN	Correction signal input terminal for parallel operation.
J1-10	A GND	External signal common for pins 1 to 3, 6 to 9, 11, 12, 14, 16, and 20. When remote sensing is not used, this is at the same electric potential the negative output terminal. When remote sensing is used, this is at the same electric potential as the negative electrode (-S) of sensing input.
J1-11	IPGM	Terminal used to control the output current with an external voltage external resistance. 0 V to 5 V; 0 % to 100 % of the rated output current (CF12: LO). 0 V to 10 0 % to 100 % of the rated output current (CF12: HI).
J1-12	IMON	Output current monitor. 0 % to 100 % of the rated output current is generated as a voltage betwee 0 V and 5 V (CF13: LO) or a voltage between 0 V and 10 V (CF13: HI).
J1-13	PRL COM	Common for pin 4.
J1-14	PRL ALM	On when a protection function is activated during parallel operation or whe an output shutdown signal is being received.
J1-15	A GND	External signal common for pins 1 to 3, 6 to 9, 11, 12, 14, 16, and 20. When remote sensing is not used, this is at the same electric potential the negative output terminal. When remote sensing is used, this is at the same electric potential as the negative electrode (-S) of sensing input.
J1-16	SHUT DOWN	Output shutdown control terminal. The output is turned off when set to LO $(0 \text{ V to } 0.5 \text{ V})$ or shorted.
J1-17	OUTPUT CONT	Output on/off terminal. On when set to LOW (0 V to 0.5 V) or shorted; off when set to HIGH (4.5 or 5 V) or open (CF15: LO) On when set to HIGH (4.5 V to 5 V) or open; off when set to LOW (0 V or 0 V) or shorted (CF15: HI)
J1-18	PRL COMP OUT	Correction signal output terminal for parallel operation.
J1-19	PRL IN-	Negative input terminal for parallel operation.
J1-20	PRL IN+	Positive input terminal for parallel operation.

20 19 18 18 17

J2 connector pin arrangement



Pin No.	Signal name	Description
J2-1	STATUS COM	Common for pins 2 to 6. *1
J2-2	OUT ON STATUS	Outputs a signal when output is on (output through an open-collector photocoupler). *2
J2-3	PWR ON STATUS	Outputs a low level signal when the power is on (output through an open-collector photocoupler). *2
J2-4	ALM STATUS	Outputs a signal when a protection function (OVP, OCP, FOCP, OHP, SENSE, AC-FAIL) is activated or when an output shutdown signal is being received (output through an open-collector photocoupler). *2
J2-5	CV STATUS	Outputs a signal during CV mode (output through an open-collector photocoupler) *2
J2-6	CC STATUS	Outputs a signal during CC mode (output through an open-collector photocoupler). *2

The status common is floating (isolation voltage of 800 V or less). It is isolated from the control circuit.
 Open collector output:Maximum voltage: 30 V. Maximum current: 8 mA.

J1 and J2 connectors

	J1 connector	J2 connector
Connector type	WF2549-2WR10S3T01 (WCON)	WF2549-2WR03S3T01(WCON)
Housing type	WF2549-2H10W01 (WCON)	WF2549-2H03W01 (WCON)
Terminal (pin)	WF2549-TPS302 (WCON)	WF2549-TPS302 (WCON)
Wire diameter (core wire)	AWG20 to AWG24	AWG20 to AWG24
Manual pressure welding tool	SN-28B (IWISS) or an equivalent product	SN-28B (IWISS) or an equivalent product

CONFIG setting is easy for ON/OFF settings with external contact points that can be easily accessed from the front panel.



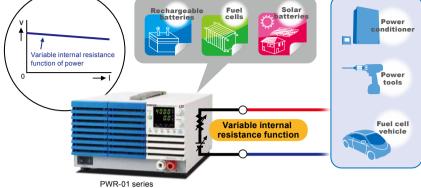
Variable internal resistance function

You can use a CONFIG setting to set the internal resistance.

The variable internal resistance function enables you to easily simulate the internal resistance of rechargeable batteries, solar batteries, fuel cells, and the like. By setting the internal resistance value in constant voltage (CV) mode, you can decrease the output voltage according to the output current.

PWR-01 SERIES

Y | Rechargeable Fuel cells



	PWR401L	PWR401ML	PWR401MH	PWR401H
Vrtg [V]	40	80	240	650
Irtg [A]	40	20	5	1.85
Rint [Ω]	0.001 to 1.000	0.001 to 4.000	0.01 to 36.00	0.1 to 263.5
Resolution *1	0.001	0.001	0.01	0.1
	PWR801L	PWR801ML	PWR801MH	PWR801H
Vrtg [V]	40	80	240	650
Irtg [A]	80	40	10	3.7
Rint [Ω]	0.001 to 0.500	0.001 to 2.000	0.01 to 18.00	0.1 to 131.8
Resolution*1	0.001	0.001	0.01	0.1
	PWR1201L	PWR1201ML	PWR1201MH	PWR1201H
Vrtg [V]	40	80	240	650
Irtg [A]	120	60	15	5.55
Rint [Ω]	0.001 to 0.333	0.001 to 1.333	0.01 to 12.00	0.1 to 87.84
Resolution*1	0.001	0.001	0.01	0.01

Setting range

Vrtg	rated output voltage
vitg	
Irtg	rated output current
Rint	internal resistance

0 <Rint (min) ≤Rint (max)

L type, ML type: Rint (max)= Vrtg/ Irtg MH type, H type: Rint (max)= Vrtg/ Irtg x 3/4

The variable internal resistance function can be configured only in constant voltage(CV)mode.

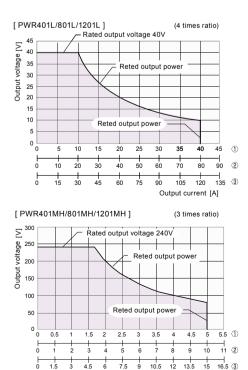
*1. Resolution when FINE is in use

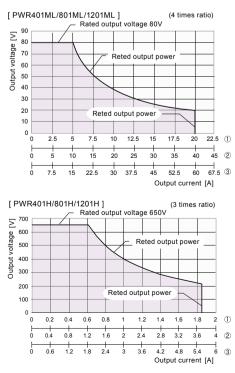
The maximum internal resistance that can be set during parallel operation is the value obtained by dividing Rint (max) during standalone operation by the number of units in parallel operation. The resolution is the value obtained by dividing the resolution during standalone operation by the number of units in parallel operation.

3 to 4 times ratio power operation

3 to 4 times ratio power operating range covers a wide variety of voltage and current setting combinations. For example, the 1200 W rated power output PWR1201ML is capable of seamless operation from 80 V/15 A to 20 V/60 A.

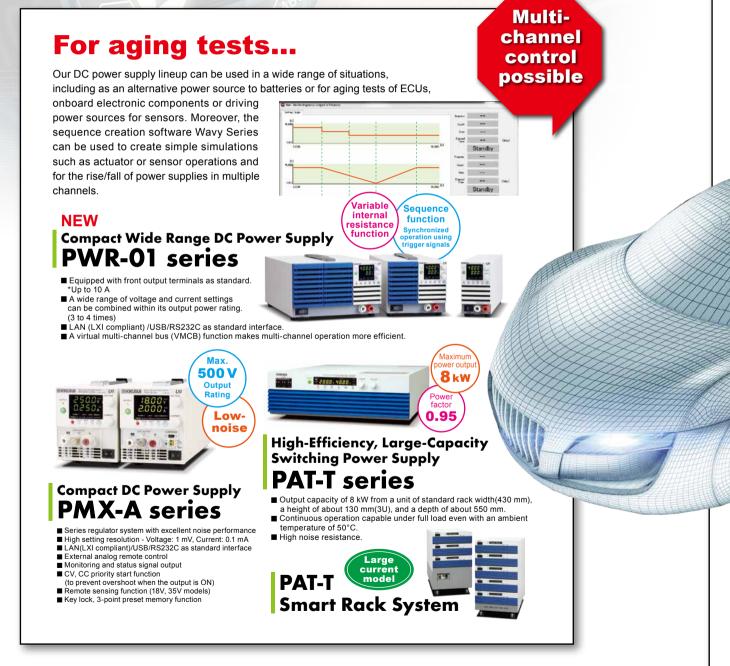
Output current [A]





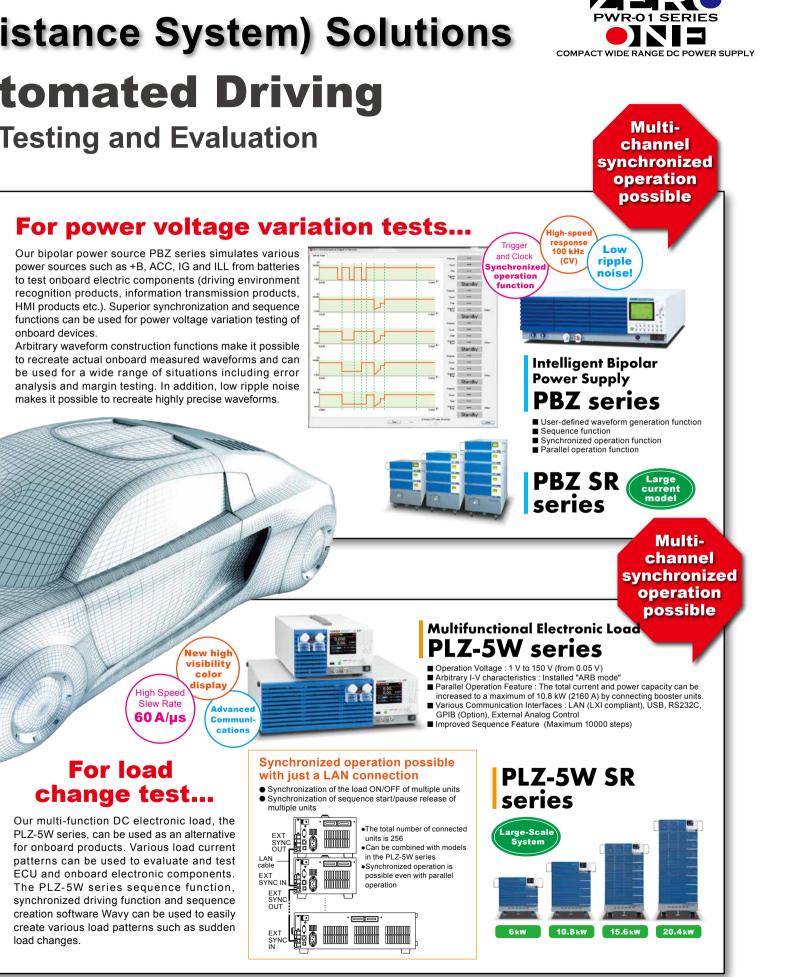
KIKUSUI ADAS (Advanced Driver Ass Car Electronics Evolved for Au Optimal KIKUSUI Product Lineup for ADAS Product

Automated driving technology undergoes screening by the ISO/TC204 in compliance with international standards. Aging tests for driving control systems of onboard electric components, power voltage variation tests and load change tests etc. are performed to make a DC power source and DC power load into a system that can be controlled by multiple channels depending on the needs of each.



Main onboard electric components

Lane Keeping System (LKS), Adaptive Cruise Control (ACC), Autonomous Emergency Braking (AEB), Traffic Sign Recognition (TSR), millimeter wave radar, infrared laser, camera, car navigation, night vision, ultrasound sensor, Data Communication Module (DCM), various displays etc.



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Specifications

Unless specified otherwise, the specifications are for the following settings and conditions. •Loads are pure resistive loads. •The product is warmed up for at least 30 minutes (with current flowing). •After warm-up, the product must be calibrated correctly in a 23 °C ± 5 °C environment according to the appropriate calibration procedure. •Walues indicated by "TYP" are typical values. They are not guaranteed performance values. •Values indicated by 'rating" are ratings. •Values indicated by "TYP" are typical values. •They are not guaranteed performance values. •Values indicated by 'rating" are ratings. •Values indicated by "reading" are readings. •Values indicated by "Ts" are full scale values. •The PWR-01 operates over a wide range of output voltage and output current within rated output power. However, the current that can be output with rated output voltage and the voltage that can be output with rated output current are limited by the rated output power. However, the current that can be output woltage. Maximum output voltage with rated output current = Rated output power/rated output output over. • The current that can be output woltage. Maximum output voltage with rated output current = Rated output power/rated output voltage. Rated load: Refers to a resistive load that, when the rated output current is septied, makes the flowing current 95 % to 100 % of the maximum output current with rated output voltage. No load:Refers to a load through which no output current flows. In other words, refers to an open load (no load being connected). In constant-current moted voltput voltage with rated output voltage with rated output voltage. He waximum output current 100 % of the maximum output current with rated output voltage with rated output voltage with rated output voltage. He waximum output voltage with rated output voltage with rated output current. Including the voltage drop in the load: Refers to a resistive load that, when the rated output voltage with which no output current 100 % of the maximum ou

• 400 W model

Item/Model		PWR401L PWR401ML		PWR401MH	PWR401H	
AC input						
Nominal input rating			100 Vac to 240 Vac, 50 I	Hz to 60 Hz, single phase		
Input voltage range			85 Vac to	265 Vac		
Input frequency range		47 Hz to 63 Hz				
Current (TVD) *1	100 Vac	5.6 A				
Current (TYP) *1	200 Vac	2.8 A				
Inrush current (MAX) *2		25 Apeak or less				
Power (MAX) *3		560 VA				
Power factor (TYP) *1		0.99 (input voltage: 100 V), 0.97 (input voltage: 200 V)				
Efficiency (MIN) *1		75 % (TYP)				
Hold-up time for power interruption (MIN) *3		20 ms or more				

At the rated output power for the rated output current.

Excludes the charge current component that flows through the capacitor of the internal EMC filter circuit immediately after the POWER switch is turned on (for approximately 1 ms). *2 100 Vac, at the rated output power

3. 100 Va	ac, at the rated out	put power.					
ltem/Mod	del		PWR401L	PWR401ML	PWR401MH	PWR401H	
utput							
0	Output voltage *1		40 V	80 V	240 V	650 V	
ating O	utput current *1		40 A	20 A	5 A	1.85 A	
0	utput power			400	W		
M	laximum settable	voltage *2	42 V	84 V	252 V	682.5 V	
S	etting accuracy			± (0.05 % of set +	0.05 % of rating)		
R	lesolution		200 mV	400 mV	1000 mV	2500 mV	
	Using FINE	, OUT OFF	10 mV	10 mV	100 mV	100 mV	
	Using FINE	, OUT ON	1 mV	1 mV	10 mV	10 mV	
	When using a c	ommunication interface	1 mV	1 mV	10 mV	10 mV	
Li	ine regulation *3		±6 mV	±10 mV	±26 mV	±67 mV	
Lo	oad regulation *4		±6 mV	±10 mV	±26 mV	±67 mV	
oltage Tr	ransient response	e *5	1 ms or less	2 ms or less	2 ms or less	3 ms or less	
Ũ	tipple noise *6	p-p *7	50 mV	50 mV	100 mV	300 mV	
ĸ		rms *8	5 mV	5 mV	20 mV	50 mV	
B	Rise time At full load No load		50 ms or less		100 ms or less		
R			50 ms or less		100 ms c	or less	
-	Fall time *9 At full load No load		50 ms or less		150 ms	250 ms	
Fé			500 ms or less		1200 ms	2000 ms	
	Maximum remote sensing compen- sation voltage (single line)		1.5 V	4 V	5 V	5 V	
Te	emperature coeff	icient *10	100 ppm/°C				
М	laximum settable	current *2	42 A	21 A	5.25 A	1.9425 A	
S	etting accuracy *	11		\pm (0.5 % of set +0.1 % of rating)			
R	esolution		200 mA	100 mA	20 mA	10 mA	
	Using FINE	, OUT OFF	10 mA	10 mA	1 mA	1 mA	
	Using FINE	, OUT ON	1 mA	1 mA	0.1 mA	0.1 mA	
urrent	When using a c	ommunication interface	1 mA	1 mA	0.1 mA	0.1 mA	
Li	ine regulation		±6 mA	±4 mA	±2.5 mA	±2.2 mA	
Lo	oad regulation		±13 mA	±9 mA	±6.0 mA	±5.4 mA	
	Ripple noise *12 rms *8		80 mA	40 mA	12 mA	6 mA	
	tise time (TYP)	At full load	50	ms	100 n	ns	
Fa	Fall time (TYP) At full load		50	ms	100 n	ns	
Te	emperature coeff	icient *10		100 pp	m/°C		
/laximun	n internal resistan	ce that can be set	1.000 Ω	4.000 Ω	36.00 Ω	263.5 Ω	

*1 The maximum output voltage and maximum output current are limited by the maximum output power

*2 Can be limited to approximately 95 % of the OVP trip point or OCP trip point

*3 85 Vac to 135 Vac or 170 Vac to 265 Vac, fixed load

The amount of change that occurs when the load is changed from no load to full load (rated output power/rated output voltage) with rated output voltage. The value is measured at the sensing point. The amount of time required for the output voltage to return to a value within "rated output voltage ± (0.1 % +10 mV)." The load current fluctuation is 50 % to 100 % of the maximum current with the set output voltage. *4. *5.

Measured using an RC-9131C probe that conforms to the JEITA specifications. At the rated output current. *6.

*7. When the measurement frequency bandwidth is 10 Hz to 20 MHz.

*8. When the measurement frequency bandwidth is 10 Hz to 1 MHz.

*9 When the bleeder circuit is set to bleeder normal.

*10. When the ambient temperature is within 0°C and 50 °C

*11 Applies to the range of 1 % to 100 % of the rated current. TYP (0.1 % of rating) for 0 % to 1 %.

*12. When the output voltage is 10 % to 100 % of the rating. At the rated output current.

Item/Model		PWR401L	PWR401ML	PWR401MH	PWR401H	
Display function						
Voltago diaplay	Maximum display	99.99		999.9		
Voltage display	Display accuracy		± (0.2 % of rea	eading + 5 digit)		
Current dienley	Maximum display	99	.99	9.999		
Current display	Display accuracy		± (0.5 % of rea	eading + 8 digit)		
Power display			The PWR DSPL	LED lights in red.		
	Maximum display	9999				
	Display accuracy	Displays the result of multiplying the current and voltage. The display is toggled with the voltage or current display.			tage or current display.	



• 800 W model

Item/Model		PWR801L	PWR801ML	PWR801MH	PWR801H		
AC input							
Nominal input rating		100 Vac to 240 Vac, 50 Hz to 60 Hz, single phase					
Input voltage range			85 Vac to 265 Vac				
Input frequency range 47 Hz to 63 Hz			o 63 Hz				
Current (TVD) *1	100 Vac	11.2 A					
Current (TYP) *1	200 Vac	5.6 A					
Inrush current (MAX) *	2	50 Apeak or less					
Power (MAX) *3		1120 VA					
Power factor (TYP) *1		0.99 (input voltage: 100 V), 0.97 (input voltage: 200 V)					
Efficiency (MIN) *1		75 % (TYP)					
Hold-up time for power interruption (MIN) *3		20 ms or more					

*1. At the rated output power for the rated output current.

*2. Excludes the charge current component that flows through the capacitor of the internal EMC filter circuit immediately after the POWER switch is turned on (for approximately 1 ms). *3. 100 Vac, at the rated output power.

Item/N	lodel		PWR801L	PWR801ML	PWR801MH	PWR801H
utpu	t			11		
	Output voltage *1		40 V	80 V	240 V	650 V
ating	Output current *1		80 A	40 A	10 A	3.70 A
	Output power			800	W	
	Maximum settable	voltage *2	42 V	84 V	252 V	682.5 V
	Setting accuracy			± (0.05 % of set +	0.05 % of rating)	
	Resolution		200 mV	400 mV	1000 mV	2500 mV
	Using FINE	, OUT OFF	10 mV	10 mV	100 mV	100 mV
	Using FINE	, OUT ON	1 mV	1 mV	10 mV	10 mV
	When using a c	ommunication interface	1 mV	1 mV	10 mV	10 mV
	Line regulation *3		±6 mV	±10 mV	±26 mV	±67 mV
	Load regulation *4		±6 mV	±10 mV	±26 mV	±67 mV
oltage	Transient response	e *5	1 ms or less	2 ms or less	2 ms or less	3 ms or less
onage	Ripple noise *6	p-p *7	50 mV	50 mV	100 mV	300 mV
		rms *8	5 mV	5 mV	20 mV	50 mV
	Rise time	At full load	50 ms or less		100 ms or less	
	Nolo	No load	50 ms or less		100 ms o	r less
	Fall time *9	At full load	50 m	s or less	150 ms	250 ms
		No load	500 n	ns or less	1200 ms	2000 ms
	Maximum remote s sation voltage (sing		1.5 V	4 V	5 V	5 V
	Temperature coeff	icient *10	100 ppm/°C			
	Maximum settable	current *2	84 A	42 A	10.5 A	3.885 A
	Setting accuracy *	11		± (0.5 % of set +	0.1 % of rating)	
	Resolution		400 mA	200 mA	40 mA	20 mA
	Using FINE	, OUT OFF	10 mA	10 mA	10mA	1 mA
	Using FINE	, OUT ON	1 mA	1 mA	0.1 mA	0.1 mA
urrent	When using a c	ommunication interface	1 mA	1 mA	0.1 mA	0.1 mA
uneni	Line regulation		±10 mA	±6 mA	±3 mA	±2.4 mA
	Load regulation		±21 mA	±13 mA	±7 mA	±5.7 mA
	Ripple noise *12	rms *8	160 mA	80 mA	24 mA	12 mA
	Rise time (TYP)	At full load	50	ms	100 n	าร
	Fall time (TYP)	At full load	50	ms	100 n	าร
	Temperature coeff	icient *10		100 pp	om/°C	
/laxim	um internal resistan	ice that can be set	0.500 Ω	2.000 Ω	18.00 Ω	131.8 Ω

*1. The maximum output voltage and maximum output current are limited by the maximum output power.
*2. Can be limited to approximately 95% of the OVP trip point or OCP trip point.
*3. 85 Vac to 135 Vac or 170 Vac to 265 Vac, fixed load
*4. The amount of change that occurs when the load is changed from no load to full load (rated output power/rated output voltage) with rated output voltage. The value is measured at the sensing point.
*5. The amount of time required for the output voltage to return to a value within "rated output voltage ± (0.1 % +10 mV)." The load current fluctuation is 50% to 100% of the maximum current with the set output voltage.
*6. Measured using an RC-9131C probe that conforms to the JEITA specifications. At the rated output current.
*7. When the measurement frequency bandwidth is 10 Hz to 20 MHz.
*8. When the measurement frequency bandwidth is 10 Hz to 21 MHz.

*8. When the measurement frequency bandwidth is 10 Hz to 1 MHz.

*9. When the bleeder circuit is set to bleeder normal.

9. Within the biedder circuit is set to breader normal.
*10. When the ambient temperature is within 0°C and 50 °C
*11. Applies to the range of 1 % to 100 % of the rated current. TYP (0.1 % of rating) for 0 % to 1 %.
*12. When the output voltage is 10 % to 100 % of the rating. At the rated output current.

Item/Model		PWR801L	PWR801ML	PWR801MH	PWR801H
Display function					
Voltage display	Maximum display	99.	99	999	9.9
Voltage display	Display accuracy	y accuracy ± (0.2 % of reading + 5 digit)			
Current dianlay	Maximum display	99.99			9.999
Current display	Display accuracy	± (0.5 % of reading + 8 digit)			
Power display			The PWR DSPL	LED lights in red.	
	Maximum display	9999			
	Display accuracy	Displays the result of multiplying the current and voltage. The display is toggled with the voltage or current display.			

• 1200 W model

Item/Model		PWR1201L	PWR1201ML	PWR1201MH	PWR1201H	
AC input						
Nominal input rating			100 Vac to 240 Vac, 50 H	Hz to 60 Hz, single phase		
Input voltage range			85 Vac to	265 Vac		
Input frequency range			47 Hz t	o 63 Hz		
Current (TVD) *1	100 Vac	16.8 A				
Current (TYP) *1	200 Vac	8.4 A				
Inrush current (MAX) *2		75 Apeak or less				
Power (MAX) *3			1680 VA			
Power factor (TYP) *1			0.99 (input voltage: 100 V), 0.97 (input voltage: 200 V)			
Efficiency (MIN) *1			75 % (TYP)			
Hold-up time for power interruption (MIN) *3			20 ms or more			

*1. At the rated output power for the rated output current.

*2. Excludes the charge current component that flows through the capacitor of the internal EMC filter circuit immediately after the POWER switch is turned on (for approximately 1 ms).

em/Model			PWR1201L	PWR1201ML	PWR1201MH	PWR1201H
Output						
	Output voltage *1		40 V	80 V	240 V	650 V
ating	Output current *1		120 A	60 A	15.0 A	5.55 A
	Output power			1200	W	
	Maximum settable	voltage *2	42 V	84 V	252 V	682.5 V
:	Setting accuracy			± (0.05 % of set +	0.05 % of rating)	
1	Resolution		200 mV	400 mV	1000 mV	2500 mV
	Using FINE	OUT OFF	10 mV	10 mV	100 mV	100 mV
	Using FINE	OUT ON	1 mV	1 mV	10 mV	10 mV
	When using a co	ommunication interface	1 mV	1 mV	10 mV	10 mV
[Line regulation *3		±6 mV	±10 mV	±26 mV	±67 mV
l	Load regulation *4		±6 mV	±10 mV	±26 mV	±67 mV
/oltage -	Transient response	*5	1 ms or less	2 ms or less	2 ms or less	3 ms or less
Ŭ	Ripple noise *6	p-p *7	50 mV	50 mV	100 mV	300 mV
Ľ		rms *8	5 mV	5 mV	20 mV	50 mV
	Rise time	At full load	50 ms	s or less	100 ms or less	
Ľ		No load	50 ms	s or less	100 ms or less	
	Fall time *9	At full load	50 ms	s or less	150 ms	250 ms
Ľ		No load	500 m	is or less	1200 ms	2000 ms
	Maximum remote s sation voltage (sing		1.5 V	4 V	5 V	5 V
Ē	Temperature coeffi	cient *10	100 ppm/°C			
	Maximum settable	current *2	126 A	63 A	15.75 A	5.8275 A
;	Setting accuracy *1	1		± (0.5 % of set +	0.1 % of rating)	
Ī	Resolution		600 mA	300 mA	60 mA	30 mA
	Using FINE	OUT OFF	100 mA	10 mA	10 mA	1 mA
	Using FINE	OUT ON	10 mA	1 mA	1 mA	0.1 mA
urrent	When using a co	ommunication interface	10 mA	1 mA	1 mA	0.1 mA
	Line regulation		±14 mA	±8 mA	±3.5 mA	±2.6 mA
[Load regulation		±29 mA	±17 mA	±8.0 mA	±6.1 mA
L	Ripple noise *12	rms *8	240 mA	120 mA	36 mA	18 mA
[Rise time (TYP)	At full load	50	ms	100 n	ns
	Fall time (TYP)	At full load	50	ms	100 ms	
	Temperature coeffi	cient *10		100 pp	m/°C	
	im internal resistan	ce that can be set	0.333 Ω	1.333 Ω	12.00 Ω	87.84 Ω

*1. The maximum output voltage and maximum output current are limited by the maximum output power.

The maximum output voltage and maximum output current are limited by the maximum output power.
 Can be limited to approximately 95 % of the OVP trip point or OCP trip point.
 85 Vac to 135 Vac or 170 Vac to 265 Vac, fixed load
 The amount of change that occurs when the load is changed from no load to full load (rated output power/rated output voltage) with rated output voltage. The value is measured at the sensing point.
 The amount of time required for the output voltage to return to a value within "rated output voltage ± (0.1 % +10 mV)." The load current fluctuation is 50 % to 100 % of the maximum current with the set output voltage.
 Measured using an RC-9131C probe that conforms to the JEITA specifications. At the rated output current.
 When the measurement frequency bandwidth is 10 Hz to 20 MHz.
 When the measurement frequency bandwidth is 10 Hz to 20 MHz.

*8. When the measurement frequency bandwidth is 10 Hz to 1 MHz.

*9. When the bleeder circuit is set to bleeder normal.

*10. When the ambient temperature is within 0°C and 50 °C

*11. Applies to the range of 1 % to 100 % of the rated current. TYP (0.1 % of rating) for 0 % to 1 %.
 *12. When the output voltage is 10 % to 100 % of the rating. At the rated output current.

Item/Model		PWR1201L	PWR1201ML	PWR1201MH	PWR1201H	
Display function						
Voltage display	Maximum display	99.99		999.9		
voltage uisplay	Display accuracy ± (0.2 % of reading + 5 digit)		ading + 5 digit)			
Current display	Maximum display	999.9	99.99		9.999	
Current display	Display accuracy	± (0.5 % of reading + 8 digit)				
Power display		The PWR DSPL LED lights in red.				
	Maximum display	9999				
	Display accuracy	Displays the result of r	Displays the result of multiplying the current and voltage. The display is toggled with the voltage or current display.			



• Common specifications

Item/Model		400 W model	800 W model	1200 W model	
Protection functions					
Overvoltage		Turns the output	off, displays OVP	, and lights ALM	
protection (OVP)	Setting range	10 % to 112 % o	10 % to 112 % of the rated output voltage		
	Setting accuracy	± (1.5 % of ratin	g)		
Overcurrent		Turns the output	off, displays OCP	, and lights ALM	
protection (OCP) *1	Setting range	10 % to 112 % o	10 % to 112 % of the rated output current		
	Setting accuracy	± (3 % of rating)			
Front-panel output te	rminal overcurrent	Turns the output off, displays FOCP, and lights ALM			
protection (FOCP)*2	Value (fixed)	11 A (TYP)			
Undervoltage limit (I	JVL)	Cannot be set to a value less than or equal to the set voltage			
	Setting range	0 % to 105 % of the rated output voltage			
Overheat protection	(OHP)	Turns the output off, displays OHP, and lights ALM			
Incorrect sensing connect	ion protection (SENSE)	Turns the output off, displays SENS, and lights ALM			
Low AC input protec	tion (AC-FAIL)	Turns the output off,*3 displays AC, and lights ALM			
Shutdown (SD)		Turns the output off, displays SD, and lights ALM			
Power limit (POWER	R LIMIT)	ALM blinking			
	Value (fixed)	Approx. 105% of the rated output power			
Communication mon	itoring (watchdog)	Turns the output off, displays WDOG, and lights ALM			
Master-slave parallel operation protection (PRL ALM)		Turns the output	off, displays PRL	and lights ALM	

*1. This does not protect against the discharge current peak that is generated from the capacitors inside the PWR-01 output section when the load is changed suddenly.

Available on models with a maximum settable current of 11 A or more. If the OCP value is less than the FOCP value, the OCP value takes precedence.

*3. Auto recovery after eliminating the cause of the alarm is selectable.

Item/Mod	Item/Model			800 W model	1200 W model
Signal out	tput and i	nput			
	Voltage	monitor (VMON)	Selectable moni 0 V to 5 V or 0 V	itor voltage range ' to 10 V	e:
Monitor		Setting accuracy	2.5 % of f.s. *1		
signal output	Current	monitor (IMON)	Selectable moni 0 V to 5 V or 0 V	itor voltage range ' to 10 V	e:
		Setting accuracy	2.5 % of f.s. *1		
	OUTON	STATUS	On when output is on.		
Status	CV STA	TUS	Turns on during CV operation		
signal output	CC STATUS		Turns on during CC operation		
*2	ALARM STATUS		Turns on when an alarm has been activated		
-	POWER ON STATUS		Turns on when the power is turned on		
	Input (TRG IN)		Logic selectable HIGH (3.5 V to 5	e: LOW (0 V to 1. 5 V)	5 V),
Trigger			Input impedance: 10 kΩ (TYP)		
signal	Output	(TRG OUT)	Logic selectable HIGH (4.2 V to 5	e: LOW (0 V to 0. 5 V)	6 V),
			Pulse width: 100 µs (TYP)		

f.s. is the full scale at the selected range. It is 10 V for the 10 V range and 5 V for the 5 V range.
 Photocoupler open collector output; maximum voltage 30 V, maximum current (sink) 8 mA; isolated from the output and control

circuits; status commons are floating (withstand voltage of less than or equal to 60 V); and status signals are not mutually isolated.

Item/Model			400 W model	800 W model	1200 W model	
Control fu	Control functions					
	Output voltage control		0 % to 100 % of	0 % to 100 % of the rated output voltage		
	(VPGM)	Selectable control	voltage range: 0 V t	o 5 V or 0 V to 10 V	
		Accuracy	5 % of rating			
	Output	current control	0 % to 100 % of	the rated output	current	
	(IPGM)		Selectable control	voltage range: 0 V t	o 5 V or 0 V to 10 V	
		Accuracy	5 % of rating	5 % of rating		
External control		on/ off control IT ON/OFF CONT	shorted; output when set to HIG Output on when open; output off	set to LOW (0 V off H (4.5 V or 5 V) set to HIGH (4.5	or open 5 V to 5 V) or	
	Output : SHUT [shutdown control DOWN	Output on when set to LOW (0 V to 0.5 V) or shorted		to 0.5 V) or	
	Alarm c ALM Cl	lear control R	Alarm cleared w shorted	hen set to LOW	(0 V to 0.5 V) or	

Item/Model		400 W model 800 W model	1200 W model	
Other functions				
Output-on/ off dela	у	Setting range: 0.0 s, 0.5 s to 99.9 s *1 setting resolution: 0.1 s		
Soft start and soft	stop	Setting range: 0.0 s, 0.5 s to 10. setting resolution: 0.1 s	0 s *1	
Overcurrent protect	tion (OCP)	Setting range: 0.0 s to 2.0 s *1		
activation delay		setting resolution: 0.1 s		
Preset memory		Up to three sets of the following saved: the set voltage, the set of OVP, the set OCP, and the set U	urrent, the set	
Key lock		Locks the operation of all keys o OUTPUT key.	ther than the	
CONFIG shortcut		Up to three CONFIG parameters can be registered to the SC1, SC2, and SC3 keys		
		Number of programs: 1		
		Number of steps: 64		
		Repetition count: 1 to 99998, INFinity		
Sequence		Number of configurable interval loops: 16		
		Number of interval loops: 2 to 99	9998	
		Step time: 0.1 s to 100 h (common to step transition and ramp transition)		
Synchronized Oper	ation	Synchronization of voltage and current settings, synchronization of the resumption of steps in a sequence program		
Master-slave parall	el operation *2	Up to three units (same models) including the master unit	Up to two units	
Series operation *3		Two units (the same model)		
Multichannel	Connection between the mas- ter unit and PC	LAN, USB, RS232C		
(VMCB)	Connection with slave units	LAN		

*1. Factory default is 0.0 s.

*2. Current difference between the master and slaves is 5 % (TYP). *3. H type is excluded

Item/Model		400 W model 800 W model 1200 W model		
Operation display				
OUTPUT ON/ OFF		OUTPUT LED lights green when the output is on.		
Output-on/ off dela	у	"DLY" lights when it is set and blinks when it is in effect. OUTPUT LED blinks orange while output on delay is in effect.		
		OUTPUT LED blinks green while output-off delay is in effect.		
Soft start and soft s	stop	"SS" lights when it is set and blinks when it is in effect. OUTPUT LED lights green when soft start is in effect. OUTPUT LED blinks green when soft stop is in effect.		
CV operation		CV LED lights in green.		
CC operation		CC LED lights in red.		
Alarm operation		ALM LED lights in red when a protection function has been activated. ALM LED blinks red when the power limit (POWER LIMIT) is activated. OUTPUT LED blinks orange when a protection function is activated when the output is on.		
Preset memory		PRESET A, B, or C LED lights green when a preset memory entry is being recalled or saved.		
Key lock operation		LOCK LED lights green when the keys are locked.		
Remote operation		REMOTE LED lights green during remote control		
	LAN operation	LAN LED lights or blinks depending on the status No fault status: Lights green. Fault status: Lights green. Standby status: Lights orange. WEB identify status: Blinks green.		
Bleeder circuit		"HB" lights when the hyper bleeder is set.		
Variable internal re	sistance (VIR)	"VIR" lights when it is set.		
Sequence		"SEQ" lights when a sequence is being executed and blinks the PWR-01 is waiting for a trigger.		

Common specifications

Item/Model		400 W model 800 W model 1200 W model	
Interface			
Common	Software protocol	IEEE Std 488.2-1992	
specifications	Command language	Complies with SCPI Specification 1999.0	
RS232C	Hardware	Complies with the EIA232D specifications (excluding the connector)	
		RJ-45 connector (male) *1	
		Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps	
		Data length: 8 bits, Stop bits: 1 bit, Parity bit: None	
		No flow control	
	Program message terminator	LF during reception, CR/LF during transmission	
USB	Hardware	Complies with the USB 2.0 specifications; data rate: 480 Mbps (HighSpeed)	
		Socket B type	
	Program message terminator	LF or EOM during reception, LF + EOM during transmission	
	Device class	Complies with the USBTMC-USB488 device class specifications	
LAN	Hardware	IEEE 802.3 100Base-TX/10Base-T Ethernet	
		IEEE 802.3 100Base-TX/ 10Base-T Ethernet Complies with LXI Specification2011 Ver.1.4	
		IPv4, RJ-45 connector *2	
	Communication protocol	VXI-11, SCPI-RAW, HISLIP	
	Program message terminator	VXI-11, HiSLIP: LF or END during reception, LF + END during transmission SCPI-RAW: LF during reception, LF during transmission.	

Approx. 3 kg Approx. 5.5 kg Approx. 7.5 kg Weight (main unit only) (6.61 lb) (12.13 lb) (16.53 lb) Dimensions See the outline drawing. Operating Indoor use, overvoltage category II environment Operating 0 °C to +50 °C (32 °E to +122 °E) temperature Environ-Operating humidity 20 %rh to 85 %rh (no condensation) mental conditions Storage -10 °C to +60 °C (14 °F to 140 °F) temperature Storage humidity 90 %rh or less (no condensation) Altitude Up to 2000 m Cooling method Forced air cooling using fan Grounding polarity Negative grounding or positive grounding possible L/ML/MH type: ±500 Vmax Isolation voltage H type: ±800 Vmax Across the primary No abnormalities when 1500 Vac is applied for circuit and chassis 1 minute L/ML/MH type: No abnormalities when 1650 Vac is Across the primary applied for 1 minute Withand secondary H type: No abnormalities when 1900 Vac is applied for standing circuits 1 minute voltage L/ ML/MH type: No abnormalities when 2300 Vdc is Across the applied for 1 minute secondary H type: No abnormalities when 2640 Vdc is applied for circuit and chassis 1 minute 100 MQ Across the primary circuit and chassis or more (70 % or less) at 500 Vdc LL/ ML/ MH type: 100 MΩ Across the primary or more (70 % or less) at 500 Vdc and secondary Insulation H type: 100 MΩ circuits resistance or more (70 % or less) at 1000 Vdc L/ ML/ MH type: 40 MΩ Across the or more (70 % or less) at 500 Vdc secondary H type: 40 MΩ circuit and chassis or more (70 % or less) at 1000 Vdc Manual Chassis connection short bar Output terminal M4 screws Output terminal cover Accessories Output terminal M8 bolt set *Only L type and ML type included. Power cord *In ded only with the 400W/800W model Input terminal cover *Included only with the 1200W model Ferrite core set *Included only with the 1200W mode Complies with the requirements of the following directive and standards. EMC Directive 2014/30/EU EN61326-1 (Class A *3) EN 55011 (Class A *3, Group 1 *4) Electromagnetic compatibility EN 61000-3-2 (EMC) 1 *2 EN 61000-3-3 Applicable under the following conditions The maximum length of all cabling and wiring connected to the product must be less than 3 m. Complies with the requirements of the following directive and standards Safety *1 Low Voltage Directive 2014/35/EU *2 EN 61010-1 (Class I *5, Pollution Degree 2 *6)

400 W model

800 W model

1200 W mode

Item/Mod

General

*1. Does not apply to specially ordered or modified products.

*2. Limited to products that have a CE mark. Does not apply unless a core is attached to the J1 connector cable.

*3. This is a Class A instrument. This product is intended for use in an industrial environment. This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

*4. This is a Group 1 instrument. This product does not generate and/or use intentionally radiofrequency energy, in the form of electromagnetic radiation, inductive and/or capacitive coupling, for the treatment of material or inspection/analysis purpose.

*5. This is a Class I instrument. Be sure to ground this product's protective conductor terminal. The safety of this product is guaranteed only when the product is properly grounded.
*6. Pollution is addition of foreign matter (solid, liquid or gaseous) that may produce a reduction

*6. Pollution is addition of foreign matter (solid, liquid or gaseous) that may produce a reduction of dielectric strength or surface resistivity. Pollution Degree 2 assumes that only nonconductive pollution will occur except for an occasional temporary conductivity caused by condensation.

*1. The RD-8P/9P adapter cable is an option. *2. Category 5; use a straight cable.



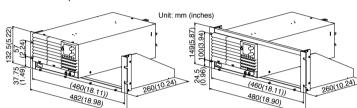
Product	Model	Remark
AC power cord	AC5.5-3P3M-M4C-VCTF	For the 1200 W model. Total length 3 m. (Not CE compliant)
J1/ J2 connector plug kit	OP01-PWR-01	A plug kit for externally controlling the PWR-01 through the J1/ J2 connector. 30 pin pieces. Housing for the J1 connector and J2 connector, 1 piece each.
RS232C control conversion cable	RD-8P/9P	
Parallel operation cable	Coming soon	For 2 units in parallel
Sequence creation software	SD027-PWR-01	Wavy for PWR-01
Safety plugs	TL41	Screw connection type. Red and black, one set each.
Salety plugs	TL42	Solder connection type. Red and black, one set each.
Deak mount adapter	KRA3	For EIA inch racks
Rack mount adapter	KRA150	For JIS millimeter racks

• AC power cord

Rack mount adapter

KRA3





KRA150

Application software



Sequence Creation Software Coming soon

SD027-PWR-01 (Wavy for PWR-01)

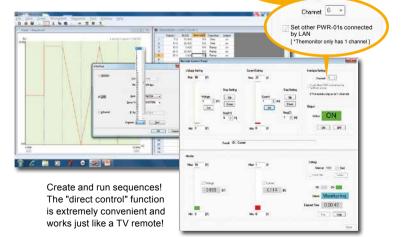
Software that supports automatic testing of a power supply, allowing you to create and edit sequence data with the click of a mouse!

Global commands can be used for batch control of VMCBconnected PWR-01 power supplies!

SD027-PWR-01 (Wavy for PWR-01) is an application software that supports sequence creation and the operation for Kikusui power supplies and electronic loads. Wavy allows you to create and edit sequences visually with the click of a mouse and doesn't require programming knowledge. Wavy allows you to control your power supply in almost the same way as a remote controller for monitoring voltage and current, logging, etc.

[Operating environment, conditions]

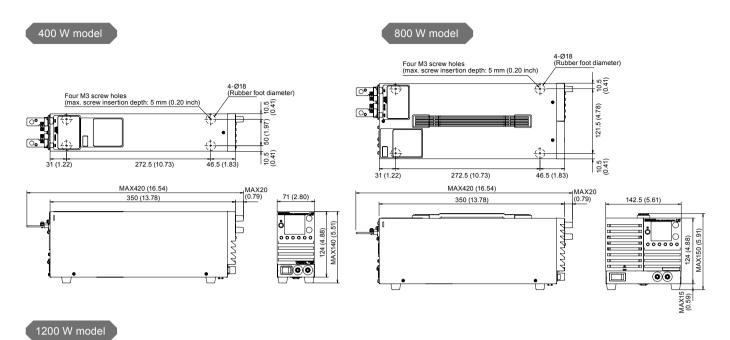
- Number of power supplies or electronic loads that the Wavy can control is limited to one unit.
- *When a VMCB connection is used, the slave units are controlled at the same time the master unit is controlled.
- CPU: Pentium 4 HT or better (Recommended: Core2 or better)
- CD-ROM: Necessary to install the "Wavy"
- Mouse: Necessary
- Monitor: 1024 x 768 dots or higher resolution
- Memory: 128MB or more
- Interfaces: LAN, USB, RS232C

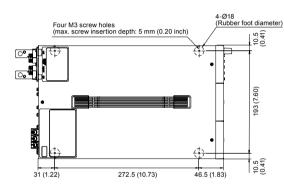


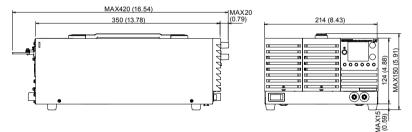
1200 W model example

*Screen sample

■ Outline drawing (Unit mm (inches))









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