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Scope

This specification applies to built-in DC stabilized power supply, OZP-240/600P-24, OZP-240/600P-48.

In addition, all items in this specification shall be provided at normal temperature and humidity unless otherwise specified.

Model name coding

Example: OZ P - 240/600P - 24-J S E - K

- ①Series name "OZ": OZ series
- 2) Peak power "P": Corresponding to Peak power
- ③Continuous output power "240": 240W (at 200VAC input)
- 4 Peak output power "600P": 600W (at 200VAC input)
- ⑤Output voltage "24" : 24V, "48" : 48V
- ⑥Input/Output connector type "J": Nylon connector
- ©Current balance function "0": Without current balance function, "S": With current balance function
- 8 Low standby power "E": Low standby power type
- Modification "(Blank)": Standard, "1 to 9" or "A to Z": Modification symbol
- (DChassis "C": With Chassis, "K": With Chassis and Cover, "Blank": Without Chassis and Cover.

General specification

			Specific	cation	
	Items		OZP-240/600P-		Measurement conditions, etc
	* *		24	48	- 610
	Rated volta	ige	100 - 240 VAC		Worldwide range
	Voltage rai	nge	85 – 264 VAC		Load factor shall be 90 – 100% in range of 85 – 95 VAC input
	Current	At 100VAC	2.3A typ		At rated output (Natural air cooling)
	Current	At 200VAC	1.4A typ		At rated output (Natural air cooling)
را	Rated frequency		50/60 Hz		Frequency range 47 – 63Hz
input	Inrush	At 100VAC	25A max.		Power thermistor system Continuous rated output
AC	current	At 200VAC	50A max.		power At cold start (25°C)
	Efficiency	At 100VAC	86% typ		At rated output
	Linciency	At 200VAC	90% typ		(Natural air cooling)
	Power	At 100VAC	99% typ		At rated output
	factor	At 200VAC	95% typ		(Natural air cooling)
	No-load	At 100VAC	1.4W typ		Power consumption at
	power	At 200VAC	1.4W typ		no-load
	Standby	At 100VAC	60mW typ		Power consumption at RC
	power	At 200VAC	200mW typ		signal OFF

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			Specification	-
	ltems		OZP-240/600P-	Measurement conditions, etc
<u> </u>		Natural	24 48	
	Operating air		-10 to 60°C (Open frame)	Refer to "Output derating
	temp. cooling		-10 to 55°C (With Chassis and Cover)	specification."
	Operating h	umidity	20 - 90% RH	
ent	Storage temp. / Hun	nidity	−20 to 75°C / 10 to 95% RH	There shall no condensation.
Environment	Vibration		To endure the vibration acceleration of 2G with vibration frequency of 10 to 55Hz for 10 sweep cycles in each X-Y-Z direction. (1G for mounting only with heat releasing fin.)	Follow JIS-C-60068-2-6 at no operation
	Surface drop	oping	Lift one bottom edge of the unit 50mm high with the opposite edge placed on the test bench, and let it fall. Repeat 3 times for each of four bottom edges, and no malfunction shall be observed	Follow JIS-C-60068-2-31 at no operation
			3kVAC/1min.	Cut-off current: 10mA
	Dielectric st	renath	between Input and Output/RC/AC_FAIL 2kVAC /1 min. between Input and FG	Cut-off current: 10mA
ion	Dielectric strength		500VAC/1 min.	Cut-on current. TomA
Insulation			Between each Output/RC/AC_FAIL/FG	
lns	Insulation resistance		50MΩ min. between Input/Output/RC/AC_FAIL/FG	At 500 VDC
	Leakage current		0.15mA max.(at100VAC), 0.3mA max.(at 200VAC)	
	Electrostatic discharge		IEC61000-4-2 test level 3 compliant (Contact discharge: $\pm 6 kV$, 10 times)	Apply to FG or chassis There shall be no malfunction, nor failure.
1	Fast transient/burst		IEC61000-4-4 test level 3 compliant	There shall be no malfunction, nor failure.
	Impulse voltage immunity		IEC-61000-4-5 (Installation environment Class 3, 4) compliant; apply five times each of Common mode ±4kV and Normal mode ±2kV	There shall be no malfunction, nor failure.
			VCCI, FCC, CISPR32, and EN55032 Class B compliant	At rated input and output, with chassis
Others	Harmonic cu regulations	c current IEC61000-3-2 (Ed. 2.1) Class D, and		At rated input and output
₹	Safety Stand	ard	UL60950-1, CSA60950-1 (c-UL) CE marking, PSE (Ordinance item 2) compliant	Certification
	Cooling syst	em	Natural air cooling	
	Dimensions		73×40×222 (W×H×D) /530g typ	Without Chassis and Cover
	and Weight		83.8×51×252 (W×H×D) /830g typ	With Chassis and Cover
	Warranty		Three years after delivery: if any defects belong to us, the defective unit shall be repaired or replaced at our cost.	The unit shall be operated at normal temperature and humidity. Except for lifetime of electrolytic capacitors due to operating environment.
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Refer to "Output derating specification." Refer to "Peak output specification" At rated output
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At rated output
When setting the voltage
higher than the rated
voltage, use it within
each rated output power.
1
Connect 150mm max. lead wire to output connectors,
and then connect a 10uF electrolytic capacitor with a
0.1uF ceramic capacitor in parallel to the other ends of the wires to measure by an
oscilloscope with 100MHz frequency band.
-
- .



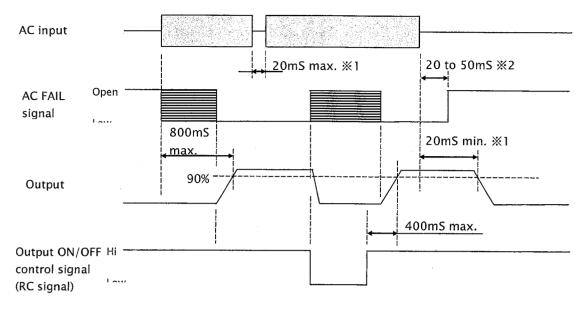
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	, 2000					
Sign	al Input/C	Output specific			****	
				Specificat		Signal Input/Output circuit diagram
	lte	ems		ZP-240/6		Others
			24		48	others .
	Output (signal (RC sig	ON/OFF contro	Operating r			Circuit diagram
Input signal	(Shorting Plug) With shorting plug (CN2) connected, output starts up when AC input is applied regardless of RC signal. To control Start/Stop of output by RC signal, uncap shorting plug of CN2.		+RC ar SW ON(4. SW OFF(0. External por Load-limitin External supply 4.5 to 12 12.5 to 3 30 to 48	SW ON(4.5V min.) ON SW OFF(0.8V max.) OFF External power supply and Load-limiting resistor External power Load-limiting supply:E resistor: R 4.5 to 12.5Vdc Not required 12.5 to 30Vdc 1.5kΩ 30 to 48Vdc 8.2kΩ Input terminal for detection of		Power supply +RC SW R -RC Note: Shorting plug (CN2) and radiating fin next to it are primary circuit components. Make sure to operate the plug after the AC input is turned off.
Input	(RS signa		output volta Connecting side of devi	ige. RS signa ces, it sha t positive	detection o al to positive all compensate side such as	
	Current balance signal (CBsignal) **Only for OZP-240/600P-**-*SE *-*J		circuit. During parall	Input terminal on current balance circuit. During parallel operation, Connect CB signal terminals of each power supply.		Total output current at connecting N units in parallel shall be within "rated output current X N X 0.9" (N≦ 5)
	Voltage balance signal (VBsignal) **Only for OZP-240/600P-**-*SE *-* *-*		circuit. During parall	Input terminal on voltage balance circuit. During parallel operation, Connect VB signal terminals of each power supply.		Higher VR setting value of output voltage shall be preferential.
Output signal			The signal go input voltage detection. Ur is OFF. Detection vol Detection del after AC inpu	and power defined what tage: 80 V ay time: 20	failure nen RC signal AC typ.	Power supply +AC_FAIL 3mA max 30Vdc max -AC_FAIL
Outpi	와 LED drive output ※Only for 「OZP-240/600P-**-*SE *-*]		circuit is oper LED on PCB The LED ligh inverter circu circuit failure	Delivers "Hi" when main inverter circuit is operating and an external LED on PCB will light. The LED light turn off during main inverter circuit is shut down, such as circuit failure, AC fail, or OFF operation by "output ON/OFF control signal".		出図 出図
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ł	⁄odo	Yamada	Yamamoto	Model: OZP-2 -**-***	40/600P -*	Drawing No. $3 6 6 9 - 0 1 - 4 - 5 2 0$

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◆Sequence Timing diagram



%1: Rated input, output 200W

Undefined area 2: If the output power is less than 10%, the input voltage is the maximum 170msec in the range of AC150V or more.

Peak output specification

Peak output current shall meet the conditions below.

- Duty ratio of peak current shall be 30% or less
- · Energized period of peak current shall be 5 seconds or less.
- The value resulting from the formula below shall not exceed the continuous rated current, lo, after derating specified in "Output derating" item.

$$\sqrt{((lp^2 \times D) + (lm^2 \times (1-D)))} \leq lo$$

Ip=Peak current value

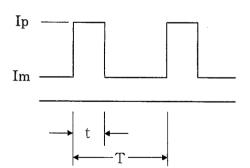
Im=Min. current value

D=Duty ratio, t/T

t=Pulse width of peak current

T=Cycle

lo=Continuous rated current specified in "Output derating" item



(Note)

In case that temp. of power thermistor for prevention of inrush current does NOT go up enough (Resistance value is high), such as the amount of average load power is small, output power at peak power might drop foe about 100ms.

If thin might cause any problem, please check output voltage waveform equipping and operating the power supply with actual device.

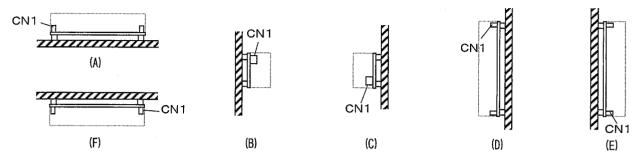


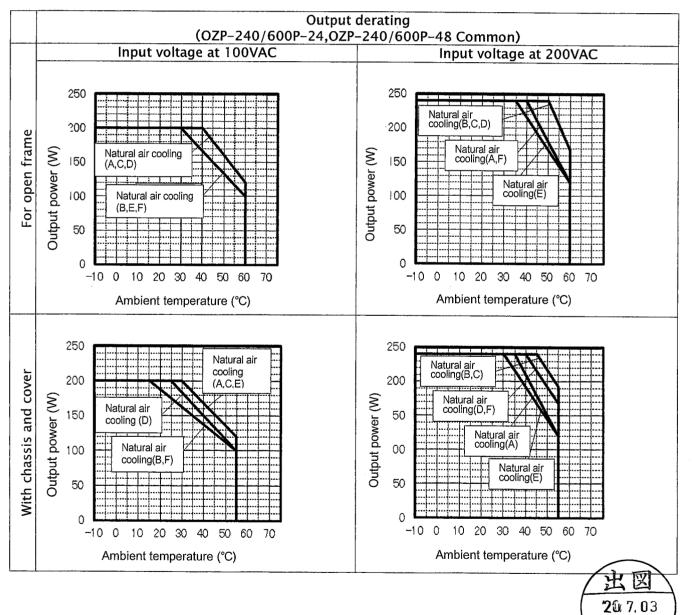
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•Output derating based on ambient temperature, installation direction and cooling condition

Follow the derating diagram below for output according to the ambient temperature and installation direction.

In addition, for the unit with chassis and cover, input voltage shall be 90 VAC or higher.

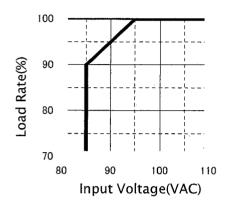




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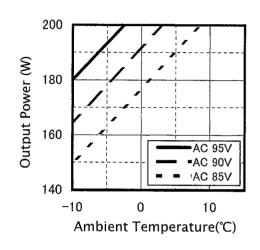
Output derating vs. Input voltage

When input voltage is 95VAC or lower, follow the derating diagram below to reduce the continuous rated current and power.



●Output derating at startup in low temperature

When starting the power supply in a low temperature, reduce the output power at a startup according to the derating table below.



Note

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● Parallel operation precautions (※Functions only for 'OZP-240/600P-**-*SE*-*')

By connecting the outputs of "N" power supplies in parallel, output capacity "rated output X N units X 0.9" will be obtained. ($N \le 5$) In this case, please note the points written below.

(Connection)

•Please connect the dedicated cable (Model name:WH-02PH02PH-200) between the connectors "CN13" or "CN14" on the PCB of both power supplies connected in parallel.

By connecting between these connectors, output current balances for each power supply are controlled to be equal.

·Load wires from each power supply should be wired to make both impedance equal as much as possible.

(Output voltage adjustment)

•When adjusting the output voltage, set either one of the output voltage adjusting knob to the minimum (to the leftmost), and adjust the output voltage using the output voltage adjusting knob of the other power supply.

(Temperature increase)

•There might be heat increasing caused by installation interval, direction, and any shielding materials around power supply units when you connect in parallel. To avoid the heat increasing, please check temperature increasing with equipping actual device and operating. In case of the temperature of transformer(T1) core exceeds 80°C (indication value), please change the installation interval, direction, or cut down the output power to reduce the heat.

(LED indication)

•LED on the PCB light green when the main inverter circuit is operating. It blacks out at circuit failure, at AC input failure, or when the main inverter circuit stops by turning off the "Output ON/OFF control signal".

Even when the main inverter circuit is operating, if the output is close to no load (about 5W or less) or if it is a pulsed load, the LED may dim and flicker may occur.

(Others)

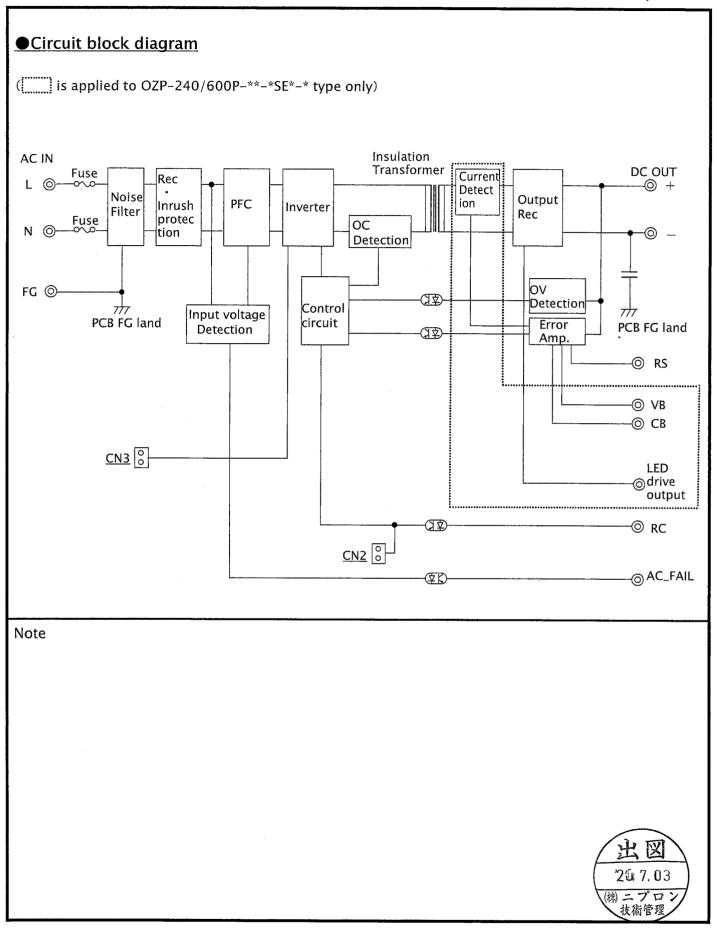
·Because it does not include O Ring diode in the output terminal, output power does not remain when one of the power supplies is damaged due to short mode etc. In addition, output power does not remain normally when power supply in operation is connected to the one in shutdown condition in parallel.

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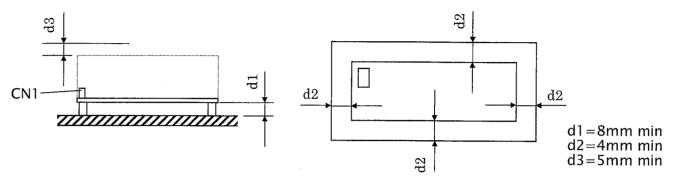


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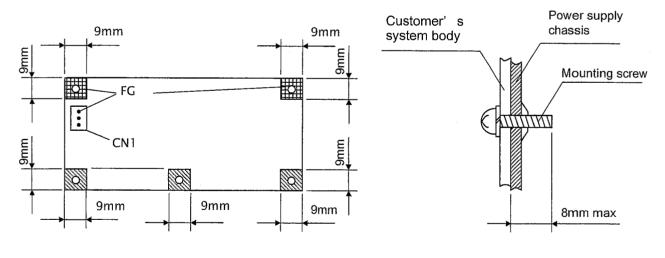
Power supply installation

- To meet the standard of Insulation and dielectric withstanding, install the power supply to keep the dimensions, d1, d2, and d3, shown in the drawings below.
- install the power supply so that natural air convection and air ventilation are expected to keep the temperature rise around the power supply low.



Mounting screws and grounding of power supply

- Fix all 5 screws firmly at power supply mounting holes.
- · Use 3mm diameter screws for mounting power supply.
- · Do not use the metal mounting parts that exceed the hatched area shown below.
- · In mounting the unit with Chassis and Cover, do not use any screws that exceed the area shown below.
- Make sure to connect FG terminal of CN1 or FG portion of PCB to customer's safety grounding. Also, make sure to connect FG terminal of CN1 to the safety ground of the customer's system in the case of safety standard application.
- Be recommended to connect the FG portion of solder face of PCB to customer's metal system body, with metal parts such as metal spacers to reduce noise.





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Precautions before use

- 1. Grounding A Warning
 This unit is designed and produced to meet Class 1 equipment. Make sure to connect the grounding terminal of the unit to grounding in a proper way for safety.
- 2. Electric shock \(\bigwedge \) Warning
 This unit is designed and produced as built-in equipment and has high-voltage part inside. Make sure to securely install in the equipment in a proper way to prevent electric shock.

- 5. Applying external voltage to output terminal \bigwedge Caution Applying external voltage to power supply's output terminal, parallel connection of output power, parallel connection of power supplies with different output (12V output and 15V output power supplies etc.)may lead to the failure of power supply.
- 7. Output energy Caution
 The output energy of this unit is 240VA or more and regarded as dangerous.
 Any operators must not touch the unit. Besides, apply necessary measures to prevent service personnel or service tools to touch accidentally the equipment with this unit installed. Make sure that the input/output voltage of this unit goes down to the safe level before servicing after the input voltage is turned off.



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