

# Single Output Power Supply OZP-170 series

Various outputs (+12V,+15V,and +24V) with 170W lined up



With battery package connected to OZP-170-12-\*B\*.\* or OZP-170-24-\*B\*.\*, backup at blackout is available.



■ Battery Package  
BS14A-H24/2.5L  
BS24\*-H12/2.0L-R

**RoHS  
Directive**

**Single Output**

Continuous Max. <b>168W</b>	Peak <b>270W</b> ~300W
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Structure and In/Out connector	Model	Output voltage	Output current *	Output power *	Stock
Open frame type/ Nylon connector	OZP-170-12/15-J00	+12V/+15V	14A(22.5A)/11.2A(18A)	168W(270W)	Standard Stock
	OZP-170-12-JB0	+12V	14A(22.5A)	168W(270W)	Standard Stock
	OZP-170-24-J00	+24V	7A(12.5A)	168W(300W)	Standard Stock
	OZP-170-24-JB0	+24V	7A(12.5A)	168W(300W)	Standard Stock
Structure	Description				Stock
W/T Chassis	'C' is added after Open frame model name (Ex. OZ-170-12/15-J00-C)				10 days before delivery
W/T Chassis & Cover	'K' is added after Open frame model name (Ex. OZ-170-12/15-J00-K)				10 days before delivery
Input/Output connector	Description				Stock
Block terminal type	'T' from 'J' of nylon connector model (Ex. OZ-170-12/15-T00)				10 days before delivery
European terminal type	'E' from 'J' of nylon connector model (Ex. OZ-170-12/15-E00)				10 days before delivery

■ Model name coding

① Series name	④ 12/15/12/15V output (selectable)	⑤ Input/Output connector	⑥ 0: Backup function NOT available	⑧ Blank: W/O Chassis and Cover
② Peak power available	12: +12V output	J: Nylon connector	B: Backup function equipped	C: W/T Chassis
③ Output power	24: +24V output	T: Block terminal	⑦ Modification No.	K: W/T Chassis and Cover
		E: European terminal		

OZP-170-①-②-③-④-⑤⑥⑦-⑧

\* Values in ( ) above show peak current and power.

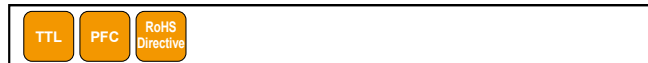
## Features

- Double sided PWBs with through holes suitable for Industrial use (Competitors mainly adopt Single sided PWBs).
- For Input/Output connectors, Nylon connector, European terminal or Block terminal is selectable.
- Higher power by more than 10% with the same volume than competitors.
- Peak power up to approx. 1.8 times as much as rated power
- Blackout backup function equipped, with Ni-MH battery package (OZP-170-\*\*-B\*.\*)

**Greatly featured with blackout backup with special battery package connected to 12V/24V output type.**

Safety standard	UL	CSA	EN	CE	CCC
Reliability grade	HFA	FA	HOA	OA	

## Function



## Input

AC input	85V~264V (Worldwide range)
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## Dimension

W×H×D (mm)	W/O Chassis & Cover	73×40×222
	W/T Chassis & Cover	83.8×51×252

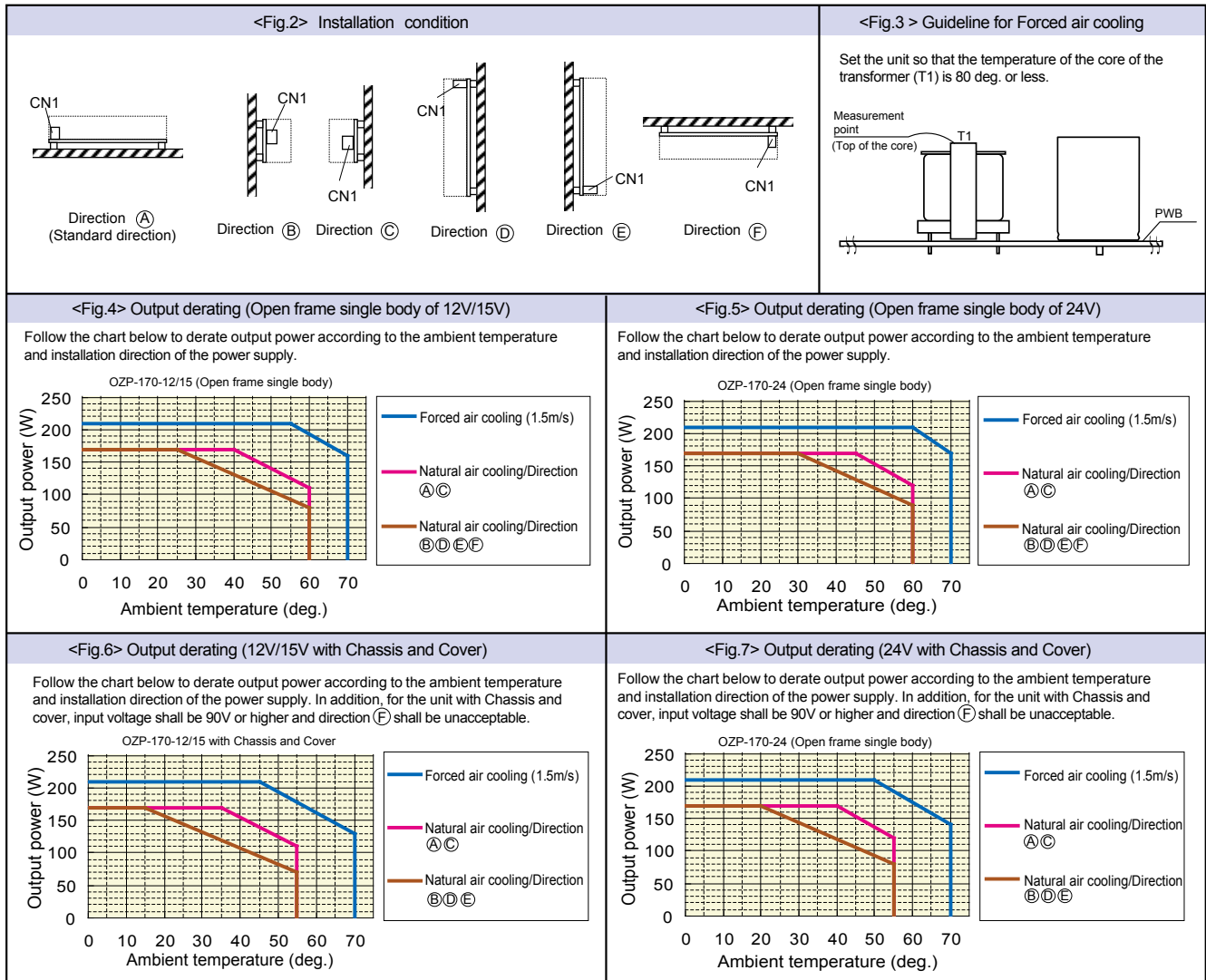
**General Specification** (Items are provided at normal temperature and humidity unless otherwise specified.)

Items		Specification			Measurements, etc.	
AC Input	Rated voltage	AC100-240V(AC85~264V)			Worldwide range * See <Fig.1> Low input voltage derating below.	
	Frequency	50/60Hz			Frequency range: 47-63Hz	
	Efficiency	12V	82% typ(AC 100V), 85% typ(AC 200V)		at Rated load	
		15V/24V	83% typ(AC 100V), 86% typ(AC 200V)			
	Power factor	99% typ(AC 100V), 90% typ(AC 200V)			(Characteristics data on Fig.9)	
	Inrush current	17A typ(AC100V), 34A typ(AC200V)			(Characteristics data on Fig.10)	
Input current	AC100V	2.1A typ(168W), 2.6A typ(210W with forced air cooling)		(Characteristics data on Fig.8)		
	AC200V	1.1A typ(168W), 1.4A typ(210W with forced air cooling)				
Output	Model	OZP-170-12/15*	OZP-170-12/15*	OZP-170-24	* Selectable output voltage *1	
		OZP-120-12				
	Rated voltage	+12V	+15V	+24V		
	Rated current/Power (Natural air cooling)		14A	11.2A	7A	
			168W	168W	168W	
	Rated current/Power (Forced air cooling)		17.5A	14A	8.8A	
			210W	210W	211.2W	
	Peak current/Power		22.5A	18A	12.5A	* Follow Peak output power condition below.
			270W*	270W*	300W*	
	Setup voltage at factory	12V±2%			24V±2%	at rated 168W output
	Voltage adjustable range	±10%			-5%, +10%	-5%, +20%
	Static input fluctuation	48mV max			48mV max	94mV max
	Static load fluctuation	100mV max			100mV max	150mV max
	Temperature fluctuation	0.02%/deg. max			0.02%/deg. max	0.02%/deg. max
Max. ripple voltage (mVp-p)	0-65deg.	120mV max		120mV max	Connect wires to the output connector with a 10µF electrolytic capacitor and a 0.1 µF ceramic capacitor to measure with 100MHz oscilloscope. Lead length of the wires shall be 150mm or less. (Characteristics data on Fig.21)	
	-10-0deg.	160mV max		160mV max		
Max. spike voltage (mVp-p)	0-65deg.	150mV max		150mV max		
	-10-0deg.	180mV max		180mV max		
Protection	Overcurrent protection	OCP point (A)	101% min. of Peak rated current			Blocking oscillation at low voltage
		Method	Hold-down current limiting			
	Recovery	Automatic recovery				
		OVP point(V)	13.8-16.2V	17.3-20.3V	30-35V	
Overvoltage protection	Method	Output shutdown				
	Recovery	Reclosing of AC input				
Environment	Operating temperature and Humidity	Open frame	-10 to 60deg. at natural air cooling, -10 to 70deg. at forced air cooling*/20-90%			* <Fig.3> on the next page shows the guideline of forced air cooling. Refer to <Fig.4-7> output derating. No condensation
		W/T Chassis and Cover	-10 to 55deg. at natural air cooling, -10 to 70deg. at forced air cooling*/20-90%			
	Storage Temp. and Humidity	Open frame	-20-75deg./10-95%			No condensation
		W/T Chassis and Cover	-20-75deg./10-95%			
Vibration	Acceleration of 2G with vibration frequency of 10-55Hz for 10 sweep cycles in the X·Y·Z directions.			JIS-C-60068-2-6 at no operation		
Mechanical strength(surface drooping)	Lift one bottom edge up to 50mm and let it fall. Repeat three times for each of four edges. No malfunction.			JIS-C-60068-2-31 at no operation		
Insulation	Dielectric strength	AC 3kV for one minute between Input and Output/RC/AC FAIL/BATT_LOW			Cut-off current: 10mA	
		AC 2kV for one minute between Input and FG.			Cut-off current: 10mA	
	AC 500V for one minute among DC output, RC, AC FAIL, BATT_LOW, and FG.				Cut-off current: 100mA	
Insulation resistance	50MΩ min. among AC input, DC output, RC, AC FAIL, BATT_LOW, and FG.			At DC 500V		
Leakage current	0.25mA max. at AC 100V, 0.5mA max. at AC 200V			YEAW. TYPE3226 (1kΩ) or equivalent		
EMC	Line noise immunity	±1000V (Pulse width: 100/1000ns, Repeated cycle: 30 to 100Hz, Normal mode/Common mode with Positive/Negative polarity for 10 minute.)			To measure with INS-410. There shall be no DC-factor fluctuation of output and malfunction.	
	Electrostatic discharge	EN61000-4-2 Compliant				
	Radioactive radio frequency electromagnetic field	EN61000-4-3 Compliant				
	Fast Transient Burst	EN61000-4-4 Compliant				
	Lightning	EN61000-4-5 Compliant				
	Conductive radio frequency electromagnetic field	EN61000-4-6 Compliant				
	Power source frequency magnetic field Immunity	EN61000-4-8 Compliant				
	Voltage dips/Fluctuation	EN61000-4-11 Compliant				
	Conducted Emission	VCCI-B, FCC-B, EN55022-B, and CISPR22-B Compliant			at rated output 168W with single power supply *2	
Harmonic current regulation	IEC61000-3-2(Ed. 2.1) Class D, and EN61000-3-2(A14) Class D Compliant			at rated Input/Output		
Others	Safety standard	Certified UL60950-1, CSA60950-1(c-UL), EN60950-1, EN50178, CE Marking(LVD,EMCD) and CCC/ The Electrical Appliance and Material Safety Law (section 2) Compliant				
	Cooling system	Natural air cooling/Forced air cooling				
	Output GND grounding	Capacitor grounding				
	Output hold-up time	20ms min.			at rated 168W output (130W output at 15V setting)	
	Reliability Grade	FA (Industrial equipment grade to use double-sided PWBs with through holes)			To follow our standard	
	MTBF	268,000 H			To follow EIAJRCR-9102	
	Weight	500g typical W/O Chassis and Cover, 800g typical W/T Chassis and Cover				
Warranty	Three years after delivery. However, if any faults belong to us, the defective unit shall be repaired or replaced at our cost.			Except causes generated by operation out of this specification		

<Fig.1> Low input voltage derating	Peak output power condition
<p>Follow the derating below to derate Rated current/Power and Peak current/Power.</p> <p>*Below is derating reference at startup with forced air cooling: AC85V: 80% AC90V: 86.7% AC100V~: 100%</p>	<ul style="list-style-type: none"> <li>Duty ratio of Peak current shall be within 35%. (However, for OZP-170-24, it shall be within 30%).</li> <li>Energized period of peak current shall be within 10 seconds.</li> <li>Energized period of peak current shall be within 5 seconds at natural air cooling and 50 deg. or higher of ambient temperature.</li> <li>The value derived from the equation below shall not exceed continuous rated current to specified in the output derating on the following page.</li> </ul> $\sqrt{((I_p^2 \times D) + (I_m^2 \times (1-D)))} \leq I_o$ <p>Ip=Peak current Im= Min. current D= Duty cycle, t/T t= Pulse width of peak current T=Cycle length Io= Continuous rated current specified in output derating.</p>

\*1 Removing short plug (CN9) makes output voltage to 15V typical (±3% at factory). Also it changes overvoltage detection level to 17.3~20.3V. 12V is set at factory. When you change the voltage to 15V, turn off the power supply in advance.

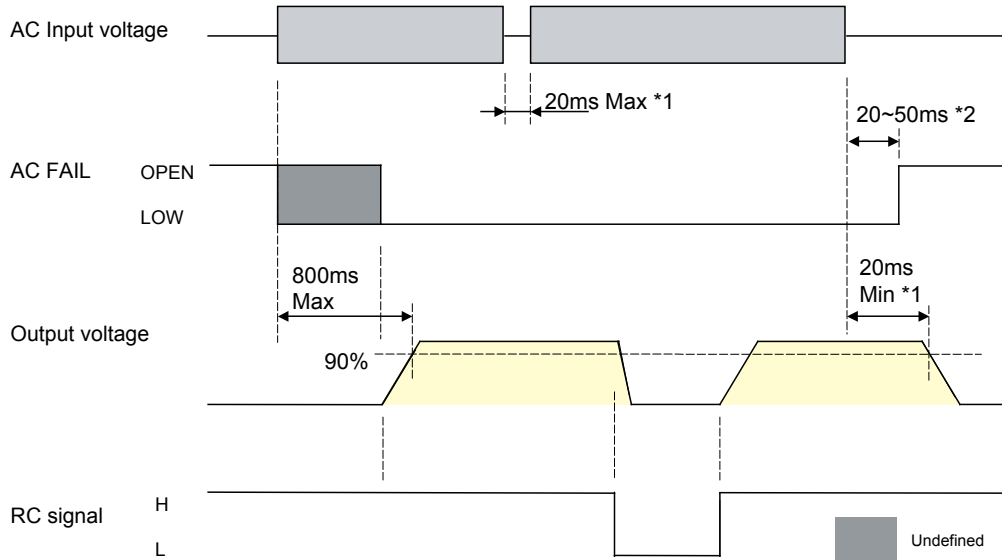
**General Specification** (Items are provided at normal temperature and humidity unless otherwise specified.)



**Signal Input/Output Specification** (Items are provided at normal temperature and humidity unless otherwise specified.)

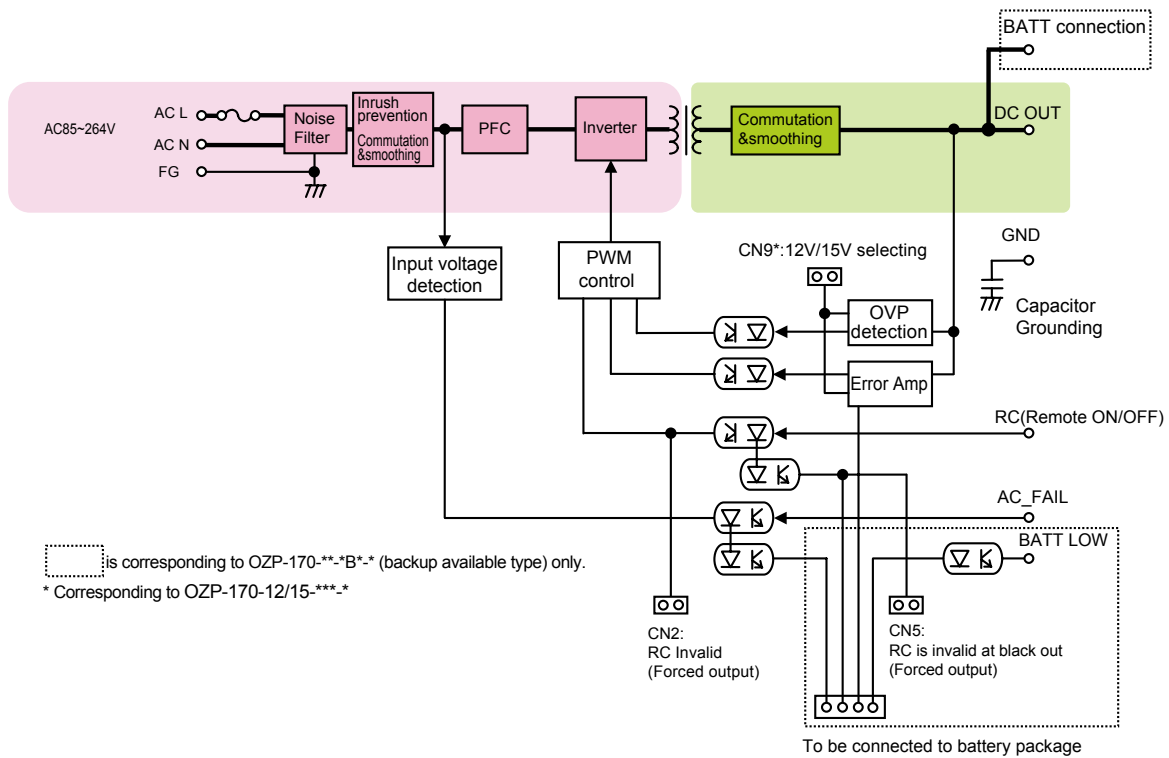
Items	Specification	Note																
<b>Input signal</b> Output ON/OFF control signal (RC signal) * Remove the shorting plug of CN2 in using RC signal.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Operation mode</th> <th colspan="2">External power supply and limiting resistor</th> </tr> <tr> <td>between +RC and -RC</td> <td>Output</td> <td>External power supply: E</td> <td>Limiting resistor: R</td> </tr> <tr> <td>SW ON(4.5V or higher)</td> <td>ON</td> <td>4.5~12.5Vdc</td> <td>Not required</td> </tr> <tr> <td>SW OFF(0.8V or lower)</td> <td>OFF</td> <td>12.5~30Vdc</td> <td>1.5kΩ</td> </tr> </table> <p>Shorting plug: When the shorting plug (CN2) is connected, Output stats up with AC input regardless of RC signal. In controlling output startup or shutdown by RC signal, remove the shorting plug of CN2. Note: The shorting plug (CN2) and adjacent radiation fin are in the primary side. Make sure to turn off AC input before operation on the plug.</p>	Operation mode		External power supply and limiting resistor		between +RC and -RC	Output	External power supply: E	Limiting resistor: R	SW ON(4.5V or higher)	ON	4.5~12.5Vdc	Not required	SW OFF(0.8V or lower)	OFF	12.5~30Vdc	1.5kΩ	In the case that the special battery package is connected to OZP-170-**-*B*-* (backup available type), and the shorting plug (CN5) is assembled, backup operation at AC blackout is continuously conducted regardless of RC signal. To stop the backup operation by RC signal, remove the shorting plug of CN5 before use.
Operation mode		External power supply and limiting resistor																
between +RC and -RC	Output	External power supply: E	Limiting resistor: R															
SW ON(4.5V or higher)	ON	4.5~12.5Vdc	Not required															
SW OFF(0.8V or lower)	OFF	12.5~30Vdc	1.5kΩ															
<b>Output signal</b> Blackout detection signal (AC FAIL) Battery low signal (BATT LOW)	<p>To become 'OPEN' (open collector) when AC input falls or blackout is detected. (Detection voltage: AC 80V typical, Detection delay time: 20 to 50ms after AC input is turned off.)</p> <p>To be delivered via isolated photo-coupler when the low voltage of the special battery package connected to the power supply is detected. Also, when the battery package is not connected, this signal goes 'OPEN'. Detailed specification shall follow the specification of the battery package to be connected.</p>	* This function is only for OZP-170-**-*B*-* (backup available type)																
<b>Signal circuit</b>																		
<b>Input signal circuit</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">(RC signal)</th> <th style="width: 50%;">(AC FAIL)</th> </tr> <tr> <td>                     Except OZP-170-**-*B*-* (backup available type)  </td> <td>                     OZP-170-**-*B*-* (backup available type)  </td> </tr> </table>	(RC signal)	(AC FAIL)	Except OZP-170-**-*B*-* (backup available type) 	OZP-170-**-*B*-* (backup available type) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">(AC FAIL)</th> <th style="width: 50%;">(BATT LOW)</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	(AC FAIL)	(BATT LOW)										
(RC signal)	(AC FAIL)																	
Except OZP-170-**-*B*-* (backup available type) 	OZP-170-**-*B*-* (backup available type) 																	
(AC FAIL)	(BATT LOW)																	

## Sequence Timing Chart



\*1: at rated input with 168W of rated output. For OZP-170-12/15, set the output voltage to 15V with 130W load.  
 \*2: In the case that output power is 10% or less, the period shall be 70ms max. with AC input of 150V or higher.

## Block Diagram



is corresponding to OZP-170-\*\*-\*\*B\*-\* (backup available type) only.  
 \* Corresponding to OZP-170-12/15-\*\*\*-\*

## Connection In Series And Parallel

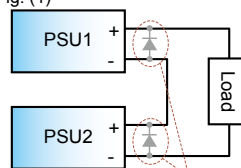
### Series connection

Series connection shown on the right is available. Series connection between different output voltages is available, such as 12V and 24V.

Note: In the case that different voltages are connected in series like Fig. (1) on the right;

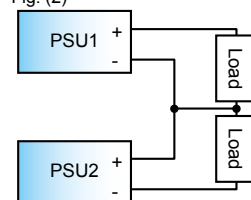
- The output current shall be the rated current or less of the smaller rated current among the PSU1 and PSU2 connected in series.
- Connect diodes for protection as shown in the Fig. (1). Current rating of the diode shall be 1.5 times or more of rated output current whose unit has larger rated output current among PSU1 and PSU2. Also, use Schottky diodes whose forward voltage is lower than the forward voltage of the diodes used in the PSU.

Fig. (1)



In the case of series connection of different output voltages, connect diodes shown as above.

Fig. (2)



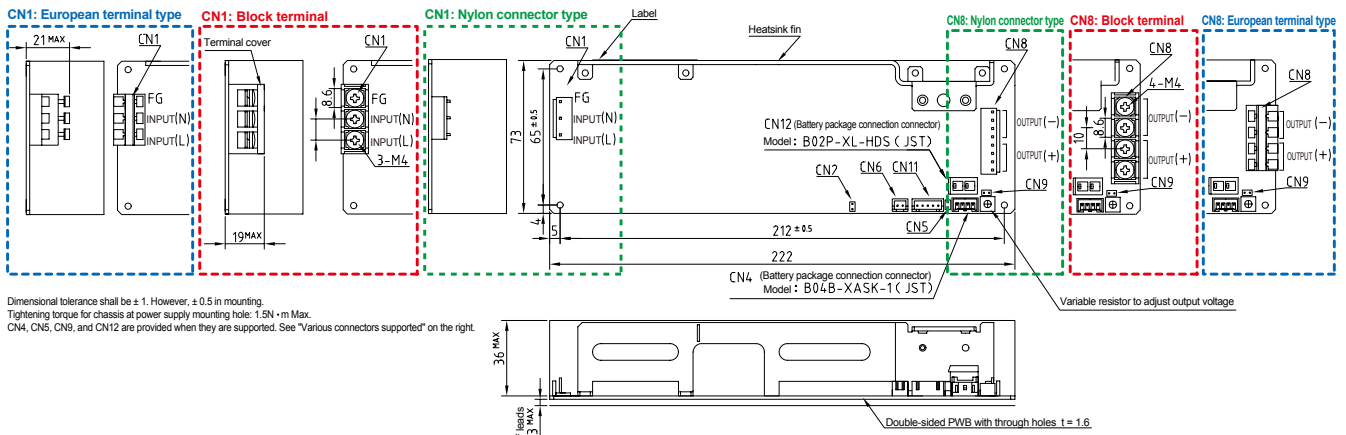
### Parallel operation

Parallel operation is unacceptable.



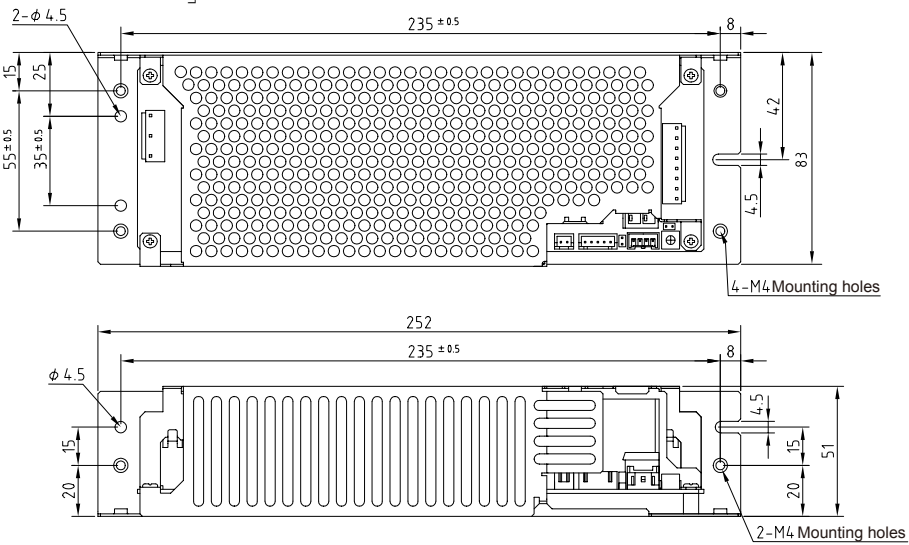
# Outline Drawing

## ■ PCB type (open frame) model



Dimensional tolerance shall be ± 1. However, ± 0.5 in mounting.  
 Tightening torque for chassis at power supply mounting hole: 1.5N·m Max.  
 CN4, CN5, CN8, and CN12 are provided when they are supported. See "Various connectors supported" on the right.

## ■ Model with Chassis and Cover



## ■ Connector pin allocation

Nylon connector type	Block terminal type	European terminal type																											
<p><b>CN1 (INPUT)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>AC(L)</td><td rowspan="4">B3PS-VH ( JST )</td></tr> <tr><td>2</td><td>AC(N)</td></tr> <tr><td>3</td><td>AC(N)</td></tr> <tr><td>4</td><td>FG</td></tr> <tr><td>5</td><td>FG</td><td></td></tr> </table> <p>※ CN1 Applicable housing: VHR-5N ( JST )                      Applicable terminal: SVH-211-P11 ( JST )</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	AC(L)	B3PS-VH ( JST )	2	AC(N)	3	AC(N)	4	FG	5	FG		<p>CN1 (INPUT) See the drawing above.</p>	<p><b>CN1 (INPUT)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>AC(L)</td><td rowspan="3">256-503 ( WAGO )</td></tr> <tr><td>2</td><td>AC(N)</td></tr> <tr><td>3</td><td>FG</td></tr> </table> <p>※ CN1 Applicable wire: ... AWG#12~#20</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	AC(L)	256-503 ( WAGO )	2	AC(N)	3	FG		
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1	AC(L)	B3PS-VH ( JST )																											
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3	AC(N)																												
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5	FG																												
PIN No.	FUNCTION	CONNECTOR TYPE																											
1	AC(L)	256-503 ( WAGO )																											
2	AC(N)																												
3	FG																												
<p><b>CN8 (OUTPUT)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>DC</td><td rowspan="2">B8P-VH ( JST )</td></tr> <tr><td>2</td><td>DC</td></tr> <tr><td>3</td><td>DC</td><td rowspan="2">B8P-VH ( JST )</td></tr> <tr><td>4</td><td>DC</td></tr> </table> <p>※ CN8 Applicable housing: VHR-5N ( JST )                      Applicable terminal: SVH-211-P11 ( JST )</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	DC	B8P-VH ( JST )	2	DC	3	DC	B8P-VH ( JST )	4	DC	<p>CN8 (OUTPUT) See the drawing above.</p>	<p><b>CN8 (OUTPUT)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>DC</td><td rowspan="2">256-504 ( WAGO )</td></tr> <tr><td>2</td><td>DC</td></tr> <tr><td>3</td><td>DC</td><td rowspan="2">256-504 ( WAGO )</td></tr> <tr><td>4</td><td>DC</td></tr> </table> <p>※ CN8 Applicable wire: ... AWG#12~#20</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	DC	256-504 ( WAGO )	2	DC	3	DC	256-504 ( WAGO )	4	DC	
PIN No.	FUNCTION	CONNECTOR TYPE																											
1	DC	B8P-VH ( JST )																											
2	DC																												
3	DC	B8P-VH ( JST )																											
4	DC																												
PIN No.	FUNCTION	CONNECTOR TYPE																											
1	DC	256-504 ( WAGO )																											
2	DC																												
3	DC	256-504 ( WAGO )																											
4	DC																												
<p><b>CN6 (RC SIGNAL)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>+RC</td><td rowspan="2">B2B-XH ( JST )</td></tr> <tr><td>2</td><td>-RC</td></tr> <tr><td>3</td><td>+RC</td><td rowspan="2">B2B-XH ( JST )</td></tr> <tr><td>4</td><td>-RC</td></tr> </table> <p>※ CN6 Applicable housing: XHP-2 ( JST )                      Applicable terminal: SXH-001T-P06 ( JST )</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	+RC	B2B-XH ( JST )	2	-RC	3	+RC	B2B-XH ( JST )	4	-RC	<p><b>CN11 (SIGNAL)</b></p> <table border="1"> <tr><th>PIN No.</th><th>FUNCTION</th><th>CONNECTOR TYPE</th></tr> <tr><td>1</td><td>+BATT LOW</td><td rowspan="5">B5B-XH ( JST )</td></tr> <tr><td>2</td><td>-BATT LOW</td></tr> <tr><td>3</td><td>+AC FAIL</td></tr> <tr><td>4</td><td>-AC FAIL</td></tr> <tr><td>5</td><td>-RC FAIL</td></tr> </table> <p>※ CN11 Applicable housing: XHP-5 ( JST )                      Applicable terminal: SXH-001T-P06 ( JST )</p>	PIN No.	FUNCTION	CONNECTOR TYPE	1	+BATT LOW	B5B-XH ( JST )	2	-BATT LOW	3	+AC FAIL	4	-AC FAIL	5	-RC FAIL	
PIN No.	FUNCTION	CONNECTOR TYPE																											
1	+RC	B2B-XH ( JST )																											
2	-RC																												
3	+RC	B2B-XH ( JST )																											
4	-RC																												
PIN No.	FUNCTION	CONNECTOR TYPE																											
1	+BATT LOW	B5B-XH ( JST )																											
2	-BATT LOW																												
3	+AC FAIL																												
4	-AC FAIL																												
5	-RC FAIL																												

## ■ Various connectors supported

Connector name	Function	Model name		
		OZP-170 -12/15 *0*.*	OZP-170 -24 *0*.*	OZP-170 -24 *B*.*
CN2	RC invalid (Forced output)	Available	Available	Available
CN4	Signal to control battery package	-	-	Available
CN5	Backup operation mode setting	-	-	Available
CN6	RC(Remote ON/OFF)	Available	Available	Available
CN9	Output voltage selection	Available	-	-
CN11	Signal connector	Available	Available	Available
CN12	Battery package Input/Output	-	-	Available
Variable resistor to adjust output voltage		Available	Available	Available

## Options(Sold separately)

Battery package				
Photo	Model	Battery	Dimension	Backup time
	BS14A-H24/2.5L	Ni-MH	1U/3Usize (W×D×H=128×211×41mm)	
	BS24*-H12/2.0L-R	Ni-MH	3.5 inch bay size (W×D×H=101.5×180.5×25.4mm)	

\* Backup time is just a guideline for first use, and not guaranteed.  
 \* Backup time extension is enabled by parallel connection.  
 \* BS14A-H24/2.5L is acceptable only to OZP-120-24-\*B\*-\* (backup available type). BS24\*-H12/2.0L-R is acceptable only to OZP-120-12-\*B\*-\* (backup available type).

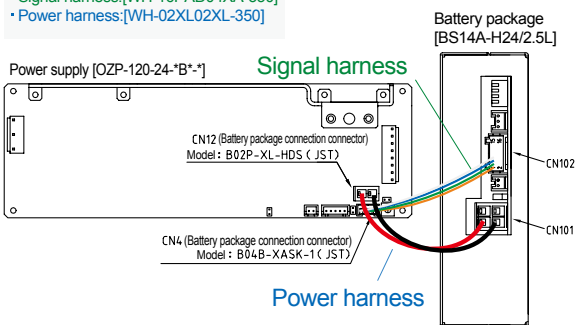
Cable			
Photos	Model	Category	Description
	WH-C05VH-800	Input harness	Connection to nylon connector is acceptable.
	WH-C05VH-800-01	Input harness (with ferrite core)	Connection to nylon connector is acceptable.
	WH-C08VH-500	Output harness	Connection to nylon connector is acceptable.
	WH-02XH02XH-500	Signal harness for RC signal	To connect for use of output ON/OFF control signal (RC signal)
	WH-05XH05XH-500	Signal harness for BATT_LOW & AC_FAIL signal	To connect for use of BATT_LOW and AC_FAIL signal
	WH-16PAD04XA-350	Battery connection harness (signal harness)	Harness for the signal between power supply and battery package (BS14A-H24/2.5L)*
	WH-16PAD04XA-350-01	Battery connection harness (signal harness)	Harness for the signal between power supply and battery package (BS14A-H24/2.5L)* For the connection of two battery packages (BS14A-H24/2.5L)
	WH-02XL02XL-350	Battery connection harness (Power harness)	Power harness to connect power supply to battery package (BS14A-H24/2.5L)*
	WH-02XL04XL-350-01	Battery connection harness (Power harness)	Power harness between power supply and battery package (BS14A-H24/2.5L)* For the connection of two battery packages (BS14A-H24/2.5L)
	WH-02XA04XA-300	Battery connection harness (signal harness)	Harness for the signal between power supply and battery package (BS24A-H12/2.0L-R)**
	WH-02XL04VH-250	Battery connection harness (Power harness)	Power harness to connect power supply to battery package (BS24A-H12/2.0L-R)**

\* Harness for backup operation at blackout with battery package (BS14A-H24/2.5L) (Refer to "Battery connection harness and connection images below).  
\*\* Harness for backup operation at blackout with battery package (BS24A-H12/2.0L-R).

## Battery connection harness and connection images

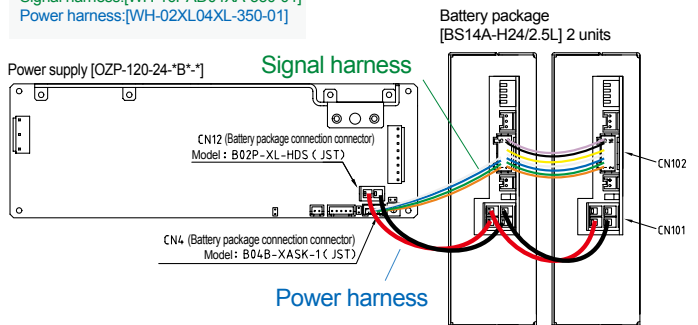
### For the connection of one battery package (BS14A-H24/2.5L)

Harnesses to be connected  
 • Signal harness:[WH-16PAD04XA-350]  
 • Power harness:[WH-02XL02XL-350]



### For the connection of two battery packages (BS14A-H24/2.5L)

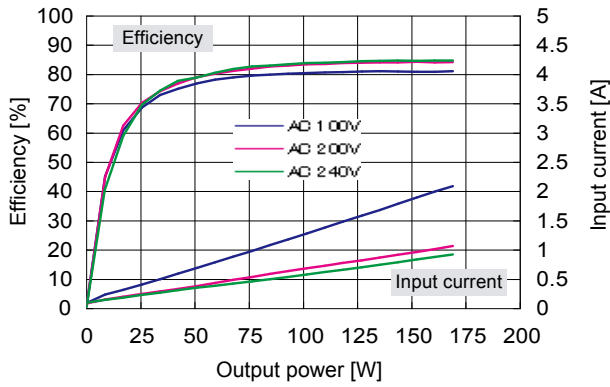
Harnesses to be connected  
 Signal harness:[WH-16PAD04XA-350-01]  
 Power harness:[WH-02XL04XL-350-01]



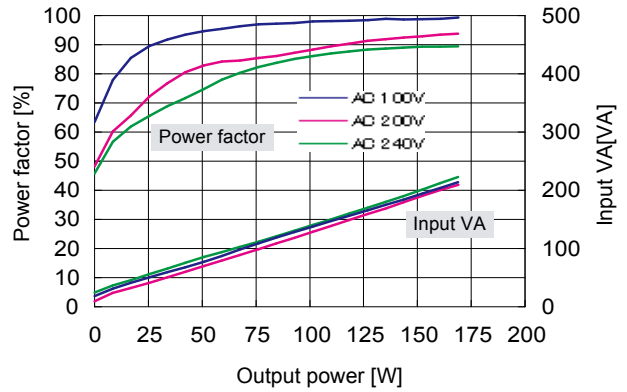
\* If you request property data of other products, please visit our website and download for getting them.

Characteristics Data (Typical features of the product series) **OZP-170-12/15 [12V]** (Examples of actual measurement)

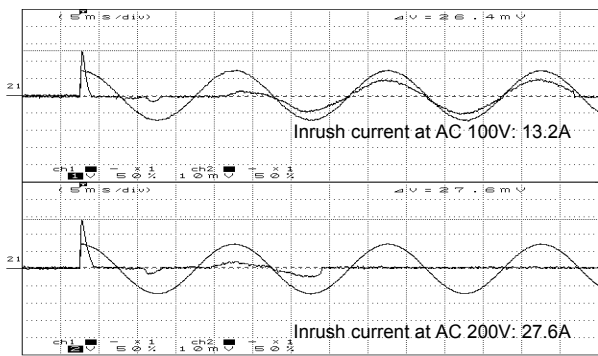
● Fig.8 Efficiency/Input Current Vs. Output Power



● Fig.9 Power Factor/Input VA Vs. Output Power



● Fig.10 Inrush Current



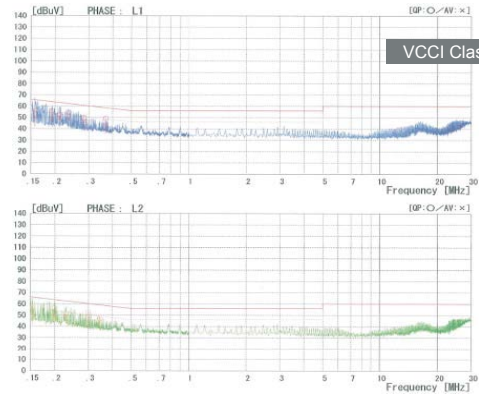
● Fig.11 Leakage Current

Input : AC100,200,240V  
Load : Rated load and Min. load

	Rated load	Min. load
AC 100V	0.11mA	0.15mA
AC 200V	0.21mA	0.22mA
AC 240V	0.26mA	0.26mA

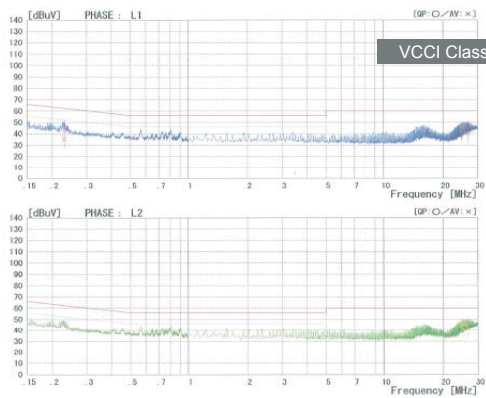
● Fig.12 Conducted Emission At 100V

Input : AC100V  
Load : Rated  
Mode : Peak



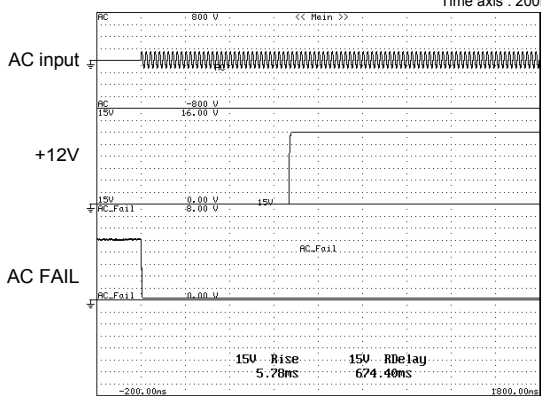
● Fig.13 Conducted Emission At 240V

Input : AC240V  
Load : Rated  
Mode : Peak



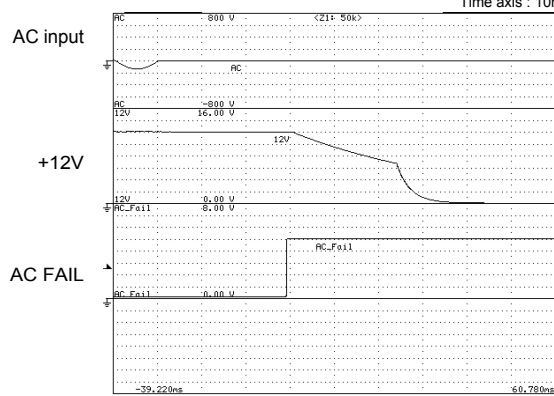
● Fig.14 Rising Characteristics At AC 100V

Input : AC100V  
Load : Rated  
Time axis : 200ms/DIV



● Fig.15 Falling Characteristics At AC 100V

Input : AC100V  
Load : Rated  
Time axis : 10ms/DIV



Characteristics Data(Typical features of the product series) **OZP-170-12/15 [12V]** (Examples of actual measurement)

\* If you request property data of other products, please visit our website and download for getting them.

