New Product

OMRON

Switch Mode Power Supply
S8EA (50, 75, 100, and 150-W Models)

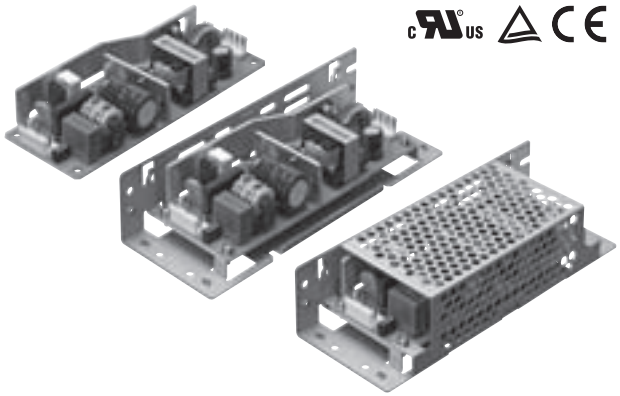
Board-type Switch Mode Power Supply with Simple Circuits That Concentrate on Basic Functions for Easy Operation Exclusive Use for 100 VAC

Lineup

- Lineup of 5, 12, and 24-VDC models includes open-frame models, models with chassis, and models with chassis and covers.
- Options (low leakage current, or coating) are available for open-frame models for a wide range of application.

Features

- The top class* in industry for compact size.
  * According to OMRON investigation in December 2012.
- 150% boost current output (only for 24-V output)
- Simple circuits (no power factor improvement circuit and only for 100 to 120 VAC).
- Operation is possible at an ambient temperature of 60°C at 60% load,* which is ideal for compact devices.
  * Open-frame models with standard installation.



Approved standards:

UL60950-1
cUR: CSA C22.2 No.60950-1,
EN50178, EN60950-1

⚠ Refer to *Safety Precautions* on page 15.

Model Number Structure

Model Number Legend

Note: Not all combinations are possible. Refer to *List of Models* in *Ordering Information* on page 2.

S8EA- □□□□□□□□-□

Series name 1 2 3 4 5 6

1. Power Boost Function
Blank: None
B: Power boost for output current

2. Power Factor Improvement Function
N: None

3. Power Rating
050: 50 W
075: 75 W
100: 100 W
150: 150 W

4. Output Voltage
05: 5 V
12: 12 V
24: 24 V

5. Configuration
None: Open-frame
L: With chassis
LC: With chassis and cover

6. Option
None: Standard model
G: Low leakage current
C: Coating (one side)
Note: This option is applicable only for open-frame models

Ordering Information

List of Models

Note: For details on normal stock models, contact your nearest OMRON representative.

Open frame

Power rating	Output voltage	Output current	Boost current	Model
50 W	5 V	10 A	---	**S8EA-N05005**
	12 V	4.3 A	---	**S8EA-N05012**
	24 V	2.5 A	3.8 A	**S8EA-BN05024**
75 W	5 V	15 A	---	**S8EA-N07505**
	12 V	6.3 A	---	**S8EA-N07512**
	24 V	3.2 A	4.8 A	**S8EA-BN07524**
100 W	5 V	20 A	---	**S8EA-N10005**
	12 V	8.5 A	---	**S8EA-N10012**
	24 V	4.3 A	6.5 A	**S8EA-BN10024**
150 W	5 V	30 A	---	**S8EA-N15005**
	12 V	12.5 A	---	**S8EA-N15012**
	24 V	6.3 A	9.5 A	**S8EA-BN15024**

With chassis

Power rating	Output voltage	Output current	Boost current	Model
50 W	5 V	10 A	---	**S8EA-N05005L**
	12 V	4.3 A	---	**S8EA-N05012L**
	24 V	2.5 A	3.8 A	**S8EA-BN05024L**
75 W	5 V	15 A	---	**S8EA-N07505L**
	12 V	6.3 A	---	**S8EA-N07512L**
	24 V	3.2 A	4.8 A	**S8EA-BN07524L**
100 W	5 V	20 A	---	**S8EA-N10005L**
	12 V	8.5 A	---	**S8EA-N10012L**
	24 V	4.3 A	6.5 A	**S8EA-BN10024L**
150 W	5 V	30 A	---	**S8EA-N15005L**
	12 V	12.5 A	---	**S8EA-N15012L**
	24 V	6.3 A	9.5 A	**S8EA-BN15024L**

With chassis and cover

Power rating	Output voltage	Output current	Boost current	Model
50 W	5 V	10 A	---	**S8EA-N05005LC**
	12 V	4.3 A	---	**S8EA-N05012LC**
	24 V	2.5 A	3.8 A	**S8EA-BN05024LC**
75 W	5 V	15 A	---	**S8EA-N07505LC**
	12 V	6.3 A	---	**S8EA-N07512LC**
	24 V	3.2 A	4.8 A	**S8EA-BN07524LC**
100 W	5 V	20 A	---	**S8EA-N10005LC**
	12 V	8.5 A	---	**S8EA-N10012LC**
	24 V	4.3 A	6.5 A	**S8EA-BN10024LC**
150 W	5 V	30 A	---	**S8EA-N15005LC**
	12 V	12.5 A	---	**S8EA-N15012LC**
	24 V	6.3 A	9.5 A	**S8EA-BN15024LC**

Note: The input voltage is 100 to 240 VAC for all models.

Ratings, Characteristics, and Functions

Item		Power rating / Output voltage	50 W			75 W		
			5 V	12 V	24 V	5 V	12 V	24 V
Efficiency (Typ.)		100 VAC input	78%	84%	85%	83%	85%	88%
Input	Voltage*1		100 to 120 VAC (allowable voltage: 85 to 132 VAC, 120 to 175 VDC*6)					
	Frequency*1		50/60 Hz (47 to 63 Hz)					
	Current (Typ.)	100 VAC input	1.3 A		1.4 A	1.6 A		
	Power factor		---					
	Harmonic current emissions		---					
	Leakage current	100 VAC input	0.5 mA max. (model with low leakage current: 0.1 mA max.)					
	Inrush current	100 VAC input	17.5 A max.					
Output	Voltage adjustment range*2		±10% (with V. ADJ)					
	Ripple*3		150 mV max.	240 mV max.	480 mV max.	150 mV max.	240 mV max.	480 mV max.
	Input variation influence		±1% max. (with 100 VAC input at 100% load)			±1% max. (with 100 VAC input at 100% load)		
	Load variation influence		2% max.	1.5% max.		2% max.	1.5% max.	
	Temperature variation influence		0.05%/°C max.					
	Startup time (Typ.)	100 VAC input	400 ms			550 ms		
	Hold time (Typ.)	100 VAC input	20 ms			25 ms		
Additional functions	Overload protection		105% to 160% of rated load current, voltage drop, intermittent, automatic reset					
	Overvoltage protection*4		Yes (at 130% or higher of rated output)					
	Series operation		Yes (For up to two Power Supplies; external diodes required.)					
	Parallel operation		No					
Other	Ambient operating temperature		−10 to 60°C (Derating is required according to the temperature.) (with no icing or condensation)					
	Storage temperature		−25 to 75°C					
	Ambient operating humidity		25% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; Cutoff current: 10 mA)					
			2.0 kVAC for 1 min. (between all inputs and PE; Cutoff current: 10 mA)					
			1.0 kVAC for 1 min. (between all outputs and PE; Cutoff current: 20 mA)					
	Insulation resistance		100 MΩ min. (between all outputs and all inputs/PE)					
	Vibration resistance		10 to 55 Hz, 19.6 m/s^2 (2 G) for 1 h each in X, Y, and Z directions					
	Shock resistance		196.1 m/s^2, 3 times each in ±X, ±Y, ±Z directions					
	Conducted emissions		Conforms to EN 55011 Group 1 Class B *7 *8					
	Radiated emissions		Conforms to EN 55011 Group 1 Class B *7 *8					
	Approved standards		UL UR: UL 60950-1 (Recognition)					
			cUR: CSA C22.2 No. 60950-1					
			EN: EN 50178 and EN 60950-1					
	SEMI		---					
	Weight *5		140 g max. (without chassis and cover)			190 g max. (without chassis and cover)		

✻1. Do not use an inverter output for the Power Supply. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the Power Supply may result in ignition or burning.
✻2. For details, refer to *Output Voltage Adjuster (V. ADJ)* on page 16.
✻3. Specified for the rated input voltage (100 VAC) and a 100% load.
The measurement method is based on JEITA standard RC-9131B.
For details, refer to *Ripple Noise Voltage* on page 17.
✻4. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
✻5. The weight is for an open-frame model.
✻6. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 120 VAC (85 to 132 VAC).
✻7. Class B compliance was met with an aluminum plate placed under the Power Supply.
✻8. Excluding models with low leakage current.

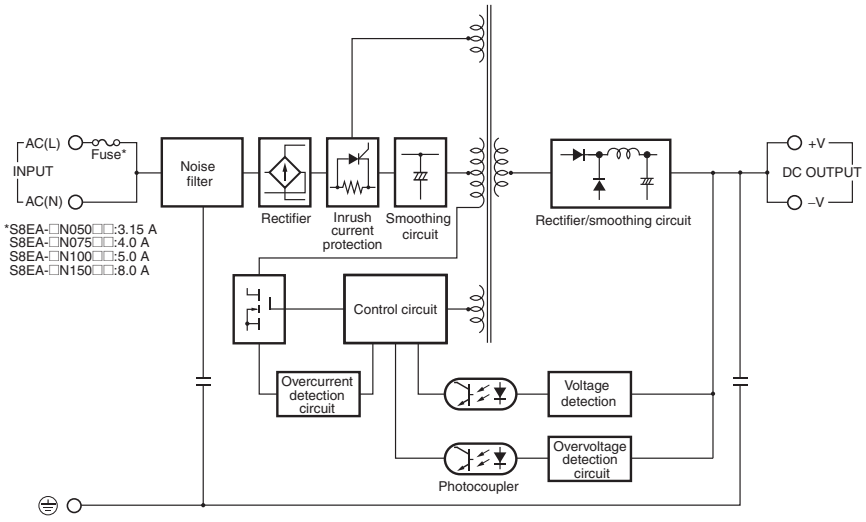
Item		Power rating / Output voltage	100 W			150 W		
			5 V	12 V	24 V	5 V	12 V	24 V
Efficiency (Typ.)		100 VAC input	79%	85%	83%	81%	85%	87%
Input	Voltage*1		100 to 120 VAC (allowable voltage: 85 to 132 VAC, 120 to 175 VDC*6)					
	Frequency*1		50/60 Hz (47 to 63 Hz)					
	Current (Typ.)	100 VAC input	2.1A			3.3A		
	Power factor		---					
	Harmonic current emissions		---					
	Leakage current	100 VAC input	0.5 mA max. (model with low leakage current: 0.1 mA max.)					
	Inrush current	100 VAC input	17.5 A max.					
Output	Voltage adjustment range*2		±10% (with V. ADJ)					
	Ripple*3		150 mV max.	240 mV max.	480 mV max.	150 mV max.	240 mV max.	480 mV max.
	Input variation influence		±1% max. (with 85 to 132 VAC input at 100% load)					
	Load variation influence		2% max.	1.5% max.		2% max.	1.5% max.	
	Temperature variation influence		0.05%/°C max.					
	Startup time (Typ.)	100 VAC input	550 ms			350 ms		
	Hold time (Typ.)	100 VAC input	20 ms			25 ms		
Additional functions	Overload protection		105% to 160% of rated load current, voltage drop, intermittent, automatic reset					
	Overvoltage protection*4		Yes (at 130% or higher of rated output)					
	Series operation		Yes (For up to two Power Supplies; external diodes required.)					
	Parallel operation		No					
Other	Ambient operating temperature		−10 to 60°C (Derating is required according to the temperature.) (with no icing or condensation)			5 V: −10 to 60°C (Derating is required according to the temperature.) 12/24 V: −10 to 70°C (Derating is required according to the temperature.) (with no icing or condensation)		
	Storage temperature		−25 to 75°C					
	Ambient operating humidity		25% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; Cutoff current: 10 mA)					
			2.0 kVAC for 1 min. (between all inputs and PE; Cutoff current: 10 mA)					
			1.0 kVAC for 1 min. (between all outputs and PE; Cutoff current: 20 mA)					
	Insulation resistance		100 MΩ min. (between all outputs and all inputs/PE)					
	Vibration resistance		10 to 55 Hz, 19.6 m/s^2 (2 G) for 1 h each in X, Y, and Z directions					
	Shock resistance		196.1 m/s^2, 3 times each in ±X, ±Y, ±Z directions					
	Conducted emissions		Conforms to EN 55011 Group 1 Class B *7 *8					
	Radiated emissions		Conforms to EN 55011 Group 1 Class B *7 *8					
	Approved standards		UL UR: UL 60950-1 (Recognition)					
			cUR: CSA C22.2 No. 60950-1					
			EN: EN 50178 and EN 60950-1					
	SEMI		---					
	Weight*5		250 g max. (without chassis and cover)			320 g max. (without chassis and cover)		

***1.** Do not use an inverter output for the Power Supply. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the Power Supply may result in ignition or burning.
***2.** For details, refer to *Output Voltage Adjuster (V. ADJ)* on page 16.
***3.** Specified for the rated input voltage (100 VAC) and a 100% load.
The measurement method is based on JEITA standard RC-9131B.
For details, refer to *Ripple Noise Voltage* on page 17.
***4.** To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
***5.** The weight is for an open-frame model.
***6.** The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 120 VAC (85 to 132 VAC).
***7.** Class B compliance was met with an aluminum plate placed under the Power Supply.
***8.** Excluding models with low leakage current.

Connections

Block Diagram

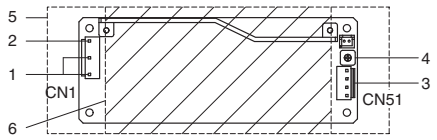
S8EA-□N050□□ (50 W)
S8EA-□N075□□ (75 W)
S8EA-□N100□□ (100 W)
S8EA-□N150□□ (150 W)



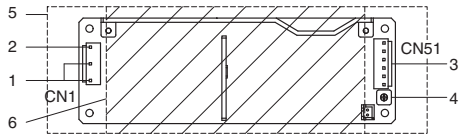
Construction and Nomenclature

Nomenclature

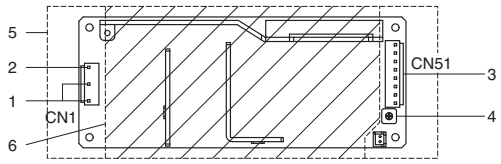
S8EA-□N050□□□□



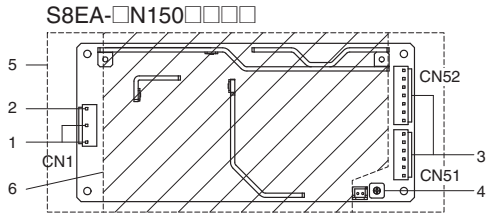
S8EA-□N075□□□□



S8EA-□N100□□□□



S8EA-□N150□□□□



No.	Name	Function
1	Input Terminals (L), (N)	Connect the input lines to these terminals.*1
2	Protective Earth Terminal (PE) (⏚)	Connect the ground line to this terminal.*2
3	DC Output Terminals (–V), (+V)	Connect the load lines to these terminals.
4	Output Voltage Adjuster (V. ADJ)	It is possible to increase or decrease the output voltage.
5	Chassis	
6	Cover	

✻1. The fuse is located on the (L) side. It is NOT user-replaceable. For a DC power input, connect the low side to the positive (+) terminal.
Safety standards do not apply for a DC input.

✻2. This is the protective earth terminal specified in the safety standards. Always ground this terminal.

Input and Output Connectors

			Applicable connector	Housing	Terminals	Applicable crimp tool
Input side	**All models**	**CN1**	B3P5-VH (LF) (SN)	VHR-5N	Reel: SVH-21T-P1.1 Bulk: BVH-21T-P1.1	YC-160R
Output side	**S8EA-□N050□□□□**	**CN51**	B4P-VH (LF) (SN)	VHR-4N		
Output side	**S8EA-□N075□□□□**	**CN51**	B6P-VH (LF) (SN)	VHR-6N		
Output side	**S8EA-□N100□□□□**	**CN51**	B8P-VH (LF) (SN)	VHR-8N		
Output side	**S8EA-□N150□□□□**	**CN51**	B6P-VH (LF) (SN)	VHR-6N		
Output side		**CN52**	B7P-VH (LF) (SN)	VHR-7N		
Manufacturer			J.S.T. Mfg. Co., Ltd.			

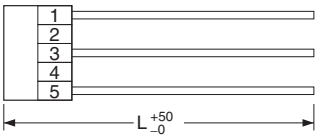
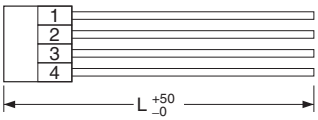
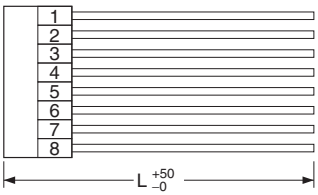
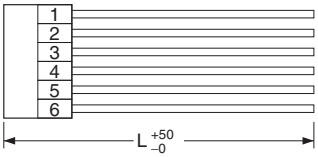
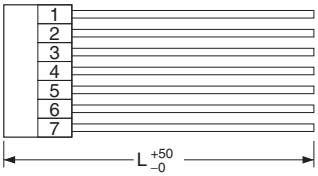
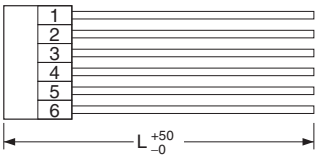
Note: The female connectors that are required for wiring are not provided with the Power Supply.

Special Harnesses

Applicable Models and Harness Models

Applicable models (S8EA Series)				Connected to		Model	Qty
50 W	**75 W**	**100 W**	**150 W**	**Input/output side**	**Output (+, -)**		
OK	**OK**	**OK**	**OK**	Input side		**S82Y-EX01HI-01**	1
OK				Output side	Output (±), common	**S82Y-EX01HO-01**	
	OK			Output side		**S82Y-EX06HO-01**	
		OK		Output side		**S82Y-EX03HO-01**	
			OK	Output side	Output side +	**S82Y-EX04HO-01**	
			OK	Output side	Output side -	**S82Y-EX05HO-01**	
OK	**OK**	**OK**	**OK**	Input side		**S82Y-EX01HI-10**	10
OK				Output side	Output (±), common	**S82Y-EX01HO-10**	
	OK			Output side		**S82Y-EX06HO-10**	
		OK		Output side		**S82Y-EX03HO-10**	
			OK	Output side	Output side +	**S82Y-EX04HO-10**	
			OK	Output side	Output side -	**S82Y-EX05HO-10**	

Harness Specifications

Model	Connector structure	Shape	Applicable wires				
			Pin	Wire	AWG	Color	Length: L (mm)
S82Y-EX01HI-□□	Housing Model: VHR-5N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		1	UL1015	18	Black	500
			2	NC			
			3	UL1015	18	White	500
			4	NC			
			5	UL1015	18	Green	500
S82Y-EX01HO-□□	Housing Model: VHR-4N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		Pin	Wire	AWG	Color	Length: L (mm)
			1	UL1015	18	Black	500
			2	UL1015	18	Black	500
			3	UL1015	18	Red	500
			4	UL1015	18	Red	500
S82Y-EX03HO-□□	Housing Model: VHR-8N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		Pin	Wire	AWG	Color	Length: L (mm)
			1	UL1015	18	Black	500
			2	UL1015	18	Black	500
			3	UL1015	18	Black	500
			4	UL1015	18	Black	500
			5	UL1015	18	Red	500
			6	UL1015	18	Red	500
			7	UL1015	18	Red	500
			8	UL1015	18	Red	500
S82Y-EX04HO-□□	Housing Model: VHR-6N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		Pin	Wire	AWG	Color	Length: L (mm)
			1	UL1015	18	Red	500
			2	UL1015	18	Red	500
			3	UL1015	18	Red	500
			4	UL1015	18	Red	500
			5	UL1015	18	Red	500
			6	UL1015	18	Red	500
S82Y-EX05HO-□□	Housing Model: VHR-7N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		Pin	Wire	AWG	Color	Length: L (mm)
			1	UL1015	18	Black	500
			2	UL1015	18	Black	500
			3	UL1015	18	Black	500
			4	UL1015	18	Black	500
			5	UL1015	18	Black	500
			6	UL1015	18	Black	500
			7	UL1015	18	Black	500
S82Y-EX06HO-□□	Housing Model: VHR-6N Manufacturer: J.S.T. Mfg. Co., Ltd. Pins Model: SVH-21T-P1.1 Manufacturer: J.S.T. Mfg. Co., Ltd.		Pin	Wire	AWG	Color	Length: L (mm)
			1	UL1015	18	Black	500
			2	UL1015	18	Black	500
			3	UL1015	18	Black	500
			4	UL1015	18	Red	500
			5	UL1015	18	Red	500
			6	UL1015	18	Red	500

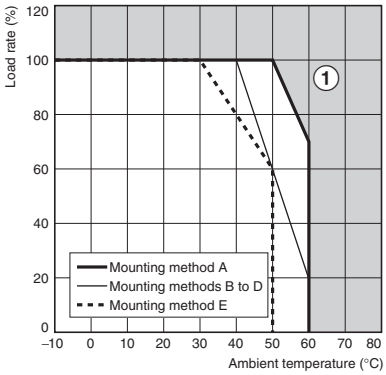
Chassis cover option

Applicable models	Model number
50W	S82Y-EX050LC
75W	S82Y-EX075LC
100W	S82Y-EX100LC
150W	S82Y-EX150LC

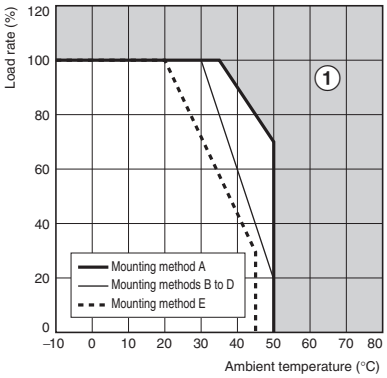
Engineering Data

Derating Curves

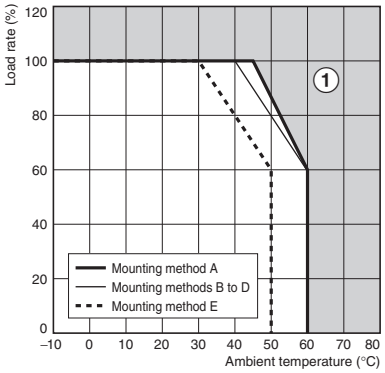
Open-frame Models and Models with Chassis: 50 W and 5 V or 12 V



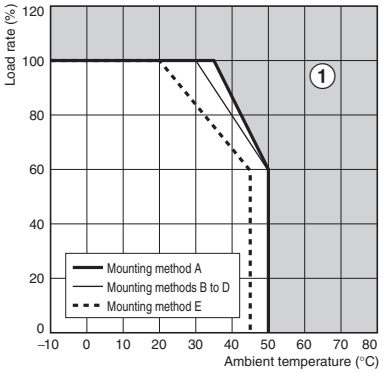
Models with Chassis and Cover: 50 W and 5 V or 12 V



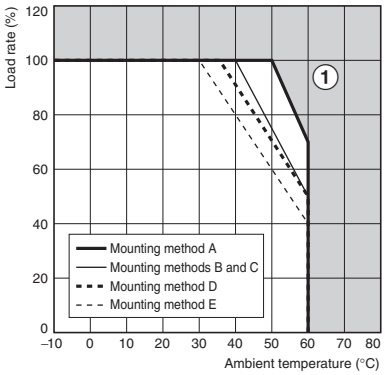
Open-frame Models and Models with Chassis: 50 W and 24 V



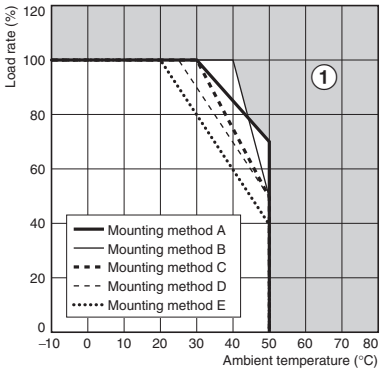
Models with Chassis and Cover: 50 W and 24 V



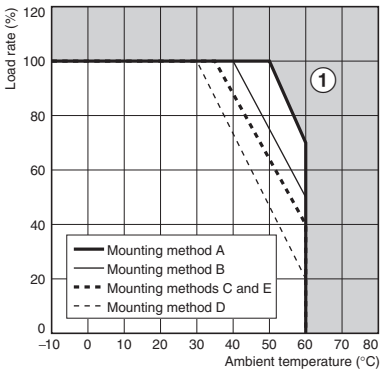
Open-frame Models and Models with Chassis: 75 W



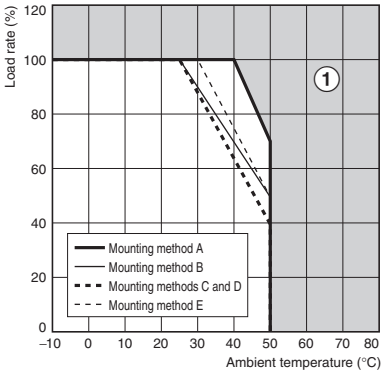
Models with Chassis and Cover: 75 W



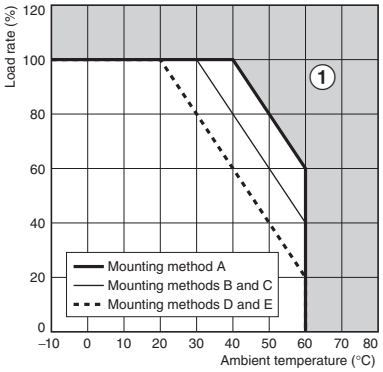
Open-frame Models and Models with Chassis: 100W



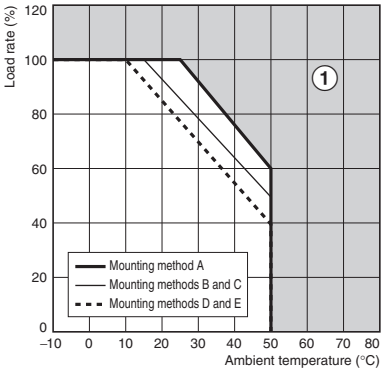
Models with Chassis and Cover: 100W



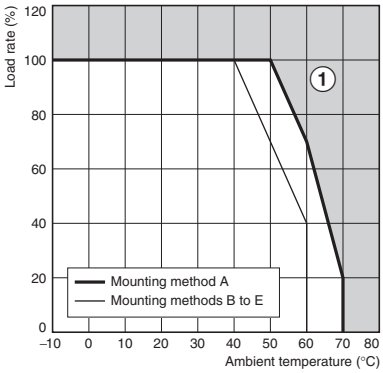
Open-frame Models and Models with Chassis: 150 W and 5 V



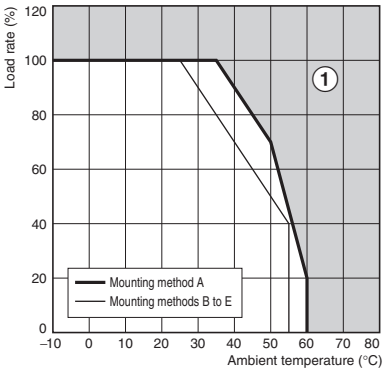
Models with Chassis and Cover: 150 W and 5 V



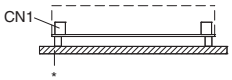
Open-frame Models and Models with Chassis: 150 W and 12 V or 24 V



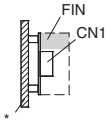
Models with Chassis and Cover: 150 W and 12 V or 24 V



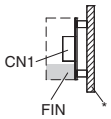
Mounting Method A (Standard Mounting Method)



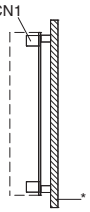
Mounting Method B



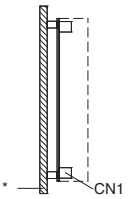
Mounting Method C



Mounting Method D



Mounting Method E

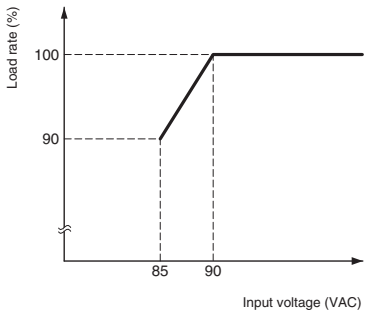


Mounting Method F

Note: 1. Use a metal plate* for the mounting surface.
2. Refer to *Ambient Operating and Storage Environments* on page 15.

Input Voltage Derating Curve

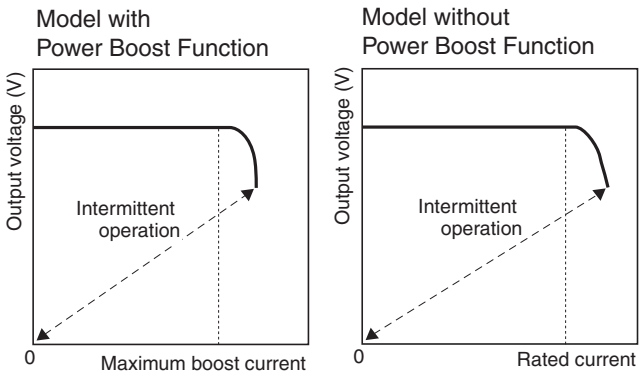
For 50-W, 75-W, 100-W, and 150-W models, check the derating characteristics for the input voltage before using the Power Supply.



Overload Protection

The overload protection circuit will automatically reduce the output voltage for short circuits and overcurrents to protect the Power Supply from short-circuit currents and overcurrents.
When the output current falls within the rated range, the overload protection function is automatically cleared.

Reference Graphs

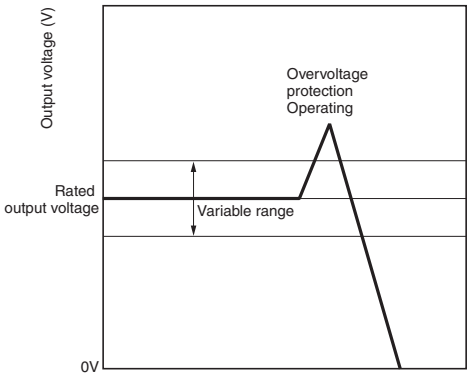


Note: Refer to *Overload Protection* on page 17

Overvoltage Protection

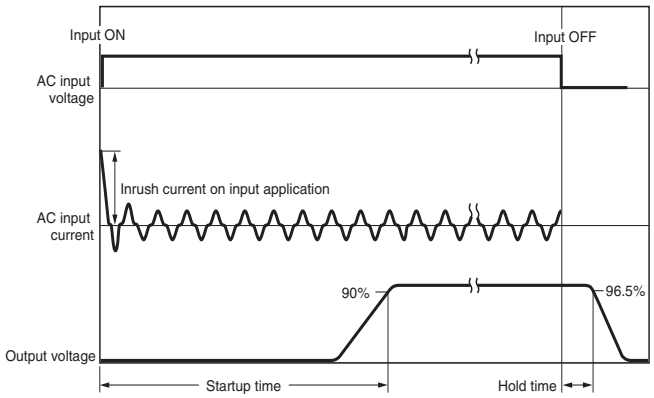
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails.
When an excessive voltage that is approximately 130% of the rated voltage or higher is output, the output voltage is shut OFF, preventing damage to the load due to overvoltage.
To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.

Reference Graph



Note: Do not turn ON the power again until the cause of the overvoltage has been removed.

Inrush Current, Startup Time, and Output Hold Time



Note: A maximum startup time of 1,000 ms is required. Construct a system configuration that considers the startup time of other devices.

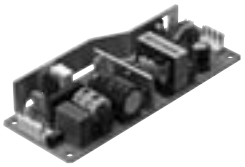
Dimensions

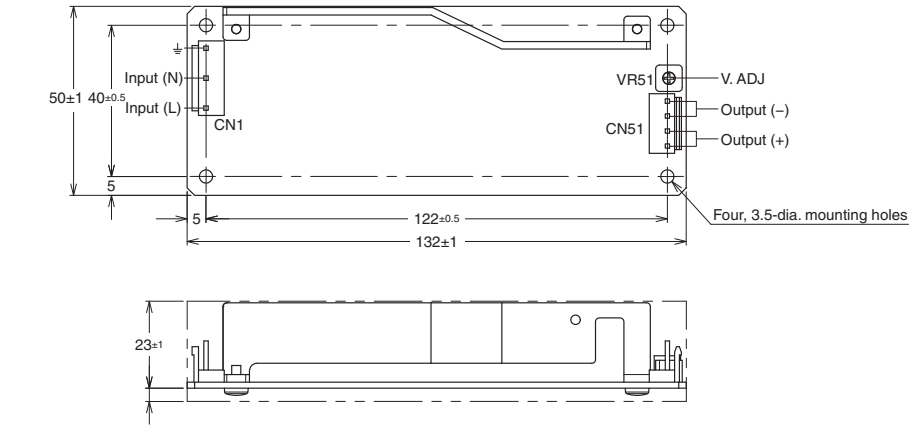
(Unit: mm)

Power Supplies

Open-frame Models

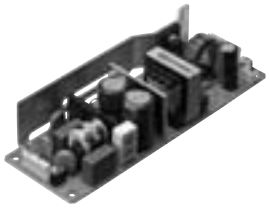
S8EA-□N050□ (50 W)

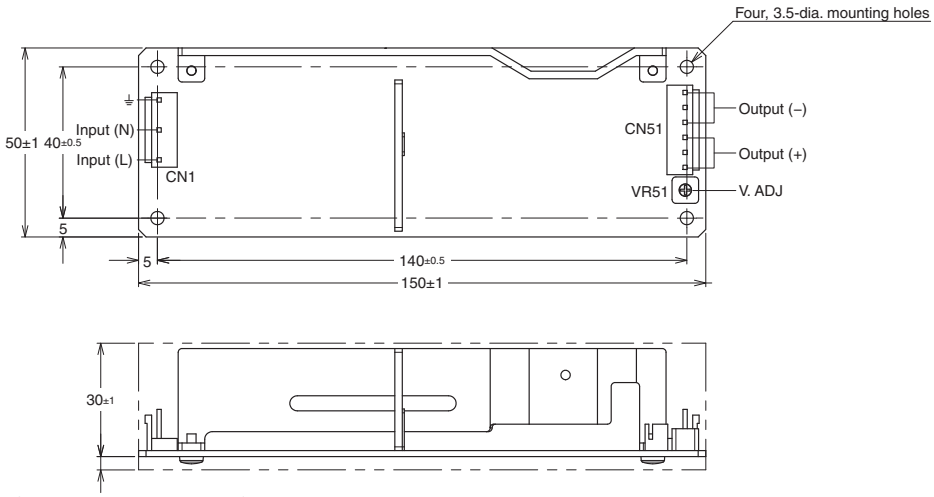




3.5 max. (height with components mounted)

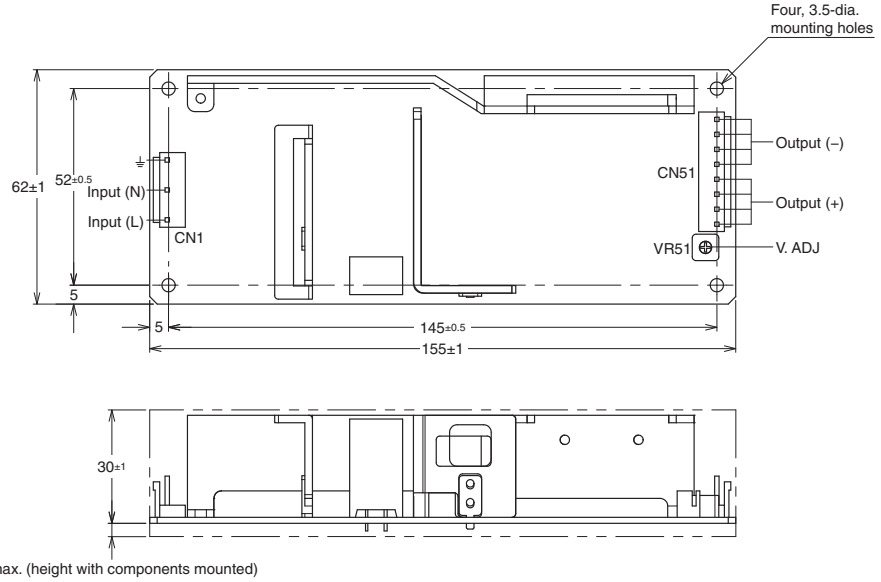
S8EA-□N075□ (75 W)





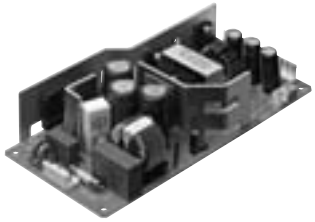
3.5 max. (height with components mounted)

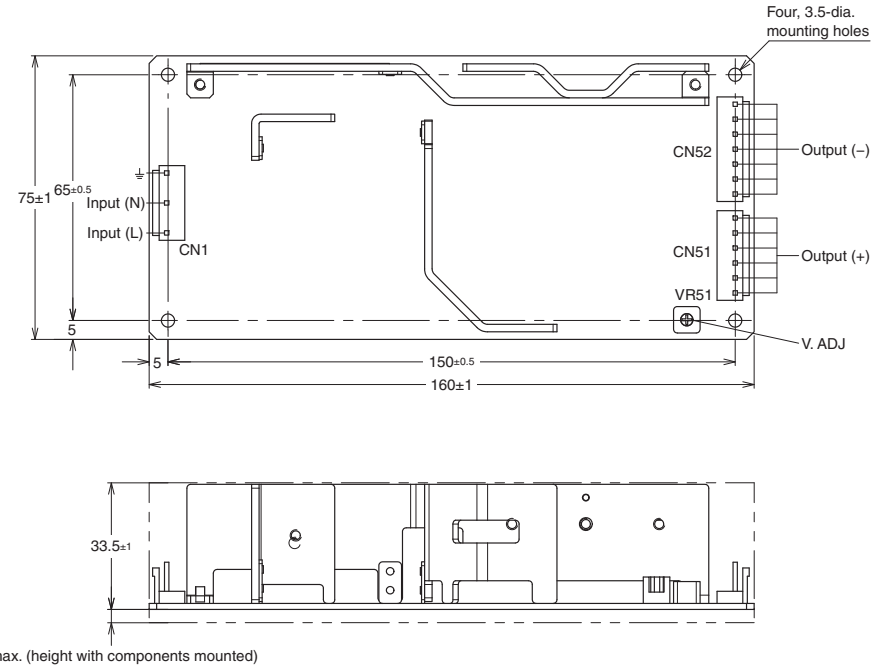
S8EA-□N100□ (100 W)



3.5 max. (height with components mounted)

S8EA-□N150□ (150 W)

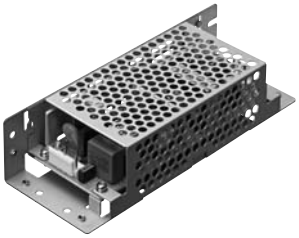


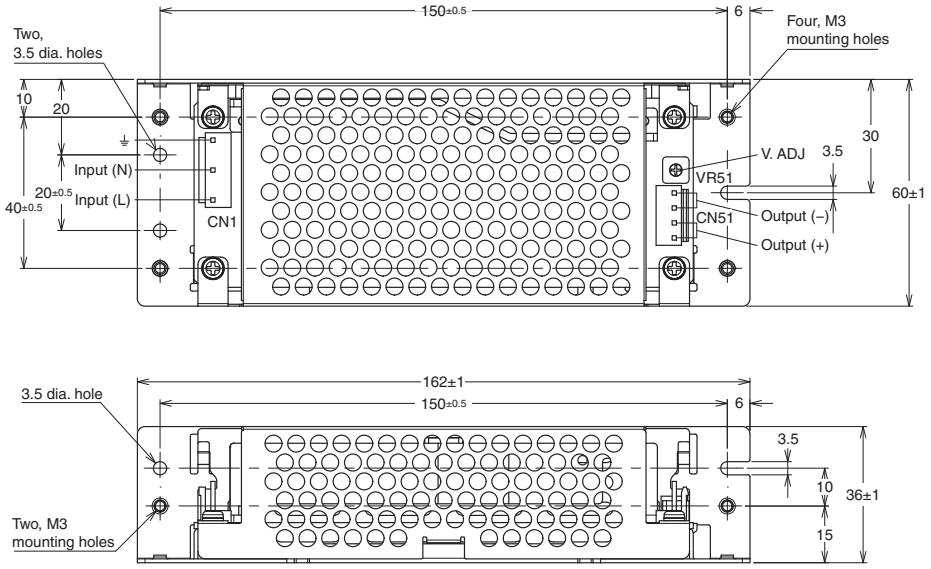


3.5 max. (height with components mounted)

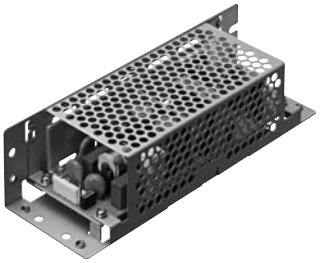
Models with Chassis and Models with Chassis and Cover

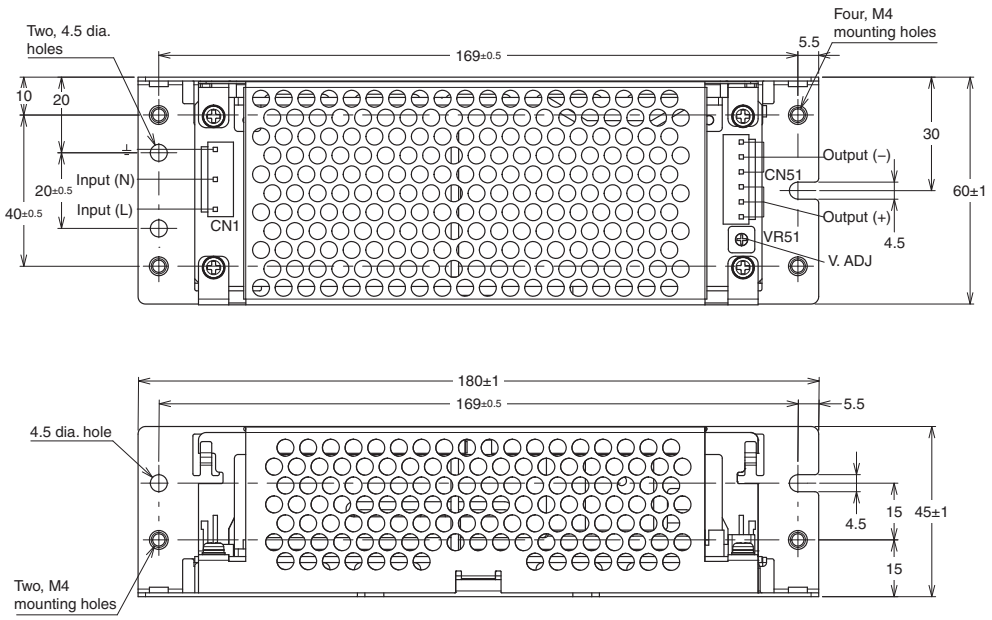
S8EA-□N050□L□ (50 W)



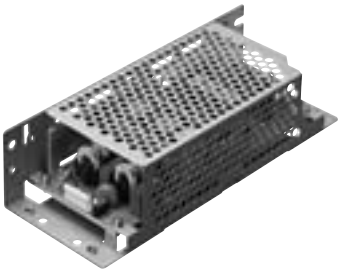


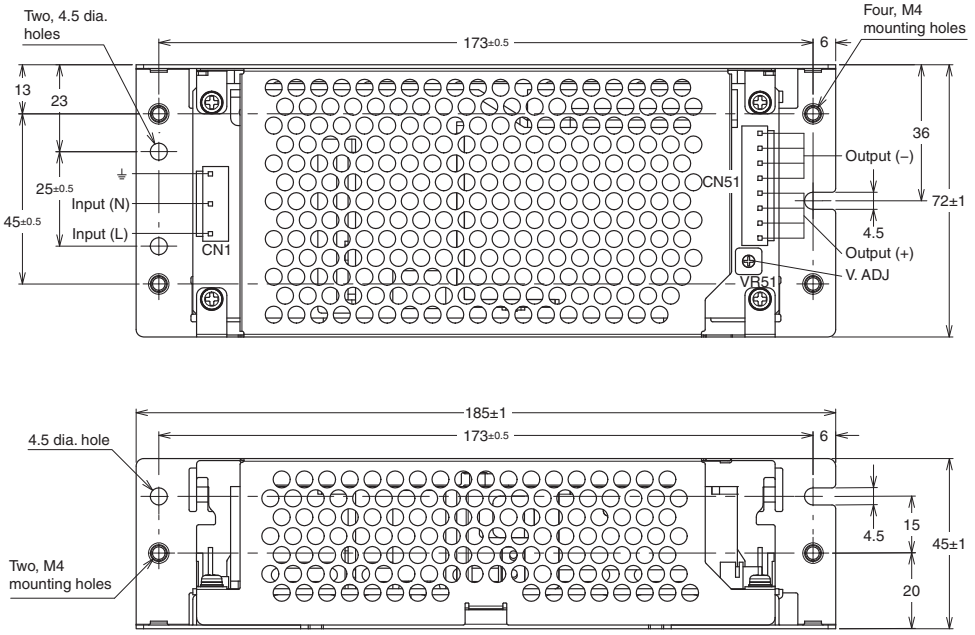
S8EA-□N075□L□ (75 W)



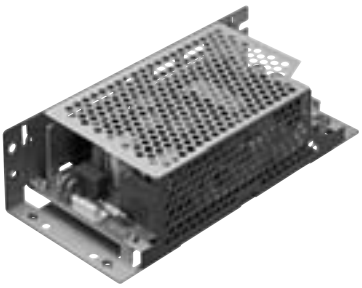


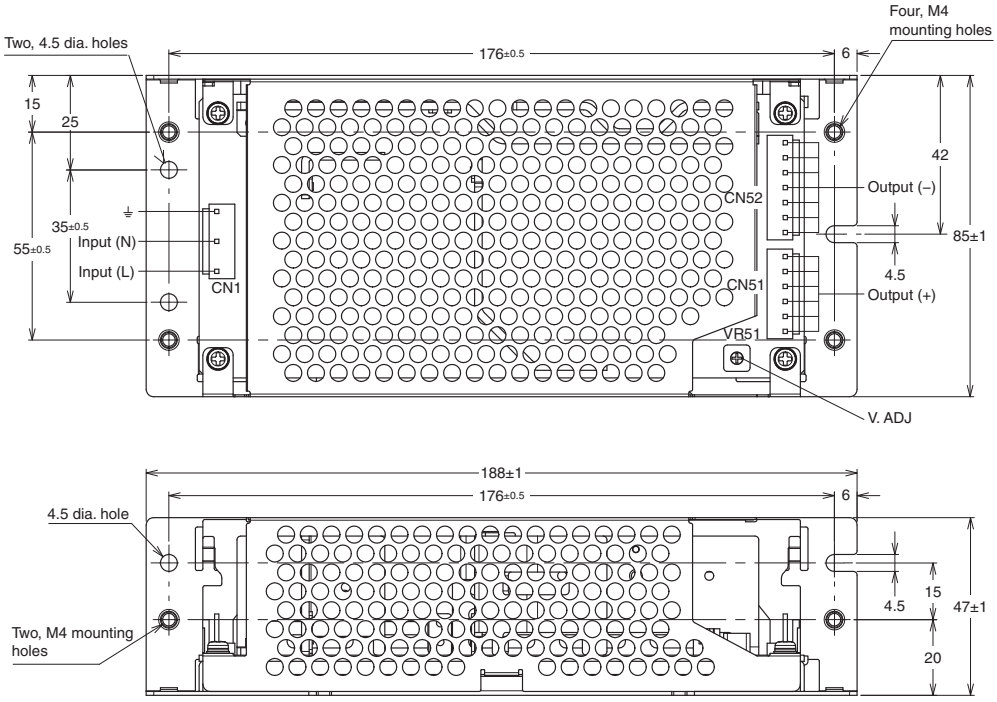
S8EA-□N100□L□ (100 W)





S8EA-□N150□L□ (150 W)





Safety Precautions

Refer to *Safety Precautions for All Power Supplies.*

Warning Indications

⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	Supplementary comments on what to do or avoid doing, to prevent failure to operate, malfunction or undesirable effect on product performance.

Meaning of Product Safety Symbols

	Used to warn of the risk of electric shock under specific conditions.
	Use to indicate prohibition when there is a risk of minor injury from electrical shock or other source if the product is disassembled.
	Used for general CAUTION, WARNING, or DANGER precautions for which there is no specified symbol. (This symbol is also used as the alerting symbol, but shall not be used in this meaning on the product.)
	Used to warn of the risk of minor injury caused by high temperatures.

⚠ CAUTION

Minor electric shock, fire, or Product failure may occasionally occur. Do not disassemble, modify, or repair the Product or touch the interior of the Product.

Minor burns may occasionally occur. Do not touch the Product while power is being supplied or immediately after power is turned OFF.

Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied. Working voltage can be 370V max. inside. This voltage can be also available 30s after the switch off. Do not allow contact with a conductor after power-on, withstand voltage testing, or insulation resistance testing. Residual voltage may cause failure, deterioration, or electrical shock.

Minor electric shock, fire, or Product failure may occasionally occur. Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product.

Precautions for Safe Use

Wiring

- Connect the ground completely. A protective earthing terminal stipulated in safety standards is used. Electric shock or malfunction may occur if the ground is not connected completely.
- The light ignition may possibly be caused. Ensure that input and output terminals are wired correctly.
- Be sure to remove the sheet covering the product for machining before power-ON so that it does not interfere with heat dissipation.
- Always select wire sizes suitable for at least 1.6 times the rated current to prevent heating and ignition of wire materials due to load abnormalities. Refer to the wiring manufacturer's recommended allowable current and voltage drop specifications for information when selecting wiring materials.
  - The current rating for the output terminal is 5A per terminal. Make sure to use multiple terminals together if a current exceeding the terminal rating is used.
  - Use wiring materials with a UL recognized temperature of 60°C min. or 60°C/75°C min.
  - Use wiring materials with copper conductors.
- Refer to Input and Output Connectors on page 6 for the model numbers of the Input and Output Connectors.
  Do not insert and remove any connector more than 20 times.

Installation Environment

- Avoid places subject to shock or vibration.
  A device such as a contact breaker may be a vibration source. Set the Power Supply as far as possible from possible sources of shock or vibration.
- If the Power Supply is used in an area with excessive electronic noise, be sure to separate the Power Supply as far as possible from the noise and surge sources.

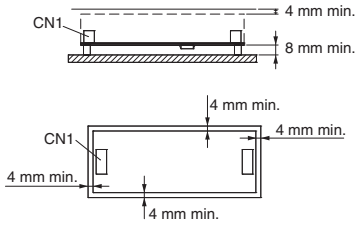
Ambient Operating and Storage Environments

- Store the product with ambient temperature –25 to 75°C, and relative humidity 25 to 90%.
- The internal parts may occasionally be deteriorated or broken. Do not use the product outside the derating range.
- Use the product where the relative humidity is 25 to 85%.
- Avoid places where the product is subjected to direct sunlight.
- Avoid places where the product is subjected to penetration of liquid, foreign substance, or corrosive gas

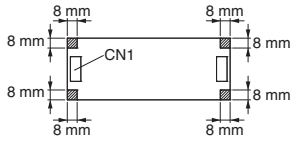
Precautions for Correct Use

Mounting

Mounting Interval



Locations of Mounting Holes on Open-frame Models



- Install the Power Supply so that heat is effectively dissipated to improve and maintain the reliability of the Power Supply over a long period of time.
- The S8EA uses natural convection. Mount so that convection of the air around the power unit can take place.
- The crosshatching indicates the allowable range for the mounted metal part.
- When mounting, use the mounting holes in the board and spacers to mount at least 8 mm off the board. This a clearance of 4 mm space is necessary to satisfy the insulation and withstand voltage standards.
- Metal plate is strongly recommended as the mounting panel.

Note: 1. Do not subject the board to stress such as twisting, bending, or shock. This may cause failure or deterioration.

2. During assembly, do not subject the lead feet or surface mounted parts to stress. This may cause failure or deterioration.

- Depending on how the Power Supply is mounted, the heat dissipating capacity may be reduced and cause deterioration to or damage the internal components.
- The internal parts may occasionally deteriorate and be broken due to adverse heat radiation. Do not loosen the screws on the Power Supply.

Output Voltage Adjuster (V. ADJ)

Default Setting: Set at the rated voltage.

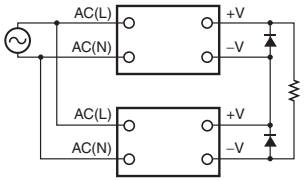
Adjustment Range: The output voltage can be adjusted to ±10% of the rated voltage with the voltage output adjuster (V. ADJ) on the front panel.
Turning clockwise increases the output voltage, and turning counterclockwise decreases the output voltage.

- The output voltage adjuster (V. ADJ) may possibly be damaged if it is turned with unnecessary force. Do not turn the adjuster with excessive force.
- After completing output voltage adjustment, be sure that the output capacity or output current does not exceed the rated output capacity or rated output current.
- Adjusting the output voltage adjuster (V. ADJ) may cause the output voltage to exceed the voltage range. When adjusting the output voltage, check the output voltage of the Power Supply and be sure that the load is not destroyed.

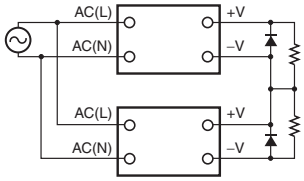
Series Operation

Two Power Supplies can be connected in series. The ± voltage output can be accomplished with two Power Supplies.

Series Operation
Correct



Output Voltage (±)
Correct



Note: 1. If the load is short-circuited, a reverse voltage will be generated inside the Power Supply. If this occurs, the Power Supply may possibly deteriorate or be damaged. Always connect diodes as shown in the figure. Select diodes with the following ratings.

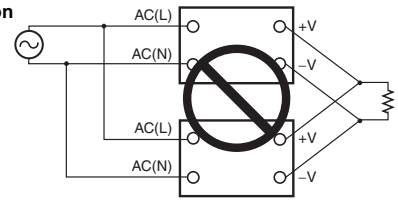
Type	Schottky Barrier diode
Dielectric strength (V_{RRM})	Twice the rated output voltage or above
Forward current (I_F)	Twice the rated output current or above

2. Although Products having different specifications can be connected in series, the current flowing through the load must not exceed the smaller rated output current.

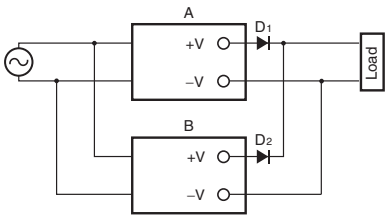
Parallel Operation

The Product is not designed for parallel operation.

Parallel Operation
Incorrect



However, the following backup operation is possible. (External diodes are required.)



Use the same model for Power Supplies A and B.

- Type: Schottky barrier diode
- Dielectric strength (V_{RRM}): Rated output voltage of the Power Supply or higher
- Forward current (IF): Twice the rated output current of the Power Supply or higher

- Set the output voltages of Power Supplies A and B higher to compensate for the decrease of the forward voltages (V_F) of diodes D1 and D2.
  Also, there will be a power loss equivalent to the output current (I_{OUT}) of the Power Supply multiplied by the forward voltage (V_F) of the diode. Therefore, cooling will be required to keep the temperature of the diodes lower than the catalog value.
- There will be a power loss caused by load power and diodes. Be sure not to exceed the rated power (rated output voltage times rated output current) of each Power Supply.

Overload Protection

- Internal parts may possibly deteriorate or be damaged if a shortcircuited, overload or boost load state continues during operation.
- Internal parts may possibly deteriorate or be damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

Charging Batteries

When connecting a battery at the load, connect an overcurrent-limiting circuit and overvoltage protection circuit.

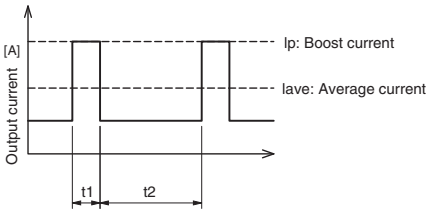
In Case There Is No Output Voltage

A possible cause for no output voltage may be that the overcurrent or overvoltage protection has operated. The internal protection may operate if a large amount of surge voltage, such as a lightening surge, is applied to the input.
In case there is no output voltage, please check the following points before contacting us:

- Checking the Overcurrent Protected Status
  Check whether the load is in overcurrent status or is short-circuited. Remove wires to load when checking.
- Checking overvoltage or internal protection:
  Turn the power supply OFF once, and leave it OFF for at least 3 minutes for S8EA series. Then turn it ON again to see if this clears the condition.

Power Boost Function

- Do not allow the boost current to continue for more than 10 seconds. Also, do not let the duty cycle exceed the following conditions. This may damage the Power Supply.
- Lessen the load of the boosted load current by adjusting the ambient temperature and the mounting direction.
- Ensure that the average current of one cycle of the boost current does not exceed the specified value. This may damage the Power Supply.

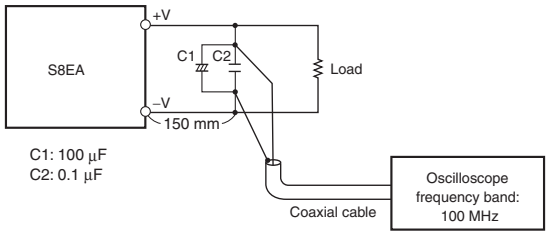


Models	Boost current conditions
S8EA-BN05024□ (50 W) S8EA-BN07524□ (75 W) S8EA-BN10024□ (100 W) S8EA-BN15024□ (150 W)	• 90 to 132 VAC • t1 ≤ 10 s • Ip ≤ Rated boost current • Iave ≤ Rated current • Duty $= \frac{t1}{t1+t2} \times 100[\%] \leq 35\%$

Note: Make sure that the boost current meets the above conditions. Consult with your OMRON representative if any other conditions are required.

Ripple Noise Voltage

The specified standard for the ripple voltage noise was measured with a measurement circuit that is based on JEITA standard RC-9131B.



Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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- Systems, machines, and equipment that could present a risk to life or property.

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OMRON Corporation **Industrial Automation Company**
Tokyo, JAPAN
Contact: www.ia.omron.com

Regional Headquarters
OMRON EUROPE B.V.
Wegalaan 67-69-2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC
One Commerce Drive Schaumburg,
IL 60173-5302 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

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