Power supplies

With the S8VS Micro size IS everything!

Powerful performance in compact design

At just 22.5 mm wide Omron's S8VS Micro series is one of smallest power supplies around, but it delivers more power per cm^3 than almost any similar product in its class!
It provides 100% performance (no derating) right up to its maximum operating temperature. It offers flexible mounting (DIN-rail and horizontal or vertical panel-mounting) for convenient installation. And it is available in 15 W and 30 W models, each of which offers an output voltage choice of 5VDC, 12VDC and 24VDC. A powerful yet cost-effective solution for reducing cabinet space!

Features at a glance:

- Compact size
- No derating
- Easy DIN-rail mounting
- Full range to choose from

What type of network supply is it?

Single-phase

Which type of system is required?

Flexible modular power supply (output, capacity)

Standard power supply

What type is required?

Industrial standard

Preventive maintenance

High power, compact

S8TS

Page B-53

S8VS without display

Page B-5

S82K

Page B-65

S8VS with display

Page B-5

S8VM

Page B-32

S8PS

CD

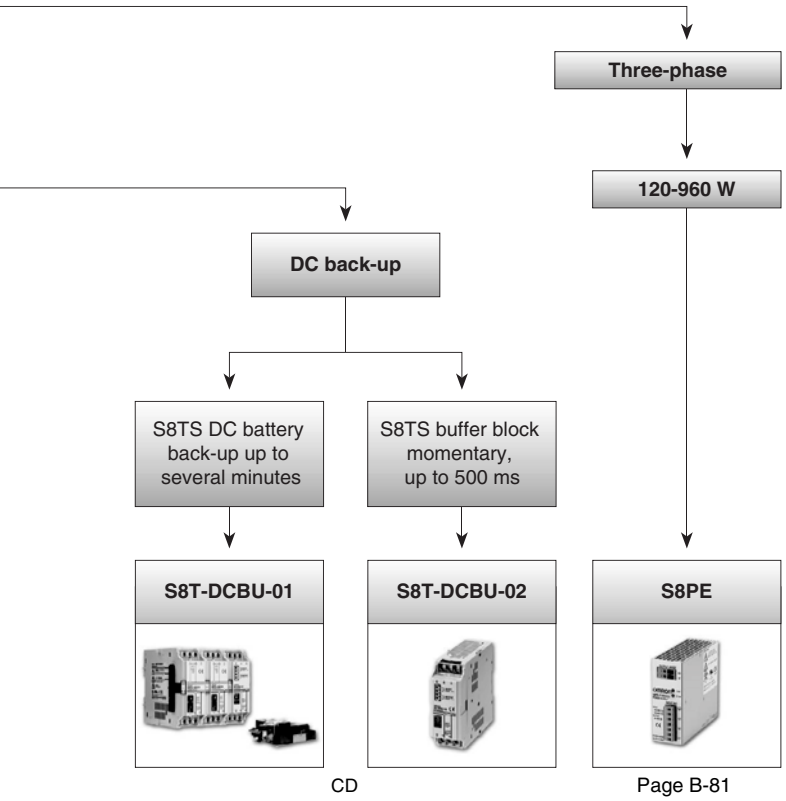
S8VM power supplies

The power supplies that alert you!

This new single-phase industrial switch mode power supply series features an undervoltage alarm that gives a warning in the case of failure. The new S8VM series provide not only a clear indication that a DC output voltage drop has occurred, but also indicates the likely cause – allowing for fast, effective corrective action. The power supplies come in a broad 5 to 24 V voltage range, with output powers between 15 and 150 W. Extensions up to 1500 W will be launched in 2006.

Features at a glance

- Timely, efficient on-site troubleshooting for optimum quality management
- New ultra-compact housing supports cabinet downsizing
- Early-warning system
- Easy installation
- Broad product range of DC output voltages from 5 V up to 24 V and in powers from 15 W to 150 W



CD
Page B-81

Table of contents

Selection table

	Category	Single phase									
Selection criteria											
	Model	S8VS	S8VM				S8TS			S82K	
	Rated voltage	100 to 240 VAC								100 / 200 VAC or 100 to 240 VAC	
	Voltage	24 V	5 V	12 V	15 V	24 V	5 V	12 V	24 V	5 V	12 V
Power	3 W									■ 0.6 A	■ 0.25 A
	7.5 W									■ 1.5 A	■ 0.6 A
	10 W										
	15 W		■ 3 A	■ 1.3 A	■1 A	■ 0.65 A				■ 2.5 A	■ 1.2 A
	25 W						■ 5 A				
	30 W		■ 6 A	■ 2.5 A	■ 2 A	■ 1.3 A		■ 2.5 A		■ 5 A	■ 2.5 A
	50 W		■ 10 A	■ 4.3 A	■ 3.5 A	■ 2.2 A					
	60 W	■ 2.5 A						■ 5 A	■ 2.5 A		
	90 W	■ 3.75 A						■ 7.5 A			
	100 W		■ 20 A	■ 8.5 A	■ 7 A	■ 4.5 A					
	120 W	■ 5 A						■ 10 A	■ 5 A		
	150 W		■ 27 A	■ 12.5 A	■ 10 A	■ 6.5 A					
	180 W	■ 7.5 A							■ 7.5 A		
	240 W	■ 10 A							■ 10 A		
	300 W										
	480 W										
	600 W										
	960 W										
Features	Conforms to EN61000-3-2 A14	■ with PFC	■with PFC	■with PFC	■with PFC	■with PFC	■ with PFC	■ with PFC	■ with PFC	□	□
	DC back-up						□	□	□		
	Capacitor back-up	□							□		
	Undervoltage alarm	■				■	■	■	■	■	■
	Overvoltage protection	■	■	■	■	■	■	■	■		
	Overload protection	■	■	■	■	■	■	■	■	■	■
	DIN-rail mounting	■	■	■	■	■	■	■	■	■	■
	Screw mounting (with bracket)		■	■	■	■				■	■
	EMI Class B		■	■	■	■	■	■	■	■	■
	UL Class 2	■ only 60 W					■	■	■		
	N+1 redundancy						■	■	■		
	Parallel operation						■	■	■		
	Series operation	■	■	■	■	■	■	■	■		
	Page	B-5	B-32				B-53			B-65	

Selection criteria	Category	Single phase													Three phase
															
	Model	S82K		S82S				S82J				S8PS			S8PE
	Rated voltage	100 / 200 VAC or 100 to 240 VAC		12 - 24 VDC				100 / 200 VAC or 100 to 240 VAC				100 to 240 VAC			400 - 480 VAC or 200 - 230 VAC
	Voltage	15 V	24 V	5 V	12 V	15 v	24 V	5 V	12 V	15 V	24 V	5 V	12 V	24 V	24 V
Power	3 W	■ 0.2 A	■ 0.13 A	■ 0.6 A	■ 0.25 A	■ 0.2 A	■ 0.13 A								
	7.5 W	■ 0.5 A	■ 0.3 A	■ 1.5 A	■ 0.6 A	■ 0.5 A	■ 0.3 A								
	10 W							■ 2 A	■ 1 A	■ 0.7 A	■ 0.5 A				
	15 W		■ 0.6 A												
	25 W							■ 5 A	■ 2.1 A	■ 1.7 A	■ 1.1 A				
	30 W		■ 1.3 A												
	50 W		■ 2.1 A					■ 10 A	■ 4.2 A		■ 2.1 A	■ 10 A	■ 4.2 A	■ 2.1 A	
	60 W														
	90 W		■ 3.75 A												
	100 W		■ 4.2 A					■ 20 A	■ 8.5 A	■ 7 A	■ 4.5 A			■ 4.5 A	
	120 W														■ 5 A
	150 W										■ 6.5 A			■ 6.5 A	
	180 W														
	240 W														■ 10 A
	300 W										■ 14 A			■ 14 A	
	480 W														■ 20 A
	600 W										■ 27 A			■ 27 A	
	960 W														■ 40 A
Features	Conforms to EN61000-3-2 A14	□	□									■ with PFC	■ with PFC	■ with PFC	■
	DC back-up														
	Capacitor back-up		□								□			□	□
	Undervoltage alarm	■	□												
	Overvoltage protection							■ only 100 W			■ only 100 / 300 / 600 W	■	■	■	■ except 40 A
	Overload protection	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	DIN-rail mounting	■	■	■	■	■	■	■	■	■	■ except 300 / 600 W	■	■	■	■ except 40 A
	Screw mounting (with bracket)	■	■					■	■	■	■	■	■	■	■ only 40 A
	EMI Class B	■										■	■	■	
	UL Class 2		■ except dual output					■ except 10 / 25 W	■	■	■ only 50 W				
	N+1 redundancy														
	Parallel operation		■ only 100 W								■ only 300 / 600 W			■ only 300 / 600 W	■
	Series operation		■ only 90 /100 W					■ except 10 / 25 W	■ except 10 / 25 W	■ except 10 / 25 W	■ except 10 / 25 W	■ only 50 W	■ only 50W	■	■
	Page	B-65		CD				CD				CD			B-81

■ Standard □ Available No / not available

LEADING IN SERVICE

Focussed, progressive, distinctive. Be assured, choose Omron

At Omron we set high standards for ourselves. Our products are known all over the world for their unrivalled quality. But we offer more than just excellent quality. In an environment that places ever greater demands with regard to service, quality and costeffectiveness, other things are important too. Providing a top-quality service is what we do every day, including extra service as standard. This helps to ensure that we can provide tailor-made solutions for applications more effectively and more quickly.

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Our products carry all relevant international standards and approvals, including CCC (Chinese Compulsory Certification), which makes exporting your system much easier.

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- Maximum flexibility
- Confidence

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More and more people are choosing Omron, as a high degree of reliability is a key feature of its products. You can always rely on Omron. Even if a product unexpectedly malfunctions, our repair team is ready to swing into action.

- Product repaired and returned to you within 5 days, including collection and delivery
- You can track the status of your repair on-line
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- Very easy to use
- Always the right product
- Reduced engineering time

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Designers of switching panels and machines can download clear 2-D and 3-D CAD drawings for all current products from http://omron-industrial.com/en/2D3D, which can easily be incorporated into your design.

- Large number of formats supported for greater flexibility
- Readily available
- Convenience that saves you time

Switch Mode Power Supply
S8VS

15/30-W Models

Compact, Thin Power Supplies That Mount Just About Anywhere to Contribute to Control Panel Downsizing

- Compact, thin size: 22.5 × 85 × 96.5 mm (W × H × D).
- Three mounting directions (standard, horizontal, facing horizontal).
- Mounting directly onto the panel is possible.
- Safety standards: UL508/60950-1/1604, CSA C22.2 No. 14/60950-1/213, EN50178 (= VDE0160), EN60950-1 (= VDE0805).

60/90/120/180/240-W Models

New Models with Total Run Time Monitor in Addition to Models with Maintenance Forecast Monitor

- Compact size: 40 × 95 mm (W × H) (60-W Models).
- Status displayed on 3-digit, 7-segment display.
- Safety standards: UL508/60950, CSA C22.2 No. 14/60950, EN50178 (= VDE0160), EN60950 (= VDE0805).

Features Common to All Models

- Mount to DIN-rail.
- Lead-free solder.

Model Number Structure

■ Model Number Legend

S8VS- □□□□□□
1 2 3

1. Power Ratings
015: 15 W
030: 30 W
060: 60 W
090: 90 W
120: 120 W
180: 180 W
240: 240 W

2. Output voltage
05: 5 V
12: 12 V
24: 24 V

3. Configuration

15-W, 30-W Models
None: Standard

60-W Models
None: Standard
A: With maintenance forecast monitor
B: With total run time monitor

90-W, 120-W, 180-W, 240-W Models
None: Standard
A: With maintenance forecast monitor and undervoltage alarm (transistor (sinking))
B: With total run time monitor and undervoltage alarm (transistor (sinking))
AP: With maintenance forecast monitor and undervoltage alarm (transistor (sourcing))
BP: With total run time monitor and undervoltage alarm (transistor (sourcing))

Ordering Information

Power ratings	Input Voltage	Output voltage	Output current	Alarm output	Model number
15 W	100 to 240 VAC	5 V	2.0 A	---	S8VS-01505 (See note 1.)
		12 V	1.2 A		S8VS-01512
		24 V	0.65 A		S8VS-01524
30 W		5 V	4.0 A	---	S8VS-03005 (See note 2.)
		12 V	2.5 A		S8VS-03012
		24 V	1.3 A		S8VS-03024
60 W		24 V	2.5 A	---	S8VS-06024
					S8VS-06024A
					S8VS-06024B
90 W			3.75 A	---	S8VS-09024
				Sinking	S8VS-09024A
				Sourcing	S8VS-09024AP
				Sinking	S8VS-09024B
				Sourcing	S8VS-09024BP
120 W			5 A	---	S8VS-12024
				Sinking	S8VS-12024A
				Sourcing	S8VS-12024AP
				Sinking	S8VS-12024B
				Sourcing	S8VS-12024BP
180 W			7.5 A	---	S8VS-18024
				Sinking	S8VS-18024A
				Sourcing	S8VS-18024AP
				Sinking	S8VS-18024B
				Sourcing	S8VS-18024BP
240 W			10 A	---	S8VS-24024
				Sinking	S8VS-24024A
				Sourcing	S8VS-24024AP
				Sinking	S8VS-24024B
				Sourcing	S8VS-24024BP

Note: 1. The output capacity of the S8VS-01505 is 10 W.
2. The output capacity of the S8VS-03005 is 20 W.

Specifications

■ Ratings/Characteristics

Item		Power ratings / Type	15 W Standard	30 W Standard
Efficiency (typical)		5-V models	72% min. (76% typ.)	70% min. (76% typ.)
		12-V models	74% min. (79% typ.)	76% min. (83% typ.)
		24-V models	77% min. (81% typ.)	80% min. (85% typ.)
Input	Voltage		100 to 240 VAC (85 to 264 VAC)	
	Frequency		50/60 Hz (47 to 450 Hz)	
	Current	100 V input	0.45 A max.	0.9 A max.
		200 V input	0.25 A max.	0.6 A max.
		230 V input	5 V: (0.14 A typ.), 12 V/24 V (0.19 A typ.)	5 V: (0.27 A typ.), 12 V/24 V (0.37 A typ.)
	Power factor		---	
	Harmonic current emissions		Conforms to EN61000-3-2	
	Leakage current	100 V input	0.5 mA max.	
		200 V input	1.0 mA max.	
		230 V input	5 V/12 V/24 V: (0.30 mA typ.)	5 V/12 V/24 V:(0.32 mA typ.)
	Inrush current (See note 1.)	100 V input	25 A max. (20 A typ.) (for a cold start at 25°C)	
		200 V input	50 A max. (40 A typ.) (for a cold start at 25°C)	
		230 V input	5 V/12 V/24 V: (29 A typ.) (See note 6.)	5 V/12 V/24 V: (40 A typ.) (See note 6.)
Output	Voltage adjustment range (See note 2.)		−10% to 15% (with V.ADJ) (guaranteed)	
	Ripple		2.0% (p-p) max. (at rated input/output voltage)	
		f=20MHz measuring	5 V: (0.70%(p-p) typ.), 12 V:(0.48%(p-p) typ.), 24 V:(0.25%(p-p) typ.)	5 V: (0.70%(p-p) typ.), 12 V:(0.52%(p-p) typ.), 24 V:(0.19%(p-p) typ.)
		f=100MHz measuring	5 V: (0.86%(p-p) typ.), 12 V:(0.56%(p-p) typ.), 24 V:(0.32%(p-p) typ.)	5 V: (0.80%(p-p) typ.), 12 V:(0.58%(p-p) typ.), 24 V:(0.21%(p-p) typ.)
	Input variation influence		0.5% max. (at 85 to 264 VAC input, 100% load)	
	Load variation influence (rated input voltage)		2.0% max. (5 V), 1.5% max. (12 V, 24 V), (with rated input, 0 to 100% load)	
	Temperature variation influence		0.05%/°C max.	
	Start up time (See note 1 and 7.)		100 ms max. (at rated input/output voltage)	1,000 ms max. (at rated input/output voltage)
			5 V: (6 ms typ.), 12 V: (12 ms typ.), 24 V: (18 ms typ.)	5 V/12 V/24 V: (240 ms typ.)
	Hold time (See note 1.)		20 ms min. (at rated input/output voltage)	
		at 100% load	5 V: (328 ms typ.), 12V: (251 ms typ.), 24 V: (243 ms typ.)	5 V: (299 ms typ.), 12 V: (217 ms typ.), 24 V: (210 ms typ.)
Additional functions	Overload protection (See note 1.)		105% to 160% of rated load current, voltage drop, automatic reset	105% to 160% of rated load current, voltage drop, intermittent operation, automatic reset
	Overvoltage protection (See note 1.)		Yes (a zener diode clamp) (See note 3.)	Yes (See note 4.)
	Output voltage indication		No	
	Output current indication		No	
	Peak-hold current indication		No	
	Maintenance forecast monitor indication		No	
	Maintenance forecast monitor output		No	
	Total run time monitor indication		No	
	Total run time monitor output		No	
	Undervoltage alarm indication		Yes (color: red)	
	Undervoltage alarm output		No	
	Parallel operation		No	
	Series operation		Models with 24-V output: Possible for up to 2 Power Supplies (with external diode) Models with 5- or 12-V output: Not possible	
Other	Operating ambient temperature		Refer to the derating curve in *Engineering Data*. (with no icing or condensation)	
	Storage temperature		−25 to 65°C	
	Operating ambient humidity		25% to 85% (Storage humidity: 25% to 90%)	
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs and PE terminals; detection current: 20 mA)	
	Insulation resistance		100 MΩ min. (between all outputs and all inputs/ PE terminals) at 500 VDC	
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions	
			10 to 150 Hz, 0.35-mm single amplitude (5 G max.) for 80 min. each in X, Y, and Z directions	
	Shock resistance		150 m/s², 3 times each in ±X, ±Y, and ±Z directions	
	Output indicator		Yes (color: green)	
	EMI	Conducted Emissions	Conforms to EN61204-3 EN55011 Class B and based on FCC Class A	
		Radiated Emissions	Conforms to EN61204-3 EN55011 Class B	
	EMS		Conforms to EN61204-3 high severity levels	
	Approved standards		UL: UL508 (Listing, Class 2: Per UL1310), UL60950-1, UL1604 (Class I/Division2) cUL: CSA C22.2 No.14 (Class 2), No.60950-1, No.213 (Class I/Division2) EN/VDE: EN50178 (=VDE0160), EN60950-1 (=VDE0805) SELV (EN60950/EN50178/UL60950-1) According to VDE0106/P100, IP20	
	Weight		160 g max.	180 g max.

Note:
1. Refer to the *Engineering Data* section on page B-21 for details.
2. If the V.ADJ adjuster is turned, the voltage will increase by more than +15% of the voltage adjustment range. When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
3. The overvoltage protection of the S8VS-015□□ uses a zener diode clamp. If the internal feedback circuit is destroyed by any chance, the load may be destroyed by the clamped output voltage (approx. 140% to 190% of the rated output voltage).
4. To reset the protection, turn OFF the power supply for three minutes or longer and then turn the power supply back ON.
5. The typical values indicate the values for an input condition of 230 VAC. All items are measured at a frequency of 50 Hz.
6. The inrush current circuits do not differ for voltage specifications. Therefore, the typical values are the data values for 24-V models.
7. The circuit forms are different, so the start up time is shorter only when using a 15-W power rating.

Specifications

■ Ratings/Characteristics

Item			Power ratings / Type	60 W			90 W		
				Standard	Maintenance forecast monitor	Total run time monitor	Standard	Maintenance forecast monitor	Total run time monitor
Efficiency (typical)				78% min. (86% typ.)			80% min. (87% typ.)		
Input	Voltage			100 to 240 VAC (85 to 264 VAC)					
	Frequency			50/60 Hz (47 to 450 Hz)					
	Current	100 V input		1.7 A max.			2.3 A max.		
		200 V input		1.0 A max.			1.4 A max.		
		230 V input		(0.7 A typ.)			(0.9 A typ.)		
	Power factor			---					
	Harmonic current emissions			Conforms to EN61000-3-2					
	Leakage current	100 V input		0.5 mA max.					
		200 V input		1.0 mA max.					
		230 V input		(0.40 mA typ.)			(0.35 mA typ.)		
	Inrush current (See note 1.)	100 V input		25 A max. (for a cold start at 25°C)					
		200 V input		50 A max. (for a cold start at 25°C)					
		230 V input		(47 A typ.)			(38 A typ.)		
Output	Voltage adjustment range (See note 2.)			–10% to 15% (with V.ADJ) (guaranteed)					
	Ripple			2.0% (p-p) max. (at rated input/output voltage)					
		f=20MHz measuring		(0.29% (p-p) typ.)			(0.38% (p-p) typ.)		
		f=100MHz measuring		(0.32% (p-p) typ.)			(0.42% (p-p) typ.)		
	Input variation influence			0.5% max. (at 85 to 264 VAC input, 100% load)					
	Load variation influence (rated input voltage)			1.5% max. (with rated input, 0 to 100% load)					
	Temperature variation influence			0.05%/°C max.					
	Start up time (See note 1.)			1,000 ms max. (at rated input/output voltage)					
				(270 ms typ.)			(260 ms typ.)		
	Hold time (See note 1.)			20 ms min. (at rated input/output voltage)					
		at 100% load		(220 ms typ.)			(190 ms typ.)		
Additional functions	Overload protection (See note 1.)			105% to 160% of rated load current, voltage drop, intermittent, automatic reset					
	Overvoltage protection (See notes 1 and 3.)			Yes					
	Output voltage indication (See note 4.)			No	Yes (selectable) (See note 5.)		No	Yes (selectable) (See note 5.)	
	Output current indication (See note 4.)			No	Yes (selectable) (See note 6.)		No	Yes (selectable) (See note 6.)	
	Peak-hold current indication (See note 4.)			No	Yes (selectable) (See note 7.)		No	Yes (selectable) (See note 7.)	
	Maintenance forecast monitor indication (See note 4.)			No	Yes (selectable)	No	No	Yes (selectable)	No
	Maintenance forecast monitor output			No				Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No
	Total run time monitor indication (See note 4.)			No		Yes (selectable)	No		Yes (selectable)
	Total run time monitor output			No					Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)
	Undervoltage alarm indication (See note 4.)			No	Yes (selectable)		No	Yes (selectable)	
	Undervoltage alarm output terminals			No				Yes (open collector output) 30 VDC max., 50 mA max. (See note 8.)	
	Parallel operation			No					
	Series operation			Yes for up to 2 Power Supplies (with external diode)					
Other	Operating ambient temperature			Refer to the derating curve in *Engineering Data*. (with no icing or condensation)					
	Storage temperature			–25 to 65°C					
	Operating ambient humidity			25% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength			3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current: 20 mA) 500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA)					
	Insulation resistance			100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC					
	Vibration resistance			10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions					
				10 to 150Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in-X, Y, and Z directions					
	Shock resistance			150 m/s², 3 times each in ±X, ±Y, and ±Z directions					
	Output indicator			Yes (color: green)					
	EMI	Conducted Emissions		Conforms to EN61204-3 EN55011 Class A and based on FCC Class A Conforms to EN61204-3 EN55011 Class B (See note 9.)					
		Radiated Emissions		Conforms to EN61204-3 EN55011 Class A Conforms to EN61204-3 EN55011 Class B (See note 9.)					
	EMS			Conforms to EN61204-3 high severity levels					
	Approved standards			UL: UL508 (Listing, Class 2: Per UL1310), UL60950 cUL: CSA C22.2 No.14 (Class 2), No.60950 EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0805) SELV (EN60950/EN50178/UL60950-1) According to VDE0106/P100, IP20			UL: UL508 (Listing), UL60950 cUL: CSA C22.2 No.14, No.60950 EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0805) SELV (EN60950/EN50178/UL60950-1) According to VDE0106/P100, IP20	
	Weight			330 g max.			490 g max.		

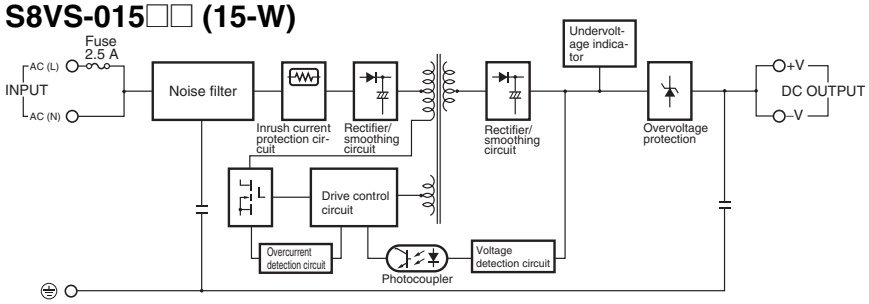
Note:
1. Refer to the *Engineering Data* section on page B-21 for details.
2. If the V.ADJ adjuster is turned, the voltage will increase by more than +15% of the voltage adjustment range (by more than +10% for 240-W models). When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
3. To reset the protection, turn OFF the power supply for three minutes or longer and then turn the power supply back ON.
4. Displayed on 7-segment LED. (character height: 8 mm)
5. Resolution of output voltage indication: 0.1 V, Precision of output voltage indication: ±2% (percentage of output voltage value, ±1 digit)
6. Resolution of output current indication: 0.1 A; Precision of output current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage)
7. Resolution of peak-hold current indication: 0.1 A; Precision of peak-hold current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage); Signal width required for peak-hold current: 20 ms
8. A Type and B Type: Sinking, AP Type and P Type: Sourcing
9. To ensure the emission rating, a ferrite ring core should be used in all cabling (TDK HF60T, HF70RH or equivalent model).
10. The typical values indicate the values for an input condition of 230 VAC. All items are measured at a frequency of 50 Hz.

Item			Power ratings	120 W			180 W			240 W		
			Type	Standard	Maintenance forecast monitor	Total run time monitor	Standard	Maintenance forecast monitor	Total run time monitor	Standard	Maintenance forecast monitor	Total run time monitor
Efficiency (typical)				80% min. (87% typ.)			80% min. (88% typ.)			80% min. (86% typ.)		
Input	**Voltage**			100 to 240 VAC (85 to 264 VAC)								
	Frequency			50/60 Hz (47 to 63 Hz)								
	Current	**100 V input**		1.9 A max.			2.9 A max.			3.8 A max.		
		200 V input		1.1 A max.			1.6 A max.			2.0 A max.		
		230 V input		(0.6 A typ.)			(0.9 A typ.)			(1.2 A typ.)		
	Power factor			0.95 min.								
	Harmonic current emissions			Conforms to EN61000-3-2								
	Leakage current	**100 V input**		0.5 mA max.								
		200 V input		1.0 mA max.								
		230 V input		(0.43 mA typ.)			(0.45 mA typ.)			(0.45 mA typ.)		
	Inrush current (See note 1.)	**100 V input**		25 A max. (for a cold start at 25°C)								
		200 V input		50 A max. (for a cold start at 25°C)								
		230 V input		(41 mA typ.)			(34 mA typ.)			(39 mA typ.)		
Output	**Voltage adjustment range (See note 2.)**			−10% to 15% (with V.ADJ) (guaranteed)						±10% (with V.ADJ) (guaranteed)		
	Ripple			2.0% (p-p) max. (at rated input/output voltage)								
		f=20MHz measuring		(0.66%(p-p) typ.)			(0.45%(p-p) typ.)			(0.13%(p-p) typ.)		
		f=100MHz measuring		(0.67%(p-p) typ.)			(0.52%(p-p) typ.)			(0.21%(p-p) typ.)		
	Input variation influence			0.5% max. (at 85 to 264 VAC input, 100% load)								
	Load variation influence (rated input voltage)			1.5% max. (with rated input, 0 to 100% load)								
	Temperature variation influence			0.05%/°C max.								
	Start up time (See note 1.)			1,000 ms max. (at rated input/output voltage)								
				(380 ms typ.)			(530 ms typ.)			(780 ms typ.)		
	Hold time (See note 1.)			20 ms min. (at rated input/output voltage)								
		at 100% load		(60 ms typ.)			(60 ms typ.)			(30 ms typ.)		
Additional functions	**Overload protection (See note 1.)**			105% to 160% of rated load current, voltage drop, intermittent, automatic reset							105% to 160% of rated load current, voltage drop, automatic reset	
	Overvoltage protection (See notes 1 and 3.)			Yes								
	Output voltage indication (See note 4.)			No	Yes (selectable) (See note 5.)		No	Yes (selectable) (See note 5.)		No	Yes (selectable) (See note 5.)	
	Output current indication (See note 4.)			No	Yes (selectable) (See note 6.)		No	Yes (selectable) (See note 6.)		No	Yes (selectable) (See note 6.)	
	Peak-hold current indication (See note 4.)			No	Yes (selectable) (See note 7.)		No	Yes (selectable) (See note 7.)		No	Yes (selectable) (See note 7.)	
	Maintenance forecast monitor indication (See note 4.)			No	Yes (selectable)	No	No	Yes (selectable)	No	No	Yes (selectable)	No
	Maintenance forecast monitor output			No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No	No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No	No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No
	Total run time monitor indication (See note 4.)			No		Yes (selectable)	No		Yes (selectable)	No		Yes (selectable)
	Total run time monitor output			No		Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No		Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	No		Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)
	Undervoltage alarm indication (See note 4.)			No	Yes (selectable)		No	Yes (selectable)		No	Yes (selectable)	
	Undervoltage alarm output terminals			No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)		No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)		No	Yes (open collector output), 30 VDC max., 50 mA max. (See note 8.)	
	Parallel operation			No								
	Series operation			Yes for up to 2 Power Supplies (with external diode)								
Other	**Operating ambient temperature**			Refer to the derating curve in *Engineering Data*. (with no icing or condensation)								
	Storage temperature			−25 to 65°C								
	Operating ambient humidity			25% to 85% (Storage humidity: 25% to 90%)								
	Dielectric strength			3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current: 20 mA) 500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA)								
	Insulation resistance			100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC								
	Vibration resistance			10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions								
				10 to 150Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in-X, Y, and Z directions								
	Shock resistance			150 m/s^2, 3 times each in ±X, ±Y, and ±Z directions								
	Output indicator			Yes (color: green)								
	EMI	**Conducted Emissions**		Conforms to EN61204-3 EN55011 Class A and based on FCC Class A Conforms to EN61204-3 EN55011 Class B (See note 9.)								
		Radiated Emissions		Conforms to EN61204-3 EN55011 Class A Conforms to EN61204-3 EN55011 Class B (See note 9.)								
	EMS			Conforms to EN61204-3 high severity levels								
	Approved standards			UL: UL508 (Listing), UL60950 cUL: CSA C22.2 No.14, No.60950 EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0805) SELV (EN60950/UL50178/UL60950-1) According to VDE0106/P100, IP20								
	Weight			550 g max.			850 g max.			1,150 g max.		

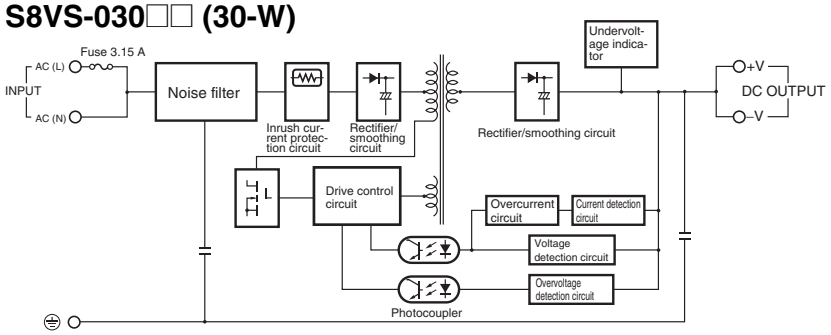
Connections

■ Block Diagrams

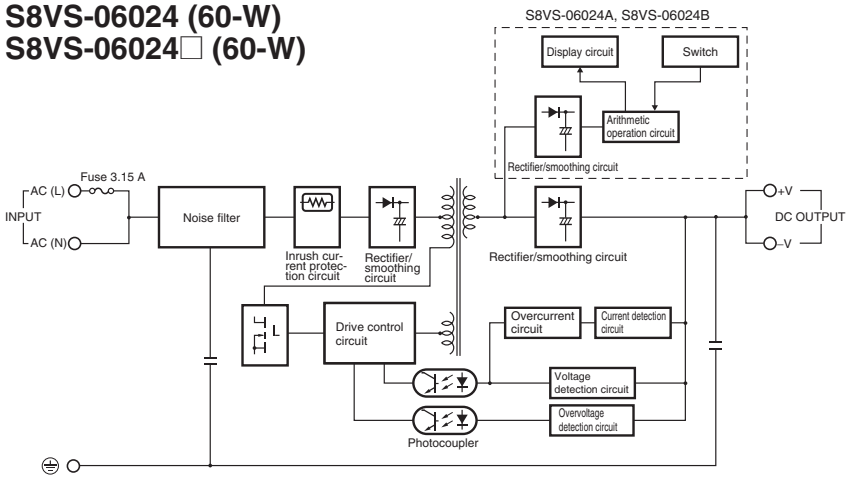
S8VS-015□□ (15-W)



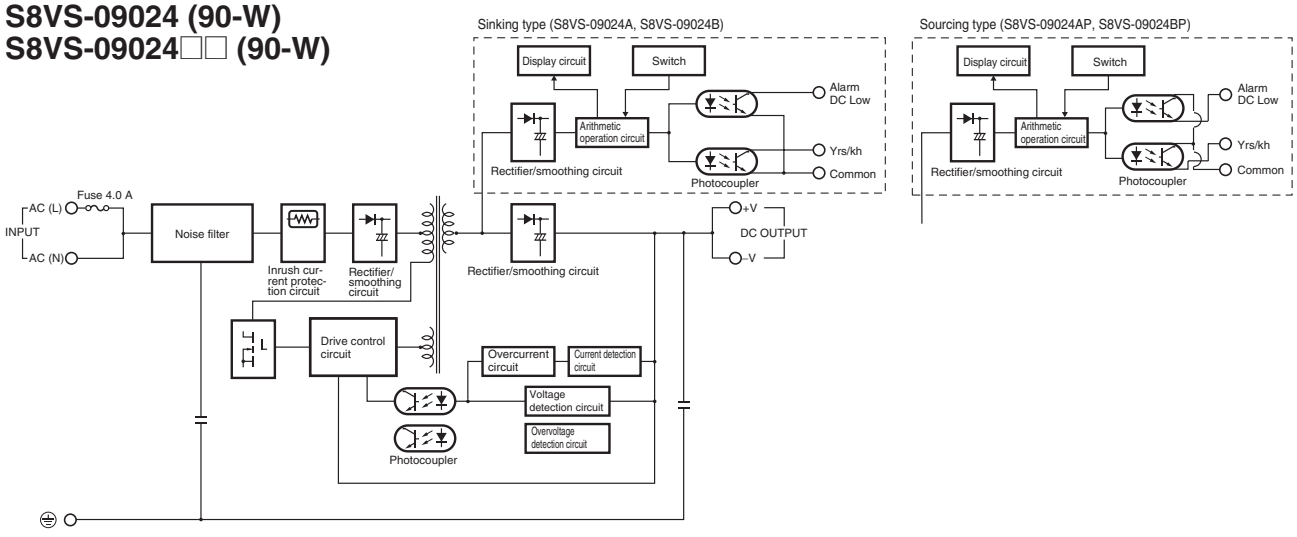
S8VS-030□□ (30-W)



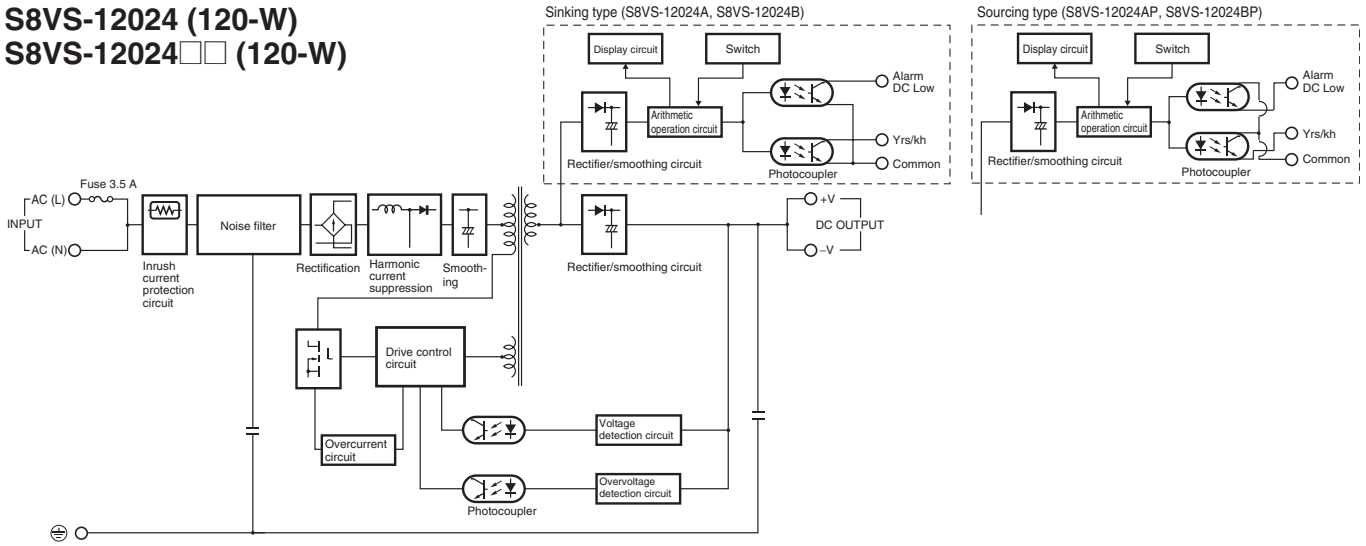
S8VS-06024 (60-W)
S8VS-06024□ (60-W)



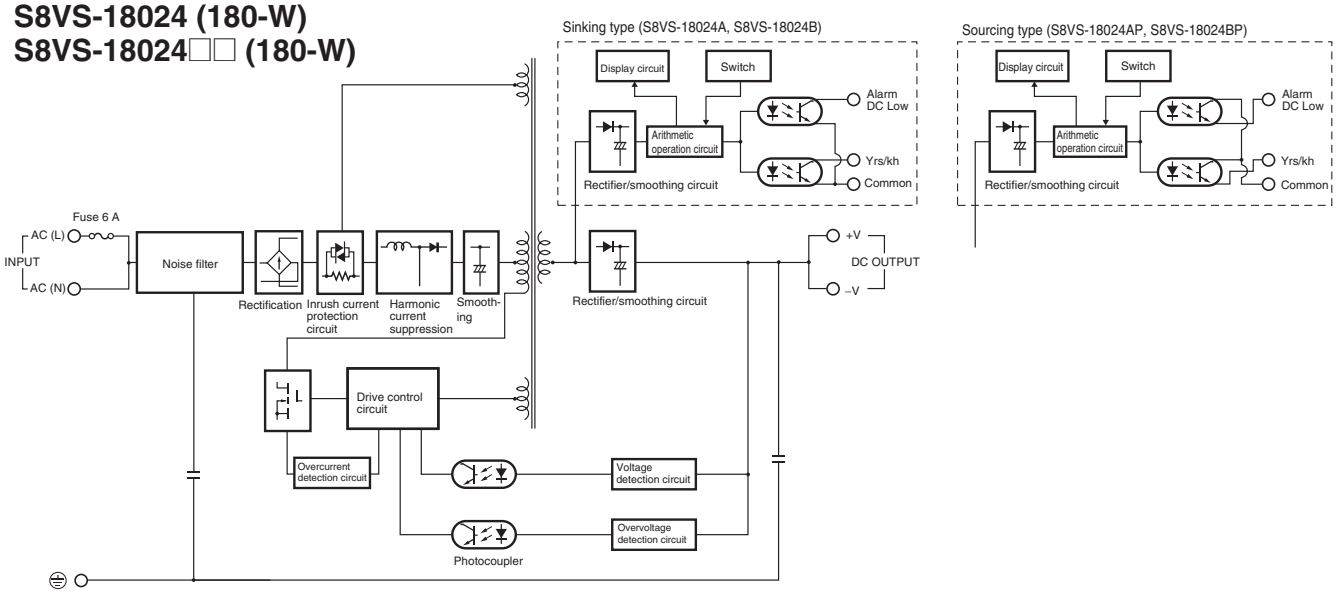
S8VS-09024 (90-W)
S8VS-09024□□ (90-W)



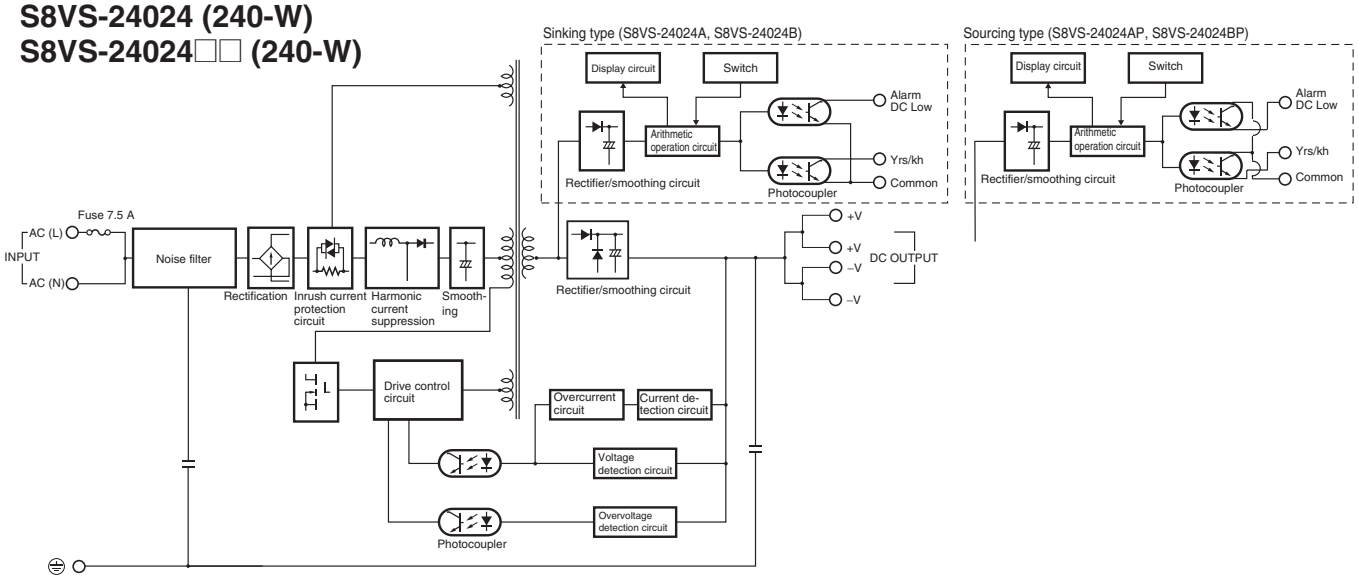
S8VS-12024 (120-W)
S8VS-12024□□ (120-W)



S8VS-18024 (180-W)
S8VS-18024□□ (180-W)



S8VS-24024 (240-W)
S8VS-24024□□ (240-W)

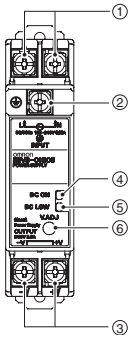


Construction and Nomenclature (15-W, 30-W Models)

■ Nomenclature

15-W, 30-W Models

S8VS-015□□/S8VS-030□□



No.	Name	Function
1	AC Input terminals (L), (N)	Connect the input lines to these terminals. (See note 1.)
2	Protective Earth terminal (PE)	Connect the ground line to this terminal. (See note 2.)
3	DC Output terminals (–V), (+V)	Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)	Lights while a direct current (DC) output is ON.
5	Undervoltage indicator (DC LOW: Red)	Lights when a drop is detected in the output voltage.
6	Output voltage adjuster (V.ADJ)	Use to adjust the voltage.

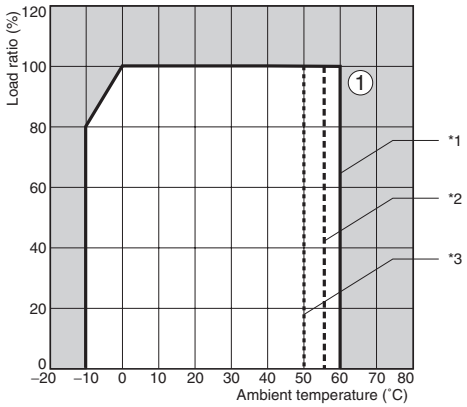
Note: 1. The fuse is located on the (L) side. It is NOT user-replaceable.
2. This is the protective earth terminal specified in the safety standards. Always ground this terminal.

Note: The S8VS-01505 is shown above.

Engineering Data (15-W, 30-W Models)

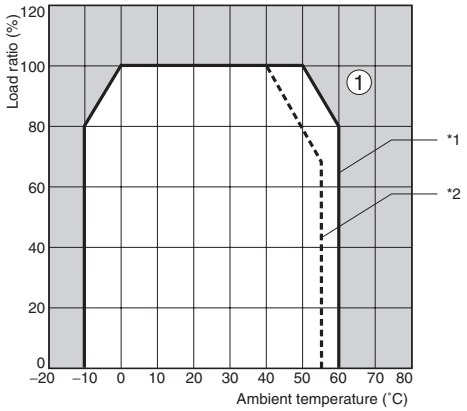
■ Derating Curve

S8VS-015□□



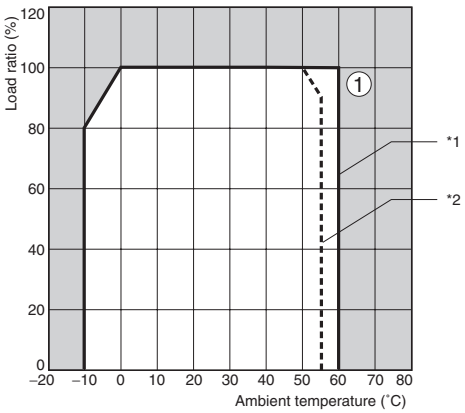
1* Standard mounting
2* Horizontal mounting
3* Mounting facing horizontally

S8VS-03005/S8VS-03012



1* Standard mounting
2* Horizontal mounting/mounting facing horizontally

S8VS-03024

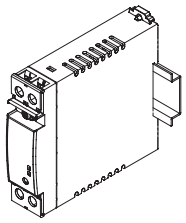


1* Standard mounting
2* Horizontal mounting/mounting facing horizontally

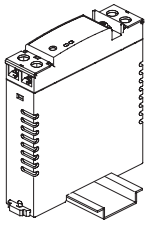
Note: 1. Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading ① in the above graph).
2. If there is a derating problem, use forced air-cooling.
3. Provide a space of at least 20 mm when using standard mounting and horizontal mounting. If 20 mm is not available, make sure that the space is at least 10 mm. In this case, reduce the corresponding derating curve by 5°C.
4. When mounting Power Supplies facing horizontally in a vertical stack, provide a space of at least 75 mm in between the Power Supplies. If 75 mm is not available, reduce the corresponding derating curve by 1°C for every 5-mm reduction in space. A space of at least 25 mm, however, must be provided. In this case, reduce the corresponding derating curve by 10°C.

■ Mounting

Standard mounting with DIN-rail

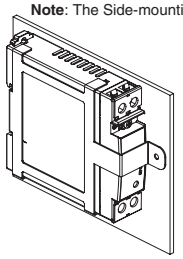


Horizontal mounting with DIN-rail

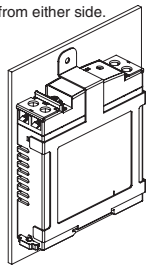


Standard mounting with S82Y-VS30P

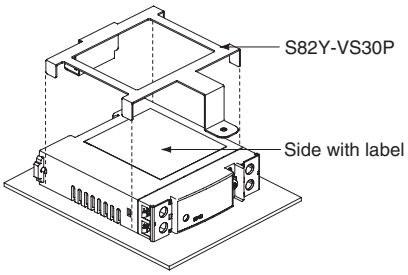
Note: The Side-mounting Bracket can be mounted from either side.



Horizontal mounting with S82Y-VS30P



Mounting facing horizontally with S82Y-VS30P



Note: 1. Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the product within the derating curve for the mounting direction that is used. Do not use the Power Supply mounted in any way not shown above.

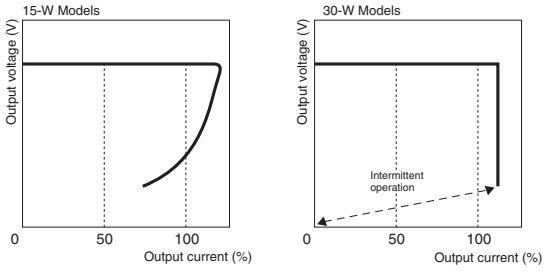
2. Use a mounting bracket (S82Y-VS30P, sold separately) when the Product is mounted facing horizontally.

3. Heat dissipation will be adversely affected. When the Product is mounted facing horizontally, always place the side with the label facing upward.

4. Use PFP-M End Plates on the top and bottom of the Power Supply when mounting facing horizontally on a DIN-rail.

■ Overload Protection

The Power Supply is provided with an overload protection function that protects the power supply from possible damage by overcurrent. When the output current rises above 105% min. of the rated current, the protection function is triggered, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.



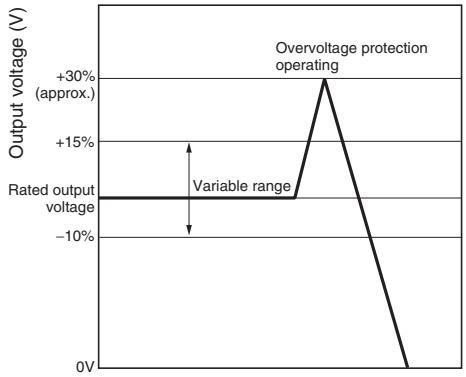
The values shown in the above diagrams are for reference only.

Note: 1. Internal parts may occasionally deteriorate or be damaged if a short-circuited or overcurrent state continues during operation.

2. 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.

■ 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 more is output, the output voltage is shut OFF. Reset the Power Supply by turning it OFF for at least three minutes and then turning it back ON again.

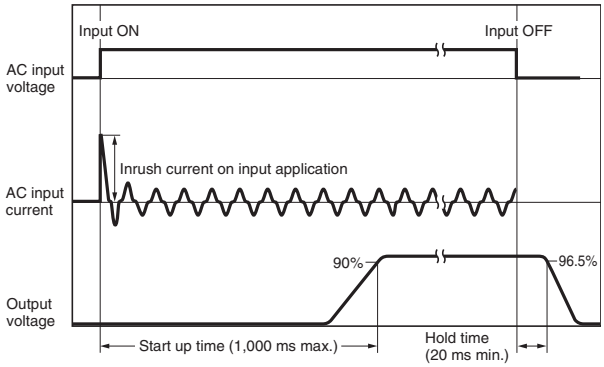


The values shown in the above diagram is for reference only.

Note: 1. Do not turn ON the power again until the cause of the overvoltage has been removed.

2. The overvoltage protection of the S8VS-015□□ uses a zener diode clamp. The output voltage will be clamped at approx. 140% or higher of the rated output voltage (approx. 140% to 190%). If the internal feedback circuit is destroyed by any chance, the load may be destroyed by the clamped output voltage (approx. 140% to 190% of the rated output voltage). The power Supply will not restart if the output is turned OFF by the overvoltage protection operation. If this occurs, replace the Power Supply.

■ Inrush Current, Start Up Time, Output Hold Time



■ Undervoltage Alarm Indication

LED (DC LOW red) lights to warn of output voltage drop.

Detection voltage is set to approx. 80% (75 to 90%) of the rated output voltage.

Note: This function monitors the voltage at the power supply output terminals. To check actual voltage, measure voltage on the load side.

■ Reference Values

Item	Value
Reliability (MTBF)	15 W: 610,800 hrs, 30 W: 656,400 hrs
Life expectancy	10 yrs. min.

Note: Refer to page B-19 for definitions of MTBF and life expectancy.

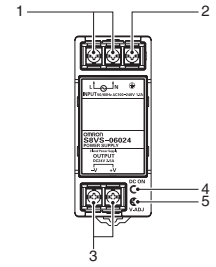
Construction and Nomenclature (60-W, 90-W, 120-W, 180-W, and 240-W Models)

■ Nomenclature

60-W Models

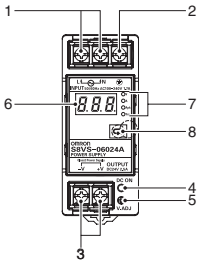
Standard Model

S8VS-06024



Models with Display Monitor

S8VS-06024□

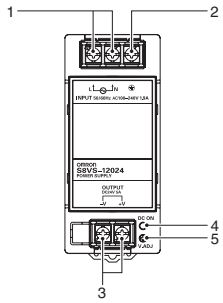


Note: The S8VS-06024A is shown above.

90-W/120-W Models

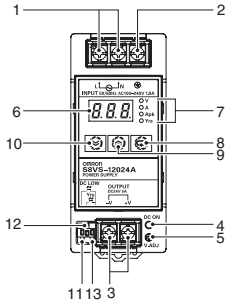
Standard Models

S8VS-09024/S8VS-12024



Models with Display Monitor

S8VS-09024□□/S8VS-12024□□

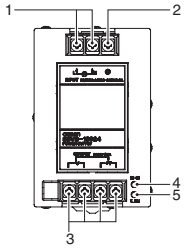


Note: The S8VS-12024A is shown above.

180-W Models

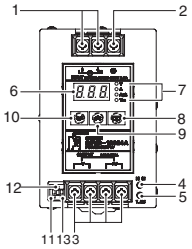
Standard Model

S8VS-18024



Models with Display Monitor

S8VS-18024□□

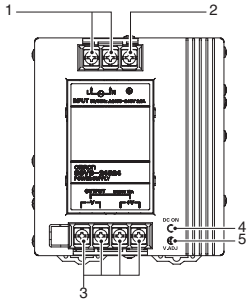


Note: The S8VS-18024A is shown above.

240-W Models

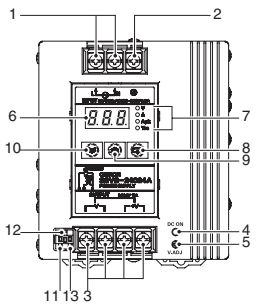
Standard Model

S8VS-24024



Models with Display Monitor

S8VS-24024□□



Note: The S8VS-24024A is shown above.

No.	Name		Function
1	AC Input terminals (L), (N)		Connect the input lines to these terminals. (See note 1.)
2	Protective Earth terminal (PE)		Connect the ground line to this terminal. (See note 2.)
3	DC Output terminals (–V), (+V)		Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)		Lights while a direct current (DC) output is ON.
5	Output voltage adjuster (V.ADJ)		Use to adjust the voltage.
6	Main display (Red) (See note 3.)		Indicates the measurement or set value.
7	Operation indicator (Orange) (See note 3.)	V	Lights up when the output voltage is indicated. Blinks during setup of undervoltage alarm value.
		A	Lights up during indication of output current.
		Apk	Lights up during indication of peak hold current.
		Yrs	Lights up during indication of maintenance forecast monitor. Blinks during setup of maintenance forecast monitor setting. (S8VS-□□□24A□)
		kh	Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS-□□□24B□)
8	Mode Key (See note 3.)		Use the Mode Key to change the indicated parameter or reset the peak hold current value.
9	Up Key (See note 4.)		Use the Up Key to change to the setting mode or to increase the set value.
10	Down Key (See note 4.)		Use the Down Key to change to the setting mode or to decrease the set value.
11	Alarm outputs (See notes 4 and 5.)	Undervoltage output terminal (DC Low)	Output when a drop is detected in the output voltage (voltage drop = transistor OFF).
12		Maintenance Forecast output terminal (Yrs) (See note 6.)	Output when the set value for maintenance is reached (transistor OFF).
		Total run time output terminal (kh) (See note 7.)	Output when the set value for total run time is reached (transistor OFF).
13		Common terminal	Common terminal (emitter) for terminals 11 and 12.

Note: 1. The fuse is located on the (L) side. It is NOT user-replaceable.

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

3. S8VS-□□□24□□ only.

4. S8VS-□□□24□□ only (excluding S8VS-06024□).

5. Both sinking and sourcing outputs are available.

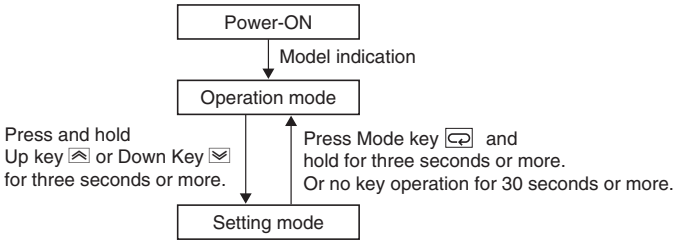
6. S8VS-□□□24A□ only (excluding S8VS-06024A).

7. S8VS-□□□24B□ only (excluding S8VS-06024B).

Engineering Data (S8VS-□□□24□□ Only)

■ Mode Change

S8VS-□□□24A□ Models (with display monitor) can display the output voltage, output current, peak hold current, or maintenance forecast monitor time. S8VS-□□□24B□ Models (with display monitor) can display the output voltage, output current, peak hold current, or total run time.

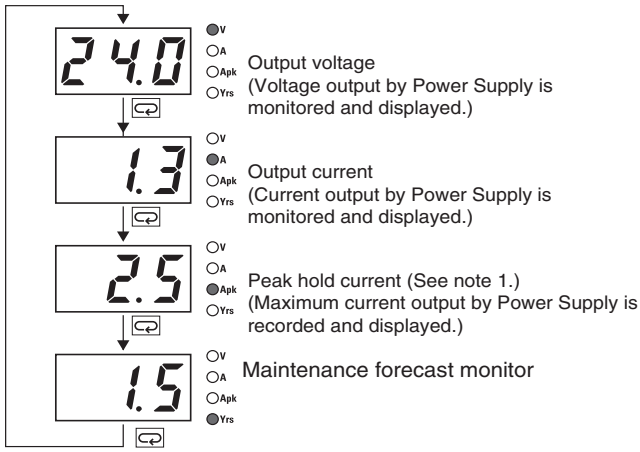


Note: No setting mode is provided for the S8VS-06024□.

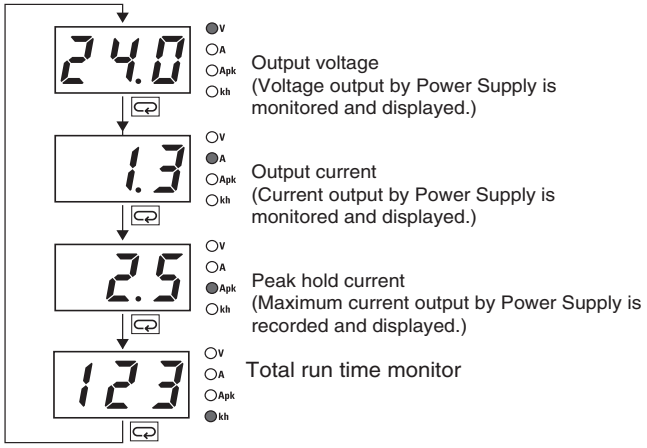
■ Operation Mode

Various states of the Power Supply are indicated.

Models with Maintenance Forecast Monitor (S8VS-□□□24A□)



Models with Total Run Time Monitor (S8VS-□□□24B□)



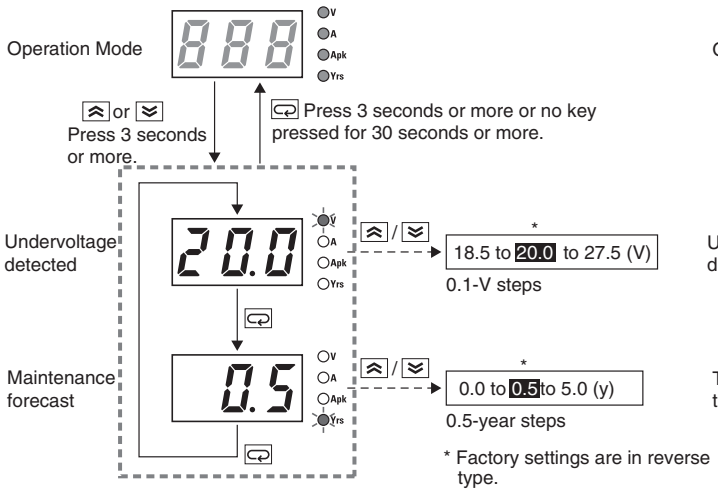
Note: 1. The peak hold current starts measuring the current 3 seconds after the Power Supply is started. Inrush current is thus not measured.

2. For the factory setting, the output voltage will be displayed when the power supply is first turned ON. Thereafter, the output voltage will be indicated in the same display when shutting down.

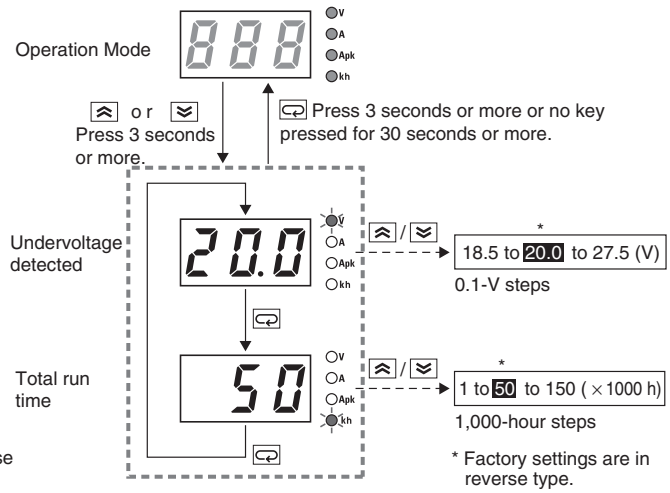
■ Setting Mode (Except for S8VS-06024□)

Set various parameters of the Power Supply.

Models with Maintenance Forecast Monitor (S8VS-□□□24A□)



Models with Total Run Time Monitor (S8VS-□□□24B□)

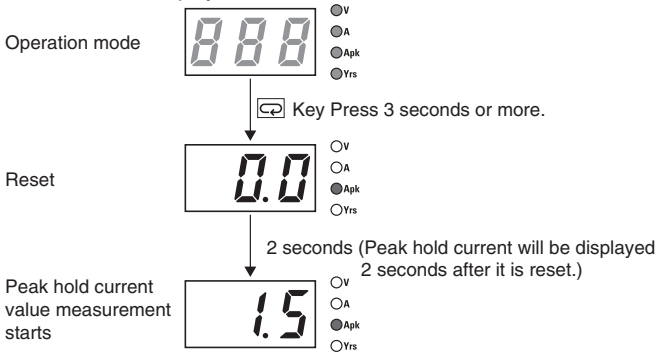


Note: 1. Press and hold the (9) Up Key or (10) Down Key for two seconds or more to increase or decrease the value rapidly.

2. The S8VS-06024□ is not provided with the setting mode and its parameters are fixed at the shipment setting.

■ Peak Hold Current Reset

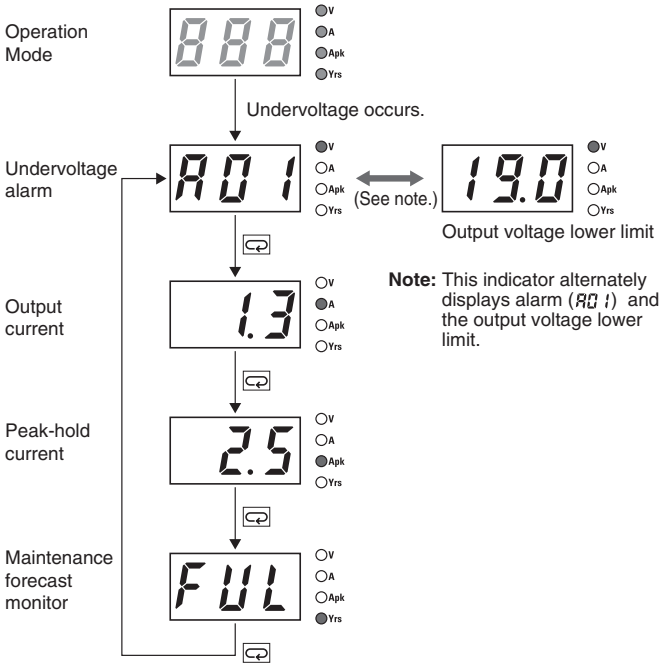
The peak value of the output current (i.e., the peak hold current) can be reset on the display.



Note: The peak hold current value is not reset in the setting mode.

■ Undervoltage Alarm Indication

This indicator lights when the output voltage is insufficient.



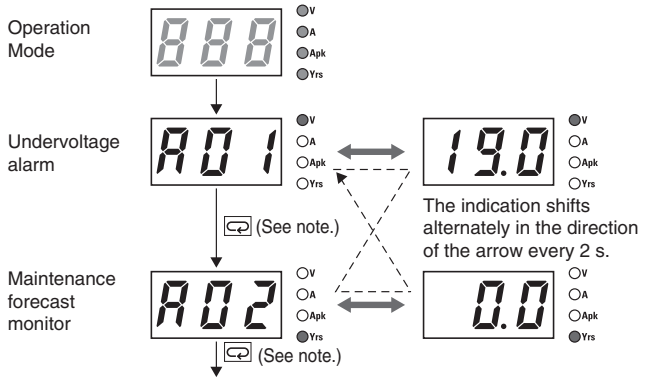
Note: This indicator alternately displays alarm (A01) and the output voltage lower limit.

Note: 1. The display changes to the output voltage display when the voltage is restored to the set value or higher.

2. The above displays are for models with a maintenance forecast monitor (S8VS-□□□24A□).

■ Multiple Alarms

When two or more different alarms occur at the same time



Note: 1. When undervoltage alarm is indicated: Press → output load indication When the maintenance forecast monitor or overheat alarm is indicated: Press → undervoltage alarm indication

2. The above displays are for models with a maintenance forecast monitor (S8VS-□□□24A□).

■ Self-Diagnostics Function

Numbers in the following table indicate the number used in *Nomenclature* on pages B-12 and B-14.

(6) Main display	Description	Output status	Restoration method	Setting after restoration
- - -	Noise detected in voltage or current	No change	Automatic restoration	No change
Hot	Overheated	(12) Maintenance forecast output terminal (Yrs) turns OFF.	Automatic restoration	No change
E01	Undervoltage alarm set value memory error	(11) Undervoltage output terminal (DC LOW) turns OFF.	Press and hold the (9) Up Key ⩓ or (10) Down Key ⩔ for three seconds and check the set value of the corresponding point. The set value must return to the shipment setting	Shipment setting or value set in the setting mode again
E02	Memory error of alarm set value of maintenance forecast monitor or total run time monitor	(12) Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF.		
E03	Other memory error	(11) Undervoltage output terminal (DC LOW) turns OFF. (12) Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF.	Turn the AC input OFF then ON again. If the product is not reset, contact the dealer.	No change

Note: 1. External noise is probable as a cause of "- - -", "E01", "E02" and "E03" errors.

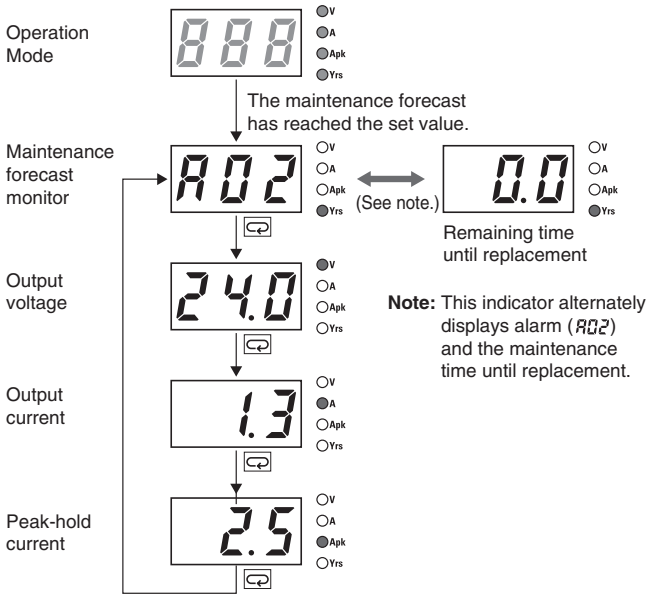
2. Operation out of the derating curve area, ventilation error, and incorrect mounting direction are probable as a cause of "Hot" error.

3. If the "Hot" error state continues for more than three hours, the maintenance forecast monitor function becomes invalid. The Yrs output ((12) Maintenance forecast output terminal (Yrs)) will remain OFF (no continuity between (12) Maintenance forecast output terminal (Yrs) and (13) Alarm output common terminal).
Replace the power supply if this condition occurs even if the output is correct, as internal parts may be deteriorated.

4. The "Hot" error detection function is only for the S8VS-□□□24A□.

■ Maintenance Forecast (S8VS-□□□24A□)

Displays when the maintenance forecast has reached the set value.



Note: This indicator alternately displays alarm (A02) and the maintenance time until replacement.

■ Indication and Output

When the product is purchased, "FUL" will be indicated. As electrolytic capacitors deteriorate, indication changes to "HLF". "FUL" will be indicated for the maintenance forecast display for approximately one month after the Power Supply is first turned ON. The accumulated value will then be displayed depending on the ambient conditions thereafter. (However, the "HLF" indication may not appear, depending on the usage environment and the set value for maintenance forecast.)

S8VS-06024A:
After the remaining time to maintenance is reduced to less than two years, indication automatically changes to a value, which decreases from " 1.5" to " 1.0" to "0.5" to "0.0" (year) as the running hours increase. If the remaining time becomes less than 0.5 year, an alarm (A02) and "0.0" are indicated alternately.

S8VS-09024A□/S8VS-12024A□,
S8VS-18024A□/S8VS-24024A□:
If the maintenance forecast setting L (which can be set arbitrarily from 0.0 to 5.0 years in 0.5-year steps) is set to a value larger than two years, the indication automatically changes to a value (L - 0.5) after the remaining time to maintenance is reduced to the set years, and an alarm (A02) and the remaining time are indicated alternately.

If the setting is less than 2.0 years, the indication changes to a value (1.5) after the remaining time becomes less than two years, and after the remaining time becomes less than the set time, an alarm (A02) and the remaining time (L - 0.5) are indicated alternately.

If the alarm (A02) and a numeric value are indicated alternately, a transistor ((12) maintenance forecast output terminal (Yrs)) will turn OFF to indicate the need for maintenance. (The transistor turns OFF when the maintenance forecast time is reached, i.e., there will be no continuity between (12) maintenance forecast output terminal (Yrs) and (13) alarm output common terminal.)

In the case that the remaining time is reduced to smaller than 0.5 year and an alarm is issued.

Note: 1. The remaining time to maintenance is based on continuous operation, not including the time when the power supply is turned OFF.

2. "FUL" will be indicated until approximately one month of time is accumulated to estimate the speed of deterioration and the output will remain ON (continuity between (12) maintenance forecast output terminal (Yrs) and (13) alarm output common terminal).

3. For details on the display, refer to *Relationship between Indication Value and Outputs of Set Value* under *Maintenance Forecast Monitor Function.*

■ Maintenance Forecast Monitor Function

The Power Supply is equipped with electrolytic capacitors.

The electrolyte inside the electrolytic capacitor penetrates the sealing rubber and evaporates as time passes since it is manufactured, which causes deterioration of characteristics such as decreasing the capacitance, etc.

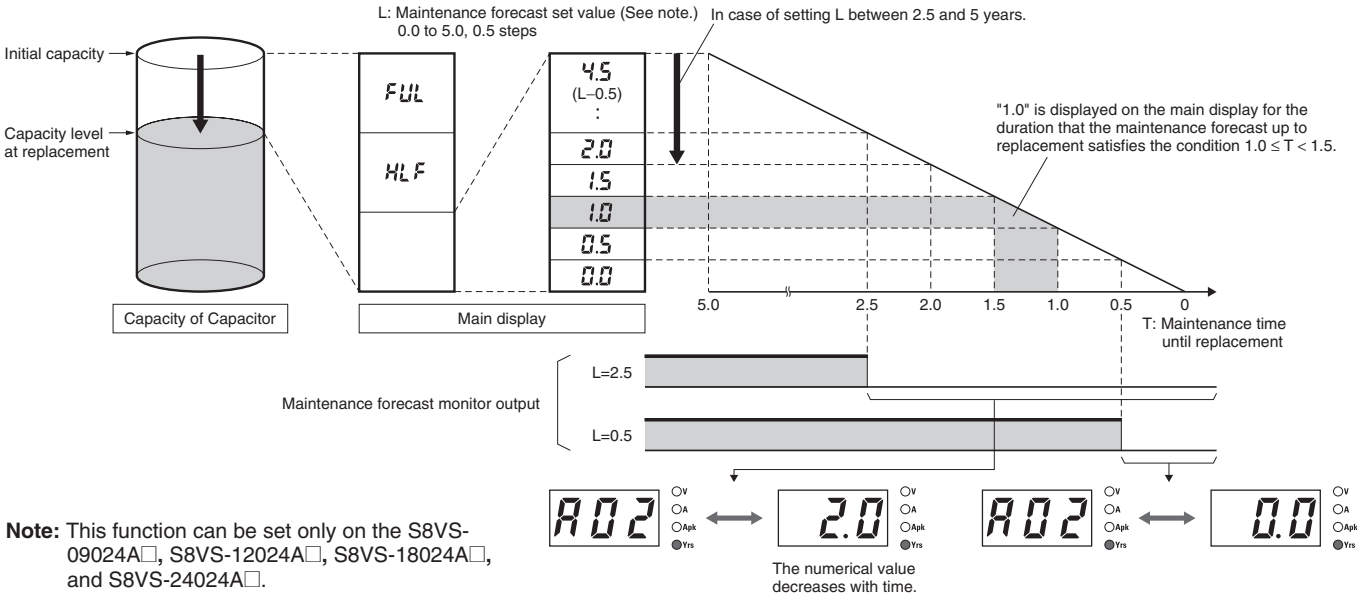
Due to this deterioration of the characteristics of the electrolytic capacitor, the Power Supply decreases its performance as time passes.

The maintenance forecast monitor function shows an approximate period left for maintenance of the Power Supply due to deterioration of electrolytic capacitors. When the period left for maintenance that the power supply forecasts reaches the set value, an alarm is indicated and an output signal is triggered.

Use this function to know the approximate replacement timing of the Power Supply.

Note: The maintenance forecast monitor function indicates an approximate period left for maintenance, based on deterioration of the electrolytic capacitor. It does not predict failures caused by other reasons.

Relationship between Indicated Values and Output of Set Values



Note: This function can be set only on the S8VS-09024A□, S8VS-12024A□, S8VS-18024A□, and S8VS-24024A□.

■ Principle of Operation

The deterioration speed of the electrolytic capacitor varies considerably according to the ambient temperature. (Generally the speed follows "Rule of Two for every 10°C"; for every 10°C increase in temperature the rate of degradation doubles according to Arrhenius's equation.) The S8VS-□□□24A□ monitors the temperature inside the power supply, and calculates the amount of deterioration according to the running hours and inside temperature. Judging by this amount of deterioration, the power supply will give the alarm indication and output when the period left for maintenance reaches the set value.

Note: 1. Due to degradation of internal electronic parts, replace the power supply approximately 15 years after purchase even if indication and output of maintenance forecast monitor are not issued.

2. The maintenance forecast is accelerated or decelerated according to operating conditions. Periodically check indication.

3. Acceleration or deceleration of the maintenance forecast may cause the output to repeatedly go ON/OFF.
Only the S8VS-09024A□, S8VS-12024A□, S8VS-18024A□, and S8VS-24024A□ are equipped with output.

4. The accuracy of the maintenance forecast function may be adversely affected by applications in which the AC input is frequently turned ON/OFF.

■ Reference Values

Reliability (MTBF)	Value		
	Standard types	• With Maintenance Forecast Monitor types • With Total Run Time Monitor types	
	60 W:	400,000 hrs,	230,000 hrs,
	90 W:	390,000 hrs,	200,000 hrs,
	120 W:	280,000 hrs,	190,000 hrs,
	180 W:	260,000 hrs,	180,000 hrs,
	240 W:	220,000 hrs,	160,000 hrs,
Definition	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent a life of the product.		
Life expectancy	10 yrs. min.		
Definition	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.		

Note: The maintenance forecast is the service life (the power supply's internal temperature is monitored at all times) of the internal electrolytic capacitor in actual operating conditions, and varies according to the customer's operating conditions. 15 years is taken as the maximum period of the maintenance forecast.

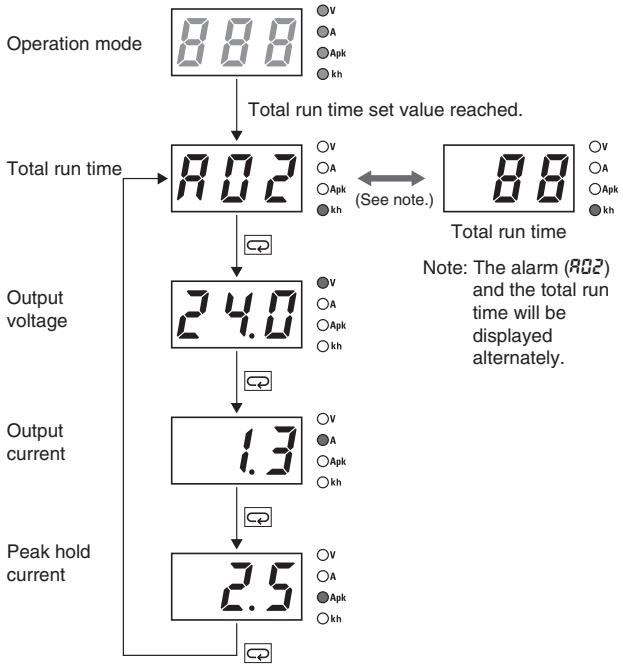
■ Models with Total Run Time Monitor (S8VS-□□□24B□)

S8VS-06024B

The accumulated value of the operating time of the Power Supply is displayed as the total run time. 0 (kh) will be displayed initially after purchase and then the display will advance in 1-kh steps as the operating time accumulates. The S8VS-06024B, however, does not have an alarm function (setting, display, or output).

S8VS-09024B□/S8VS-12024B□/ S8VS-18024B□/S8VS-24024B□

The display will appear when the set value for the total run time has been reached.



The accumulated value of the operating time of the Power Supply is displayed as the total run time. 0 (kh) will be displayed initially after purchase and then the display will advance in 1-kh steps as the operating time accumulates. When the total run time reaches the preset alarm set value, the alarm (A02) and the total run time will be displayed alternately and a transistor ((12) total run time output terminal (kh)) will output the status externally.

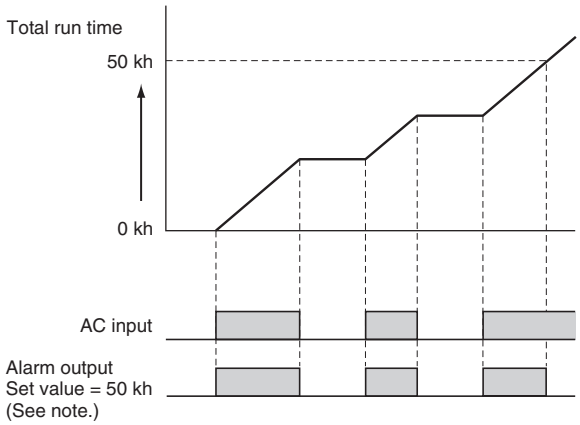
(Alarm set value reached = OFF, i.e., no continuity between (12) total run time output terminal (kh) and (13) alarm output common terminal)

The alarm set value can be changed in the setting mode.

Example: Alarm Displays When a Total Run Time Set Value of 88 kh Is Reached

Note: The total run time cannot be reset. To clear the alarm, change the alarm set value to a value higher than the value displayed for the total run time.

Time Chart



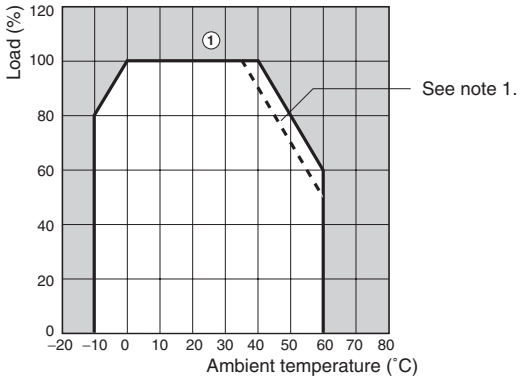
Note: Setting is possible for the following models only: S8VS-09024B□, S8VS-12024B□, S8VS-18024B□, S8VS-24024B□

Note: 1. The total run time does not include the time that the Power Supply is OFF.

2. The total run time measures the total time that power is being supplied and is not related in any way to deterioration in the electrolytic capacitor built into the Power Supply or to the effects of the ambient temperature.

Engineering Data (60-W, 90-W, 120-W, 180-W, 240-W Models)

■ Derating Curve

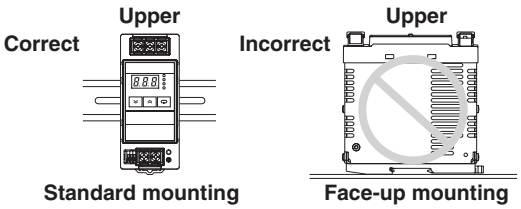


Note: 1. Using side mounting bracket for right-side mounting (excluding 240-W Models).

2. Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading ① in the above graph),

3. If there is a derating problem, use forced air-cooling.

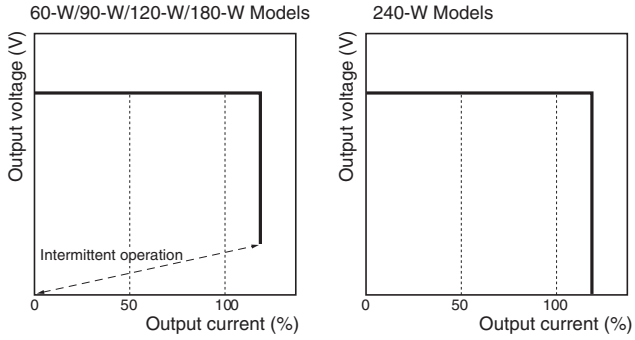
■ Mounting



Note: Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. It may also result in failure of the maintenance forecast monitor function. Use the standard mounting method only.

■ Overload Protection

The Power Supply is provided with an overload protection function that protects the power supply from possible damage by overcurrent. When the output current rises above 105% min. of the rated current, the protection function is triggered, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.



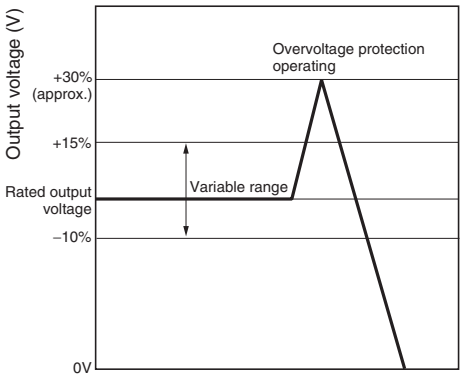
The values shown in the above diagrams are for reference only.

Note: 1. Internal parts may occasionally deteriorate or be damaged if a short-circuited or overcurrent state continues during operation.

2. 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.

■ Overvoltage Protection

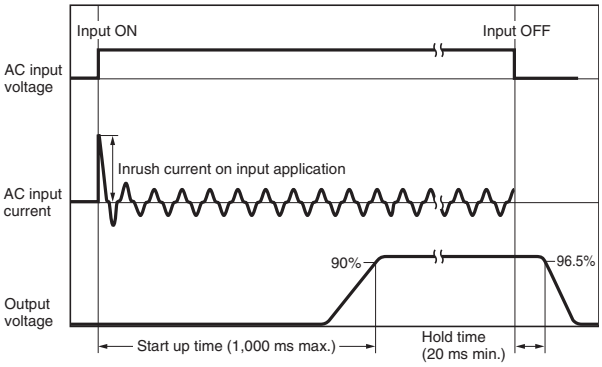
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. When an excessive voltage that is approximately 130% of the rated voltage or more is output, the output voltage is shut OFF. Reset the Power Supply by turning it OFF for at least three minutes and then turning it back ON again.



The values shown in the above diagram is for reference only.

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

■ Inrush Current, Start Up Time, Output Hold Time



■ Undervoltage Alarm Function (Indication and Output) (S8VS-□□□24□□ Only)

When output voltage drop is detected, an alarm (AU 1) and lowest output voltage value are indicated alternately. The preset value of detection voltage can be changed in the setting mode.
(From 18.5 to 27.5 V (18.5 to 26.3 V for the S8VS-24024□□), in 0.1-V steps. The value is fixed at 20.0 V for the S8VS-06024□.)

Further, an output ((11) undervoltage output terminal (DC LOW)) to an external device is given from the transistor to notify of the error (excluding S8VS-06024□). (Output voltage drop = OFF, i.e., no continuity between (11) undervoltage output terminal (DC LOW) and (13) alarm output common terminal.)

Example: Outputting an Alarm When the Voltage Output by the S8VS-09024□□ Drops to the Set Value (19.0 V) or Lower

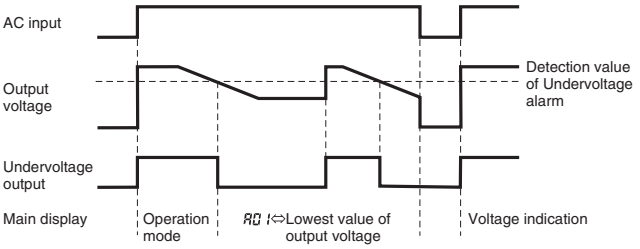
In the case that the output voltage drops below the set value (19.0 V) and an alarm is issued

Note: 1. Operation begins after about three seconds since the AC power is supplied.

2. The alarm is not indicated in the setting mode.

3. Press the ⏎ ((8) Mode Key) after the output voltage is restored, to reset alarm indication.

4. The undervoltage alarm function monitors the output terminal voltage of the Power Supply. To check the voltage accurately, measure the voltage at the load end.



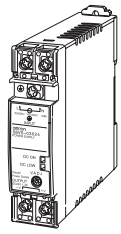
Note: 1. Operation begins after about three seconds since the AC power is supplied.

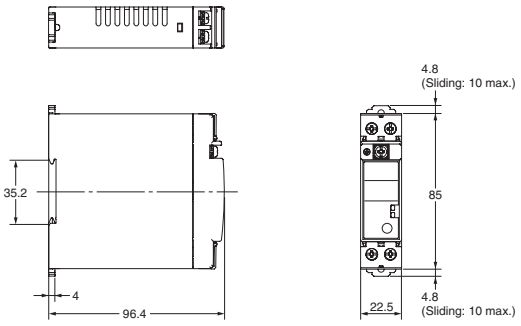
2. The undervoltage alarm function may also operate when an interruption in AC input is not restored within 20 ms.

Dimensions

Note: All units are in millimeters unless otherwise indicated.

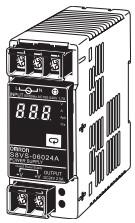
S8VS-015□□ (15-W)
S8VS-030□□ (30-W)

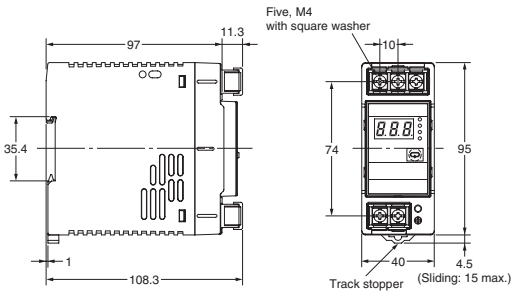




Note: The illustration is the S8VS-03024 Model.

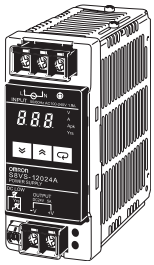
S8VS-06024 (60-W)
S8VS-06024□ (60-W)

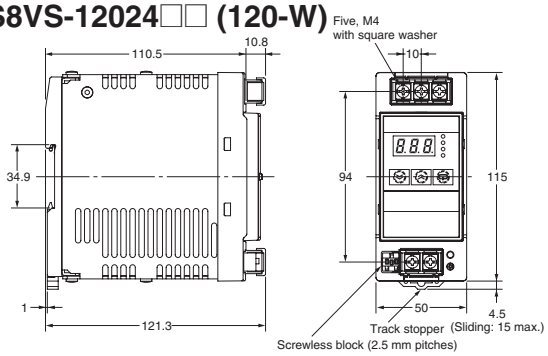




Note: The illustration is the S8VS-06024A Model.

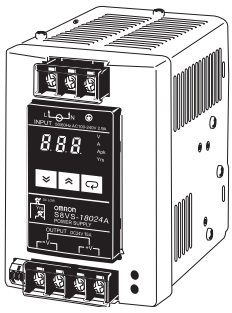
S8VS-09024 (90-W)/S8VS-12024 (120-W)
S8VS-09024□□ (90-W)/S8VS-12024□□ (120-W)

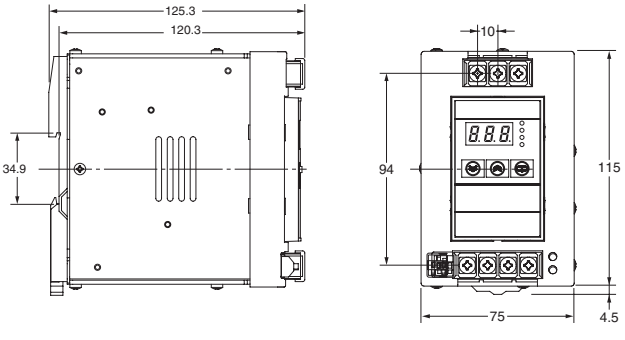




Note: The illustration is the S8VS-12024A Model.

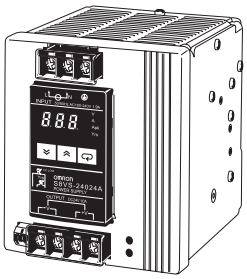
S8VS-18024 (180-W)
S8VS-18024□□ (180-W)

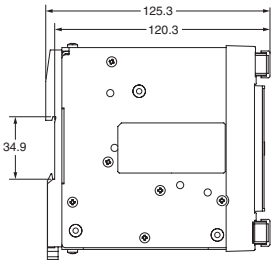


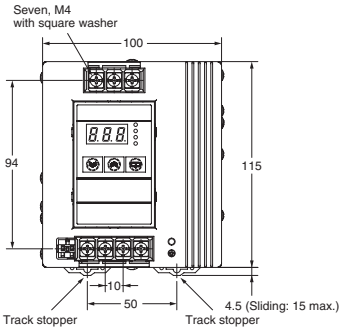


Note: The illustration is the S8VS-18024A Model.

S8VS-24024 (240-W)
S8VS-24024□□ (240-W)







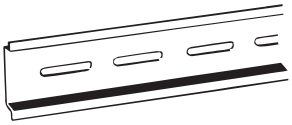
Note: The illustration is the S8VS-24024A Model.

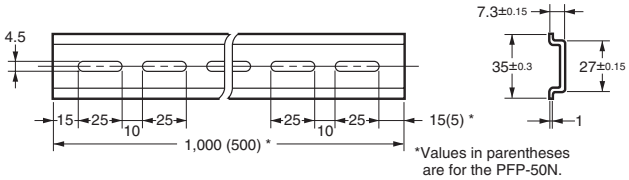
■ DIN-rail (Order Separately)

Note: All units are in millimeters unless otherwise indicated.

Mounting Rail (Material: Aluminum)

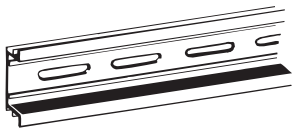
PFP-100N
PFP-50N

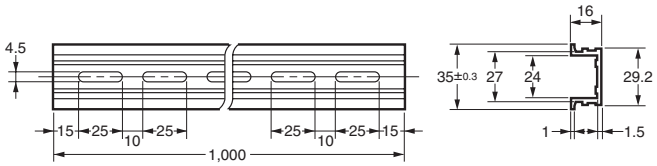




Mounting Rail (Material: Aluminum)

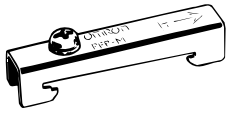
PFP-100N2

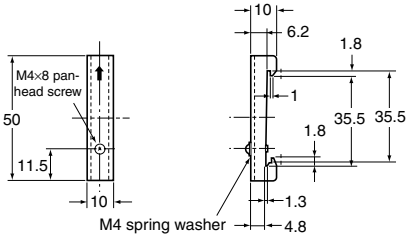




End Plate

PFP-M

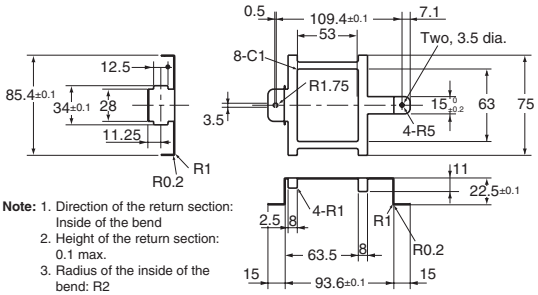
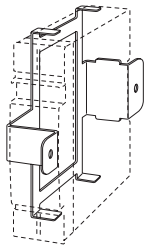
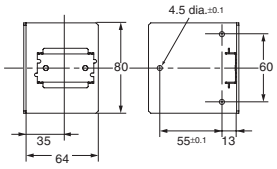
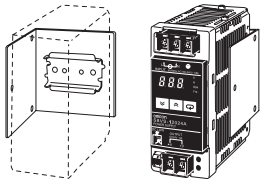
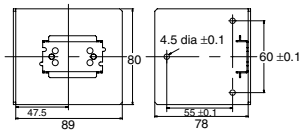
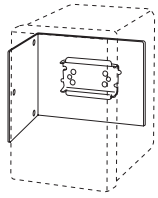
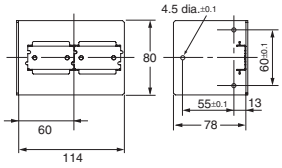
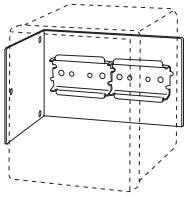
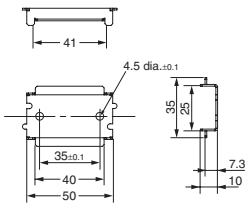
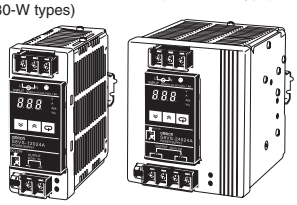




■ Mounting Brackets

Name	Model
Side-mounting Bracket (for 15- and 30-W models)	S82Y-VS30P
Side-mounting Bracket (for 60-, 90-, and 120-W models)	S82Y-VS10S
Side-mounting Bracket (for 180-W models)	S82Y-VS15S
Side-mounting Bracket (for 240-W models)	S82Y-VS20S
Front-mounting Bracket (for 60-, 90-, 120-, 180-, and 240-W models) (See note.)	S82Y-VS10F

Note: Two required to mount a 240-W model.

Type	Model	Dimensions	Appearance
Side-mounting Bracket (For 15-, 30-W models)	S82Y-VS30P	 **Note:** 1. Direction of the return section: Inside of the bend 2. Height of the return section: 0.1 max. 3. Radius of the inside of the bend: R2 4. Angle of the bend: 90°±1°	
Side-mounting Bracket (For 60-, 90-, 120-W models)	S82Y-VS10S	 t = 2.0	Left-side mounting Right-side mounting 
Side-mounting Bracket (For 180-W models)	S82Y-VS15S	 t = 2.0	Left-side mounting  *Right-side mounting also possible.
Side-mounting Bracket (For 240-W models)	S82Y-VS20S	 t = 2.0	Left-side mounting  *Right-side mounting also possible.
Front-mounting Bracket (For 60-, 90-, 120-, 180-, and 240-W models)	S82Y-VS10F		(For 60-, 90-, 120-, 180-W types) (For 240-W type)  *Use two S82Y-VS10F brackets for the 240-W type.

Safety Precautions

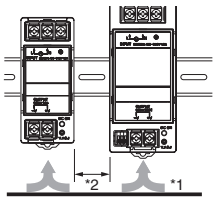
⚠ CAUTION	
Minor electric shock, fire, or Product failure may occasionally occur. Do not disassemble, modify, or repair the Product or touch the interior of the Product.	
Minor burns may occasionally occur. Do not touch the Product while power is being supplied or immediately after power is turned OFF.	
Fire may occasionally occur. Tighten terminal screws to the specified torque (15 and 30 W Models: 0.8 to 1.0 N·m 60, 90,120, 180, and 240 W Models: 1.08 N·m).	
Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied. Always close the terminal cover after wiring.	
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

Mounting

Take adequate measures to ensure proper heat dissipation to increase the long-term reliability of the product. Be sure to allow convection in the atmosphere around devices when mounting. Do not use in locations where the ambient temperature exceeds the range of the derating curve.

When cutting out holes for mounting, make sure that cuttings do not enter the interior of the products.



*1. Convection of air
*2. 20 mm min.
If 20 mm is not available, however, at least 10 mm must be provided.

(15-W and 30-W Models)

Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the product within the derating curve for the mounting direction that is used.

Use a mounting bracket when the product is mounted facing horizontally.

Heat dissipation will be adversely affected. When the product is mounted facing horizontally, always place the side with the label facing upward.

Always provide a space of 20 mm even when mounting horizontally or facing horizontally. If a space of 20 mm is not available, at least 10 mm must be provided. When mounting Power Supplies facing horizontally in a vertical stack, provide a space of at least 75 mm in between the Power Supplies. For details, refer to *Derating Curve* on page B-12.

(60-W, 90-W, 120-W, 180-W and 240-W Models)

Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the standard mounting method only.

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.

Minor fire may possibly occur. Ensure that input and output terminals are wired correctly.

Do not apply more than 100 N force to the terminal block when tightening it.

Be sure to remove the sheet covering the product for machining before power-ON so that it does not interfere with heat dissipation.

Use the following material for the wires to be connected to the S8VS to prevent smoking or ignition caused by abnormal loads.

Recommended Wire Type

15-W and 30-W Models

Model	Stranded wire	Solid wire
S8VS-03005	AWG18 to 14 (0.9 to 2.0 mm^2)	AWG18 to 16 (0.9 to 1.1 mm^2)
Other models	AWG20 to 14 (0.5 to 2.0 mm^2)	AWG20 to 16 (0.5 to 1.1 mm^2)

60-W, 90-W, 120-W, 180-W and 240-W Models

Model	Recommended wire size	
	For screw terminal	For alarm output terminal
S8VS-06024□	AWG14 to 20 (Cross section 0.517 to 2.081mm^2)	---
S8VS-09024□□ S8VS-12024□□ S8VS-18024□□ S8VS-24024□□	AWG14 to 18 (Cross section 0.823 to 2.081mm^2)	AWG18 to 28 (Cross section 0.081 to 0.823mm^2)

Installation Environment

Do not use the Power Supply in locations subject to shocks or vibrations. In particular, install the Power Supply as far away as possible from contactors or other devices that are a vibration source.

Install the Power Supply well away from any sources of strong, high-frequency noise and surge.

Operating Life

The life of a Power Supply is determined by the life of the electrolytic capacitors used inside. Here, Arrhenius's Law applies, i.e., the life will be cut in half for each rise of 10°C or the life will be doubled for each drop of 10°C. The life of the Power Supply can thus be increased by reducing its internal temperature.

Ambient Operating and Storage Environments

Store the Power Supply at a temperature of –25 to 65°C and a humidity of –25% to 90%.

Do not use the Power Supply in areas outside the derating curve otherwise, internal parts may occasionally deteriorate or be damaged.

Use the Power Supply at a humidity of 25% to 85%.

Do not use the Power Supply in locations subject to direct sunlight.

Do not use locations where liquids, foreign matter, or corrosive gases may enter the interior of products.

S8VS-□□□24A□ Models only

Satisfy the following conditions when storing the Power Supply for long periods of time to maintain its remaining service life function.

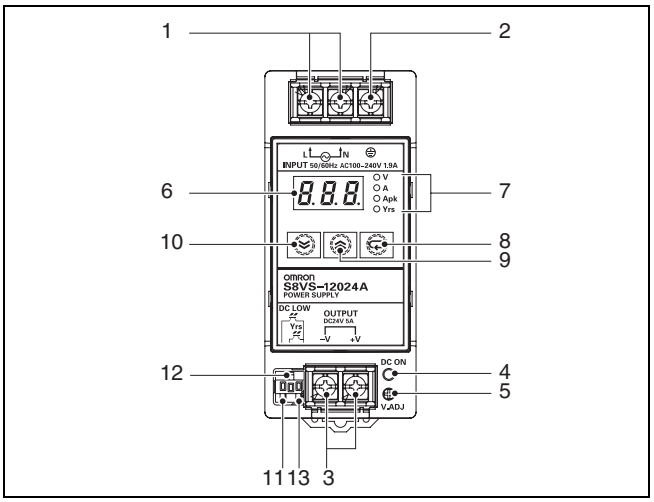
- When storing for more than three months, store within an ambient temperature range of −25 to +30°C and the humidity range of 25% to 70%.

Periodic Check (S8VS-09024□□, S8VS-12024□□, S8VS-18024□□ and S8VS-24024□□ only)

It may take from several years to more than 10 years under general operating conditions for the power supply to output the maintenance forecast monitor alarm (S8VS-□□□24A□). The total run time monitor (S8VS-□□□24B□) may be a similar number of years as the maintenance forecast monitor according to some settings. During operation over an extended period of time, periodically check if the maintenance forecast monitor output ((12)Yrs) or total run time monitor output ((12)kh) is correctly functioning by the following procedure.

1. Select the operation mode.
2. Check that the output ((12)Yrs/kh) is turned ON (with continuity between (12) and (13)).
3. In the operation mode, press and hold the Down Key (10) and the Mode Key (8) simultaneously for at least three seconds. The main display (6) changes to "ROC." An inactive output ((12)Yrs/kh) (no continuity between (12) and (13)) in the "ROC" indication indicates the correct function.
4. Release keys to return to the regular state.

Note: DC output stays ON during the periodical check.



Overcurrent Protection

Internal parts may possibly deteriorate or be damaged if a short-circuited or overcurrent 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.

Alarm Output (S8VS-09024□□, S8VS-12024□□, S8VS-18024□□, S8VS-24024□□ Only)

When using the alarm output, sufficiently consider the maximum ratings, residual voltage, and leakage current.

Transistor output: Sinking for S8VS-□□□24□ Models
Sourcing for S8VS-□□□24□P Models

30 VDC max., 50 mA max.

ON residually voltage: 2 V max.
OFF leakage current: 0.1 mA max.

Charging the Battery

If a battery is to be connected as the load, mount an overcurrent limiting circuit and an overvoltage protection circuit.

Dielectric Strength Test

If a high voltage is applied between an input and the case (FG), it will pass though the LC of the built-in noise filter and energy will be stored. If the high voltages used for dielectric strength testing are turned ON and OFF with a switch, timer, or similar device, impulse voltage will be generated when the voltage is turned OFF and internal parts may possibly be damaged. To prevent the generation of impulse voltages, reduce the applied voltage slowly with a variable resistor on the test device or turn the voltage ON and OFF at the zero-cross point.

Inrush Current

When two or more Power Supplies are connected to the same input, the total current is the sum of the currents for each Supply. Select fuses and circuit breakers giving sufficient consideration to the fusing or operating characteristics so that fuses will not burn and breakers will not break due to inrush current.

Output Voltage Adjuster (V.ADJ)

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.

15-W, 30-W Models

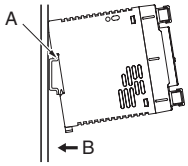
If the output voltage is set to a value less than −10%, the undervoltage alarm function may operate.

60-W, 90-W, 120-W, 180-W, and 240-W Models

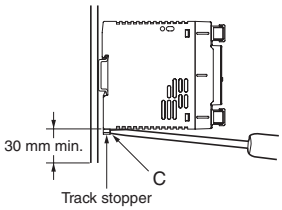
If the output voltage is set to a value less than 20 V (the factory setting), the undervoltage alarm function may operate.

DIN-rail Mounting

To mount the Block on a DIN-rail, hook portion (A) of the Block onto the rail and press the Block in direction (B).



To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.

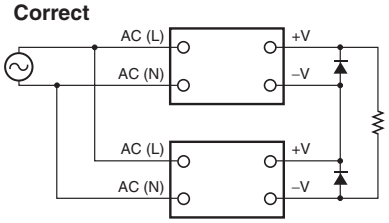


Series Operation

(24-V Model)

Two power supplies can be connected in series.

The (±) voltage output can be accomplished with two power supplies.



Note: 1. The diode is connected as shown in the figure. 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 a diode as shown in the figure.
Select a diode having the following ratings.

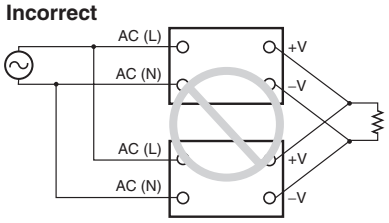
Type	Schottky Barrier diode
Dielectric strength (V_{RRM})	Twice the rated output voltage or above
Forward current (I_F)	Twice the rated output current or above

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.

3. Serial operation is not possible with 5-V and 12-V Models.

Parallel Operation

The product is not designed for parallel operation.



In Case There Is No Output Voltage

The 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 occurs while turning ON the power supply.

In case there is no output voltage, please check the following points before contacting us:

- Checking overload protected status:
  Check whether the load is in overload status or is short-circuited. Remove wires to load when checking.
- Checking overvoltage or internal protection (except for 15-W Models):
  Turn the power supply OFF once, and leave it OFF for at least 3 minutes. Then turn it ON again to see if this clears the condition.

Harmonic Current Suppression Circuits

(120-W, 180-W and 240-W Models)

A harmonic current suppression circuit is built into the Power Supply. This circuit can create noise when the input is turned ON, but it will last only until the internal circuits stabilize and does not indicate any problem in the product.

Warranty and Application Considerations

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.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS, OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON *Warranty and Limitations of Liability.*

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. T030-E2-02A In the interest of product improvement, specifications are subject to change without notice.

Switch Mode Power Supply
S8VM (15/30/50/100/150-W Models)

Power Supply Featuring OMRON's Unique, New Undervoltage Alarm Function with Compact Body Contributing to Machine Downsizing

- New undervoltage alarm function assists in determining causes of errors (S8VM-□□□24A□ only).
- Broad range of possibilities with 5 capacities and 20 models to choose from.
- Lead-free construction complies with RoHS directive.
- Safety standards:
  UL508/60950-1/1604, CSA C22.2 No. 14/No. 60950-1/No. 213, EN50178, EN60950-1
- New, attentive design prevents screws from falling out of terminal block.
- Finger protection prevents electric shock.
- DIN Rail mounting.

Note: Refer to *Precautions for Safe Use* on page B-49.

Note: 300- to 1,500-W models will be released in 2006.

Model Number Structure

■ Model Number Legend

Note: Not all combinations are possible. Please refer to the list of models in *Ordering Information* on page B-32.

S8VM- □□□□□□□
1 2 3 4

1. Power Ratings
015: 15 W
030: 30 W
050: 50 W
100: 100 W
150: 150 W

2. Output voltage
05: 5 V
12: 12 V
15: 15 V
24: 24 V

3. Configuration/function
None: Open-frame type Standard type
C: Covered type Standard type
A: Covered type Undervoltage alarm type (See note.)

4. Configuration
None Front-mounting type
D DIN Rail mounting bracket type

Note: The housing and terminal for the undervoltage alarm output are provided with the S8VM-05024A□, S8VM-10024A□ and S8VM-15024A□.

Ordering Information

Configuration	Power ratings	Input voltage	Output voltage	Output current	Front-mounting		DIN Rail mounting bracket	
					Standard type	Undervoltage alarm type	Standard type	Undervoltage alarm type
Open-frame type	15 W	100 to 240 VAC	5 V	3 A	S8VM-01505	---	S8VM-01505D	---
			12 V	1.3 A	S8VM-01512	---	S8VM-01512D	---
			15 V	1 A	S8VM-01515	---	S8VM-01515D	---
			24 V	0.65 A	S8VM-01524	---	S8VM-01524D	---
	30 W		5 V	6 A	S8VM-03005	---	S8VM-03005D	---
			12 V	2.5 A	S8VM-03012	---	S8VM-03012D	---
			15 V	2 A	S8VM-03015	---	S8VM-03015D	---
			24 V	1.3 A	S8VM-03024	---	S8VM-03024D	---
	50 W		5 V	10 A	S8VM-05005	---	S8VM-05005D	---
			12 V	4.3 A	S8VM-05012	---	S8VM-05012D	---
			15 V	3.5 A	S8VM-05015	---	S8VM-05015D	---
			24 V	2.2 A	S8VM-05024	---	S8VM-05024D	---
	100 W		5 V	20 A	S8VM-10005	---	S8VM-10005D	---
			12 V	8.5 A	S8VM-10012	---	S8VM-10012D	---
			15 V	7 A	S8VM-10015	---	S8VM-10015D	---
			24 V	4.5 A	S8VM-10024	---	S8VM-10024D	---
	150 W		5 V	27 A	S8VM-15005 (See note.)	---	S8VM-15005D (See note.)	---
			12 V	12.5 A	S8VM-15012	---	S8VM-15012D	---
			15 V	10 A	S8VM-15015	---	S8VM-15015D	---
			24 V	6.5 A	S8VM-15024	---	S8VM-15024D	---
Covered type	15 W	100 to 240 VAC	5 V	3 A	S8VM-01505C	---	S8VM-01505CD	---
			12 V	1.3 A	S8VM-01512C	---	S8VM-01512CD	---
			15 V	1 A	S8VM-01515C	---	S8VM-01515CD	---
			24 V	0.65 A	S8VM-01524C	S8VM-01524A	S8VM-01524CD	S8VM-01524AD
	30 W		5 V	6 A	S8VM-03005C	---	S8VM-03005CD	---
			12 V	2.5 A	S8VM-03012C	---	S8VM-03012CD	---
			15 V	2 A	S8VM-03015C	---	S8VM-03015CD	---
			24 V	1.3 A	S8VM-03024C	S8VM-03024A	S8VM-03024CD	S8VM-03024AD
	50 W		5 V	10 A	S8VM-05005C	---	S8VM-05005CD	---
			12 V	4.3 A	S8VM-05012C	---	S8VM-05012CD	---
			15 V	3.5 A	S8VM-05015C	---	S8VM-05015CD	---
			24 V	2.2 A	S8VM-05024C	S8VM-05024A	S8VM-05024CD	S8VM-05024AD
	100 W		5 V	20 A	S8VM-10005C	---	S8VM-10005CD	---
			12 V	8.5 A	S8VM-10012C	---	S8VM-10012CD	---
			15 V	7 A	S8VM-10015C	---	S8VM-10015CD	---
			24 V	4.5 A	S8VM-10024C	S8VM-10024A	S8VM-10024CD	S8VM-10024AD
	150 W		5 V	27 A	S8VM-15005C (See note.)	---	S8VM-15005CD (See note.)	---
			12 V	12.5 A	S8VM-15012C	---	S8VM-15012CD	---
			15 V	10 A	S8VM-15015C	---	S8VM-15015CD	---
			24 V	6.5 A	S8VM-15024C	S8VM-15024A	S8VM-15024CD	S8VM-15024AD

Note: The output capacity of the S8VM-15005□□ is 135 W.

Specifications

■ Ratings/Characteristics

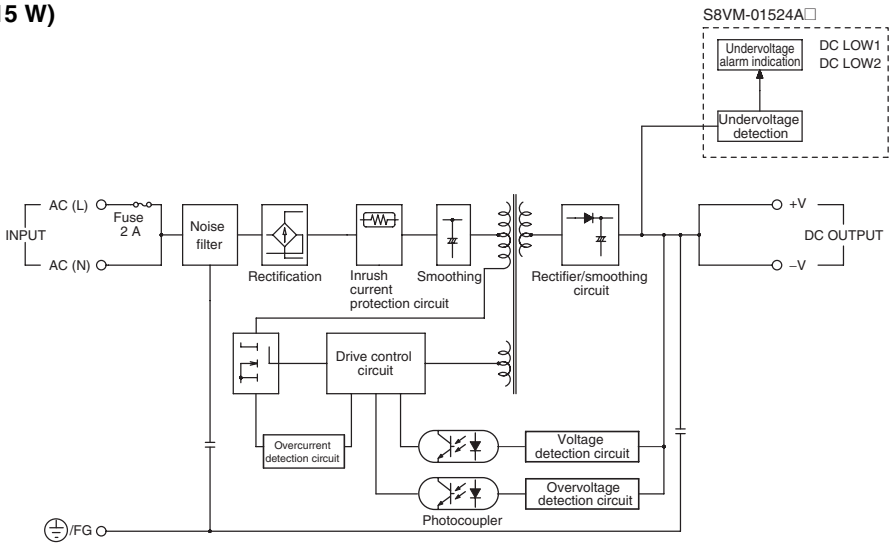
Item		Power ratings	15 W	30 W	50 W	100 W	150 W
Efficiency		5-V models	75% min.	75% min.	80% min.	81% min.	81% min.
		12-V models	78% min.	79% min.	79% min.	81% min.	81% min.
		15-V models	78% min.	79% min.	79% min.	81% min.	81% min.
		24-V models	80% min.	81% min.	80% min.	82% min.	83% min.
Input	Voltage (See note 1.)		100 to 240 VAC (85 to 264 VAC)				
	Frequency (See note 1.)		50/60 Hz (47 to 63Hz)				
	Current	100-V input	0.5 A max.	0.9 A max.	0.8 A max.	1.4 A max.	2.0 A max.
		200-V input	0.25 A max.	0.45 A max.	0.4 A max.	0.7 A max.	1.0 A max.
	Power factor	100-V input	---		0.98 min.		
		200-V input	---		0.94 min.		
	Harmonic current emissions		---		Conforms to EN 61000-3-2		
	Leakage current	100-V input	0.4 mA max. (at rated output)				
		200-V input	0.75 mA max. (at rated output)				
	Inrush current (See note 2.)	100-V input	17.5 A max. (for cold start at 25°C)				
		200-V input	35 A max. (for cold start at 25°C)				
Output	Voltage adjustment range (See note 3.)		–20% to 20% (with V. ADJ) (S8VM-□□□24A□: –10% to 20%)				
	Ripple		3.2% (p-p) max. (5 V), 1.5% (p-p) max. (12 V), 1.2% (p-p) max. (15 V), 1.0% (p-p) max. (24 V), (at rated input/output voltage)		3.2% (p-p) max. (5 V), 1.5% (p-p) max. (12 V), 1.2% (p-p) max. (15 V), 0.75% (p-p) max. (24 V), (at rated input/output voltage)		
	Input variation influence		0.4% max. (at 85 to 264 VAC input, 100%)				
	Load variation influence (rated input voltage)		0.8% max. (with rated input, 0 to 100% load)				
	Temperature variation influence		0.02%/°C max.				
	Start up time (See note 2.)		1,100 ms max. (at rated input/output voltage)		800 ms max. (at rated input/output voltage)		
	Hold time (See note 2.)		20 ms typ. (15 ms min.) (at rated input/output voltage)				
Additional functions	Overload protection (See note 2.)		105% to 160% of rated load current, voltage drop, intermittent, automatic reset		105% to 160% of rated load current, voltage drop (12 V, 15 V, and 24 V), voltage drop, intermittent (5 V), automatic reset		
	Overvoltage protection (See note 2.)		Yes (See note 4.)				
	Undervoltage alarm indication		Yes (color: yellow (DC LOW1), red (DC LOW2)) (S8VM-□□□24A□ only)				
	Undervoltage alarm output		No		Yes (S8VM-□□□24A□ only) (open collector output), 30 VDC max., 50 mA max.), Sinking type (NPN)		
	Series operation		Yes				
	Parallel operation		No				
	Remote sensing function		No			Yes	
Other	Operating ambient temperature		Refer to the derating curve in *Engineering Data* on page B-37. (with no icing or condensation) (See note 2.)				
	Storage temperature		–25 to 65°C				
	Operating ambient humidity		30% to 85% (Storage humidity: 25% to 90%)				
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE/FG terminals; detection current: 20 mA) 500 VAC for 1 min. (between all outputs and PE/FG terminals; detection current: 100 mA) 500 VAC for 1 min. (between all outputs (except the detection output terminals) and detection output terminals; detection current: 20 mA) (S8VM-□□□24A□ only)				
	Insulation resistance		100 MΩ min. (between all outputs and all inputs, PE/FG terminals) at 500 VDC				
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 hours each in X, Y, and Z directions				
	Shock resistance		150m/s^2, 3 times each in ±X, ±Y, ±Z directions				
	Output indicator		Yes (color: green)				
	EMI	Conducted Emission	Conforms to EN61204-3 EN55011 Class B and based on FCC Class B (See note 5.)				
		Radiated Emission	Conforms to EN61204-3 EN55011 Class B (See note 6.)				
	EMS		Conforms to EN61204-3 High severity levels				
	Approved standards (See note 7.)		UL: UL508 (Listing), UL60950-1, UL1604 (Class I/Division 2) cUL: CSA C22.2 No.14, No.60950-1, No.213 (Class I/Division 2), EN: EN50178, EN60950-1 SELV (EN60950-1) According to VDE0160/P100				
	Weight (See note 8.)		180 g max.	220 g max.	290 g max.	460 g max.	530 g max.

Note:
1. Do not use the 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. Refer to the *Engineering Data* section on page page B-37 to page B-38 for details.
3. If the V. ADJ adjuster is turned, the voltage will increase by more than +20% of the voltage adjustment range.
   When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
4. To reset the protection, turn OFF the Power Supply for three minutes or longer and then turn the Power Supply back ON.
5. Conducted emissions: The noise value is affected by factors such as the wiring method. The product conforms to Class B when the aluminum plate is laid under the product. For 15-W models, insert a clamp filter (ZCAT2436-1330 by TDK) in the output wire to reduce noise.
6. Radiated emissions: The noise value is affected by factors such as the wiring method. The product conforms to Class B when the aluminum plate is laid under the product. For 150-W models, insert a clamp filter (ZCAT2017-0930 by TDK) in the input wire to reduce noise.
7. UL1604 (Class I/Division 2) and CSA C22.2 No. 213 (Class I/Division 2) approval pending.
8. The weight indicated is for front-mounting, open-frame models.

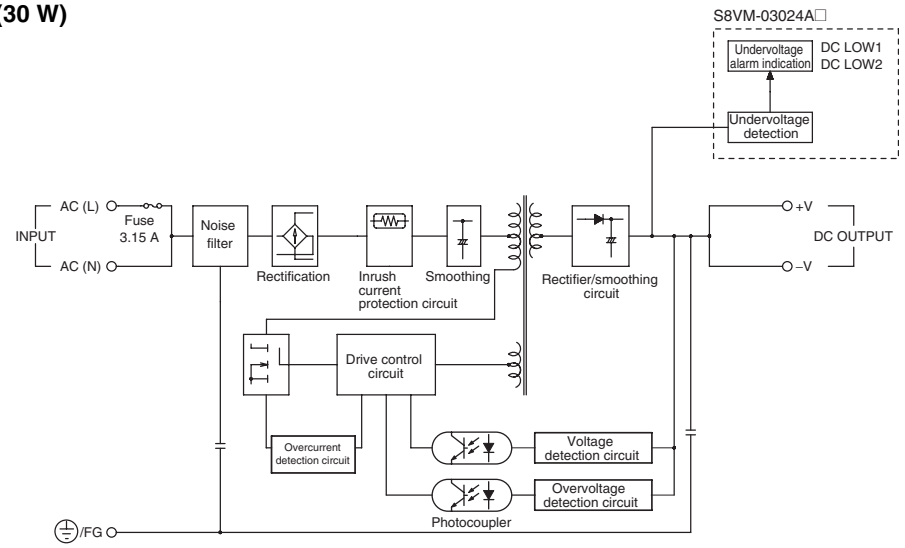
Connections

■ Block Diagrams

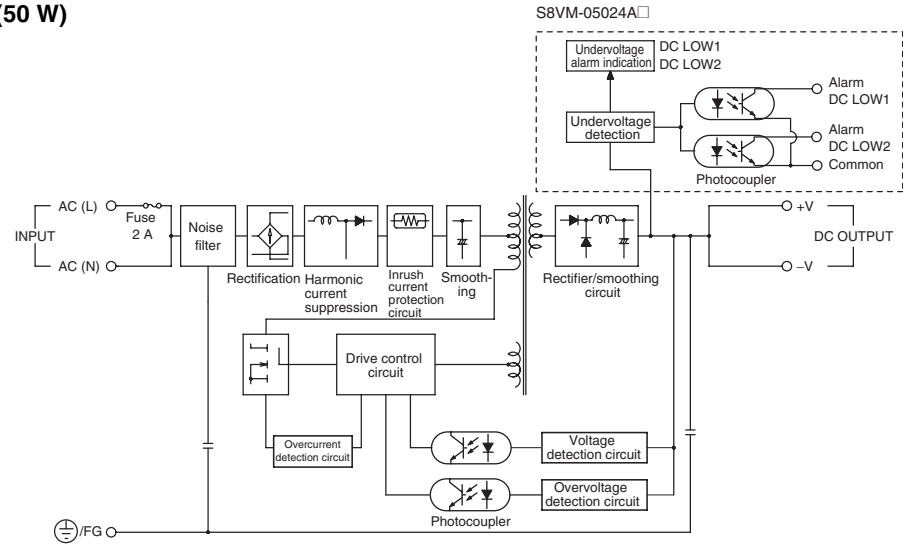
S8VM-015□□□□ (15 W)



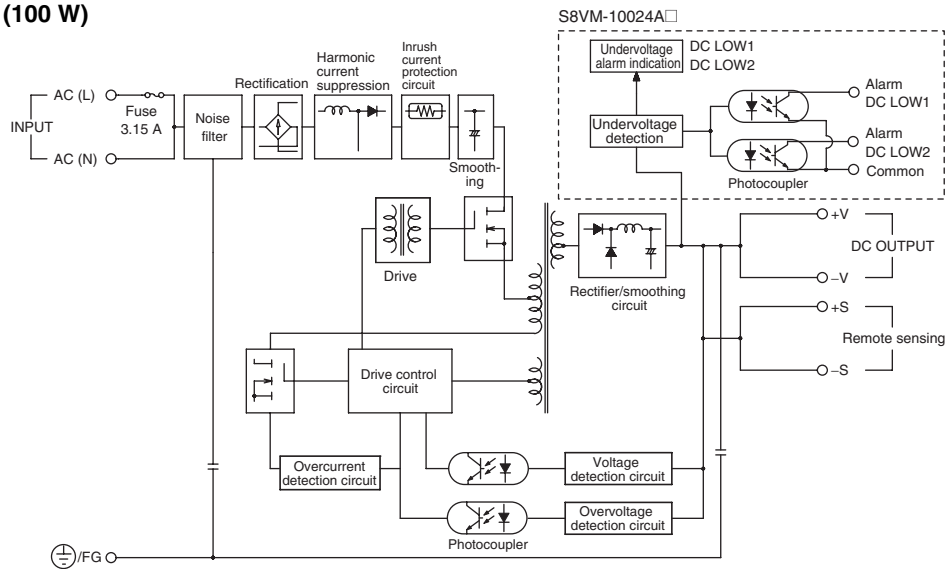
S8VM-030□□□□ (30 W)



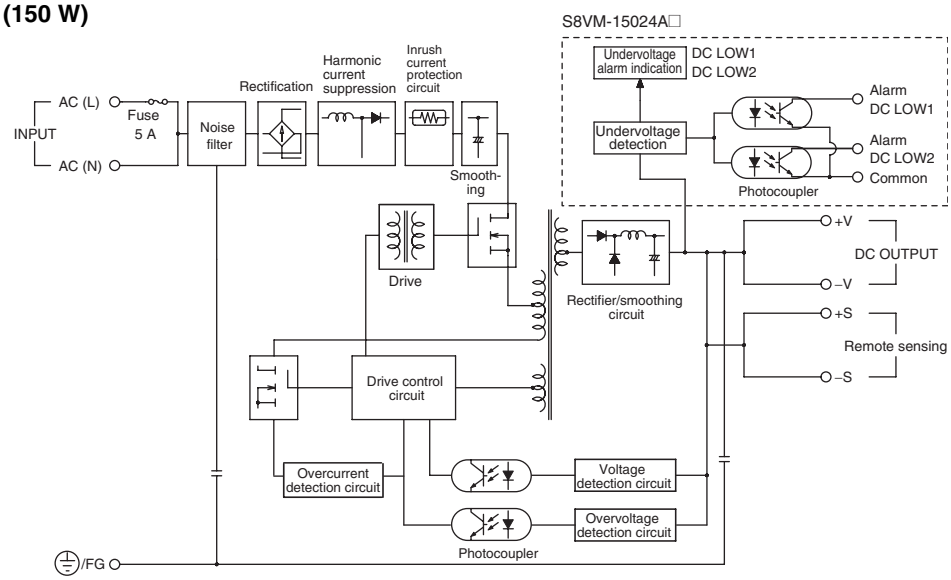
S8VM-050□□□□ (50 W)



S8VM-100□□□□ (100 W)



S8VM-150□□□□ (150 W)

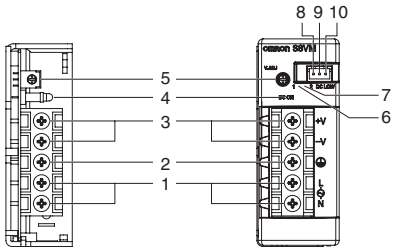


Construction and Nomenclature

■ Nomenclature

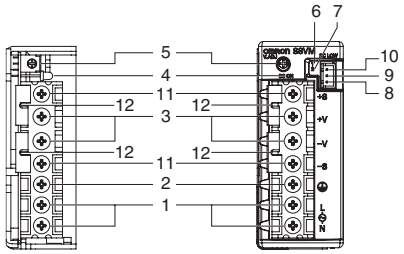
15-W, 30-W, 50-W Models

Open-frame types	Covered types
S8VM-015□□/S8VM-015□□D	S8VM-015□□C□/S8VM-01524A□
S8VM-030□□/S8VM-030□□D	S8VM-030□□C□/S8VM-03024A□
S8VM-050□□/S8VM-050□□D	S8VM-050□□C□/S8VM-05024A□



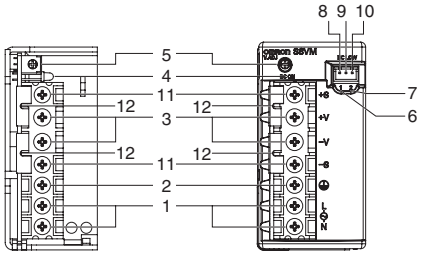
100-W Models

Open-frame types	Covered types
S8VM-100□□/S8VM-100□□D	S8VM-100□□C□/S8VM-10024A□



150-W Models

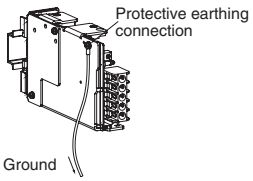
Open-frame types	Covered-types
S8VM-150□□/S8VM-150□□D	S8VM-150□□C□/S8VM-15024A□



No.	Name	Function
1	AC input terminals (L). (N)	Connect the input lines to these terminals. (See note 1.)
2	PE terminal: Protective earthing terminal (S8VM-□□□□□C□/S8VM-□□□□□A□) FG terminal: Frame ground terminal S8VM-□□□□□/S8VM-□□□□□D)	Connect the ground line to this terminal. (See note 2.)
3	DC output terminals (-V). (+V)	Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)	Lights (green) while a direct current (DC) output is ON.
5	Output voltage adjuster (V. ADJ)	Use to adjust the voltage.
6	Undervoltage alarm indicator 1 (DC LOW1: Yellow) (See note 3.)	Lights only when a momentary drop in output voltage is detected. This status is maintained.
7	Undervoltage alarm indicator 2 (DC LOW2: Red) (See note 3.)	Lights only when the output voltage drops to approximately 20 V or lower.
8	Undervoltage alarm output terminal 1: (DC LOW1) (See note 4.)	Outputs only when a momentary drop in output voltage is detected. This status is maintained. (The transistor turns OFF when a voltage drop occurs.)
9	Undervoltage alarm output terminal 2: (DC LOW2) (See note 4.)	Outputs only when the output voltage drops to approximately 20 V or lower. (The transistor turns OFF when a voltage drop occurs.)
10	Common terminal for undervoltage alarm output (See note 4.)	Common terminal (emitter) for terminals 8 and 9
11	Remote sensing terminals (See note 5.)	Correct the voltage drop in the load lines.
12	Short bars (See note 5.)	---

Note: 1. The fuse is located on the (L) side. It is NOT user-replaceable.

2. Protective earthing connection is the panel mounting hole shown in the figure below.
(A protective earthing connection stipulated in safety standards is used. Connect the ground completely (S8VM-□□□□□D only)
Ground terminal: M3 (Depth: 8 mm max.)/Ground wire: AWG 18



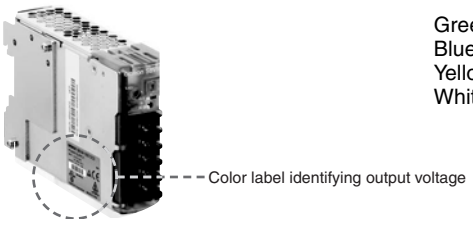
3. S8VM-□□□24A□ only

4. S8VM-05024A□, S8VM-10024A□, S8VM-15024A□ only. Housing and terminals for undervoltage detection output are also provided. For details, refer to *XH Connector Preparation* on page B-50 under *Safety Precautions*.

5. When not using the remote sensing function, leave the short bar in the same state as when shipped.

■ Output Color Label

This color label identifies the output voltage by color.



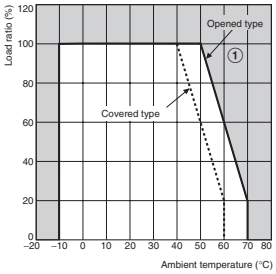
Green: 5 V
Blue: 12 V
Yellow: 15 V
White: 24 V

Engineering Data

■ Derating Curve

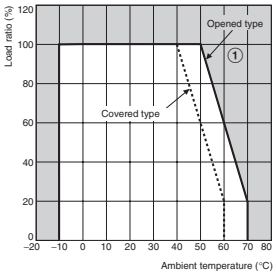
S8VM-15W/30W

Standard mounting/Horizontal mounting/Face-up mounting

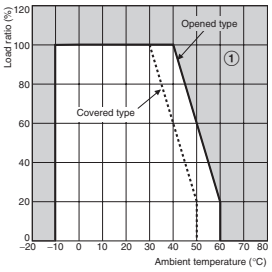


S8VM-50W

Standard mounting/Horizontal mounting

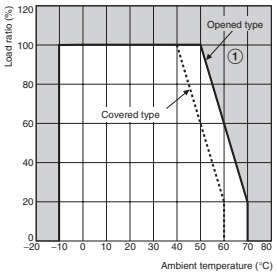


Face-up mounting

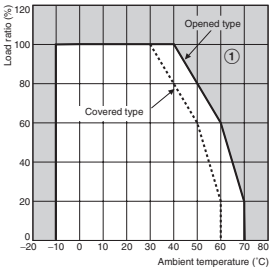


S8VM-100W

Standard mounting

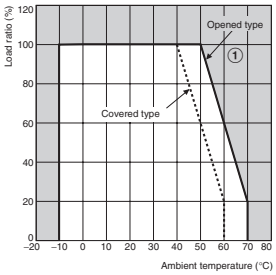


Horizontal mounting/Face-up mounting

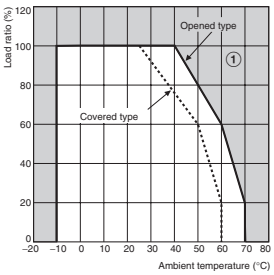


S8VM-150W

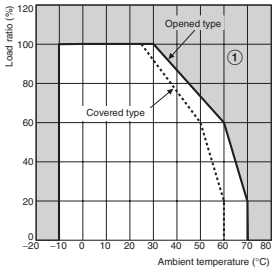
Standard mounting



Horizontal mounting



Face-up mounting



Note: 1. Internal parts may occasionally be deteriorated or damaged. Do not use the Power Supply in areas outside the derating curves (i.e., the area shown by shading ① in the above graphs)

2. If there is a derating problem, use forced air-cooling.

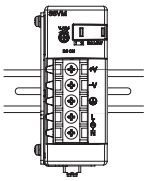
3. When mounting two or more Power Supplies side-by-side, allow at least 20 mm spacing between them. Multiple 100- and 150-W models cannot be used side by side. Be sure to install the Power Supplies as far away from heat-generating sources as possible.

4. When using 150-W models for a long period of time at an input voltage of 90 VAC or lower, reduce the load to 80% or less of the above derating curves.

■ Mounting

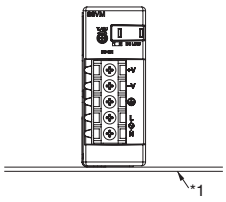
Standard mounting (DIN Rail mounting bracket type)

Correct



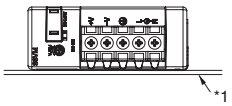
Standard mounting (Front-mounting type)

Correct



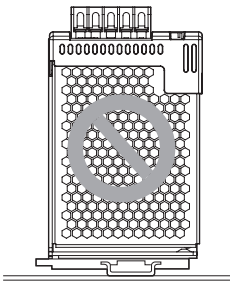
Horizontal mounting (Front-mounting type)

Correct



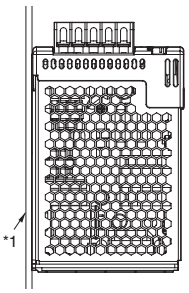
Face-up mounting (DIN Rail mounting bracket type)

Incorrect



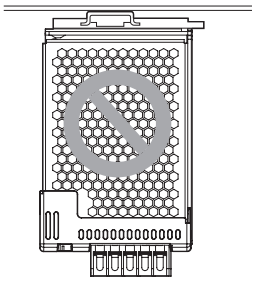
Face-up mounting (Front-mounting type)

Correct



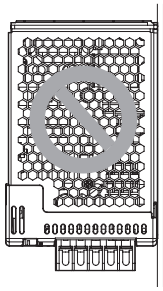
Face-down mounting (DIN Rail mounting bracket type)

Incorrect



Face-down mounting (Front-mounting type)

Incorrect



Note: 1. Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts.
Use the product within the derating curve for the mounting direction that is used.

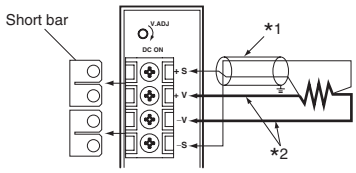
2. Use the metal plate as the mounting panel (*1).

3. Install the Power Supply so that the air flow circulates around the Power Supply, as the Power Supply is designed to radiate heat by means of natural air flow.

4. Mounting screw tightening torque (recommended value: 0.49 N·m)

■ Remote Sensing Function (S8VM-100□□□□/150□□□□ only)

This function compensates a voltage drop on the load lines.
To use this function, connect after removing the two short bars of the remote sensing terminal.



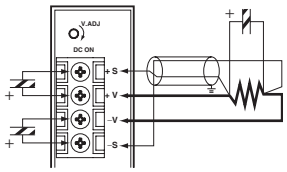
Note: 1. Use a 2-conductor shielded cable as a connection wire (*1).

2. Use as thick a wire as possible since high voltage drops on the load lines (*2) may activate the overvoltage protection function.

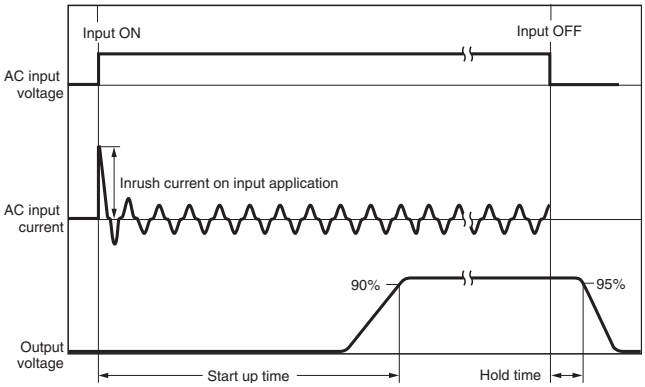
3. Use when the voltage drop is 0.3 V or lower.

4. When the +S and −S terminals are opened with the short bar removed, the overvoltage protection function is activated and the output voltage will be cut off.

5. If the load line is too long, use an electrolytic capacitor in the following 3 locations:
1) Across the load terminals
2) Between the +S terminal and + terminal
3) Between the −S terminal and − terminal
Select the capacity of the connected capacitor from between several tens to several hundreds of μF as a guide, and then determine the capacity when actually connecting the capacitor between terminals as shown below.



■ Inrush Current, Start Up Time, Output Hold Time



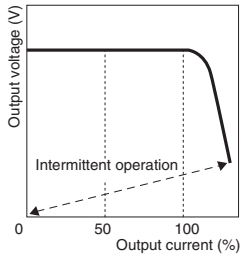
■ Reference Values

Item	Value	Definition
Reliability (MTBF)	135,000 hrs min.	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates the reliability of a device. Therefore, it does not necessarily represent the life of the product.
Life expectancy	10 yrs. min.	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.

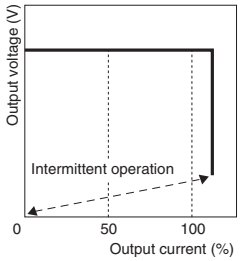
■ Overload Protection

The Power Supply is provided with an overload protection function that protects the Power Supply from possible damage by short-circuit and overcurrent.
When the output current rises above 105% min. of the rated current, the protection function is triggered, automatically decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.

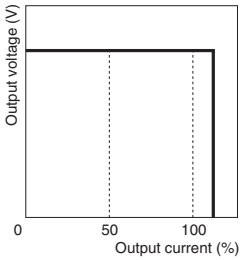
15/30W



50/100/150W (5 V)



50/100/150W (12 V, 15 V, 24 V)



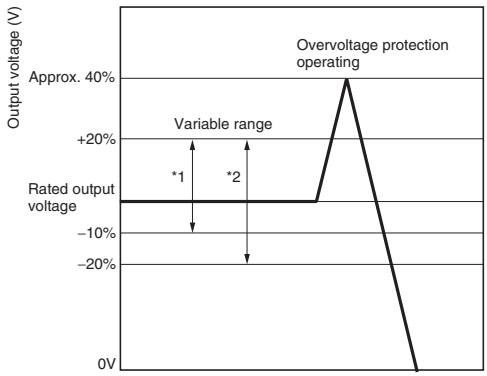
The values shown in the above diagrams are for reference only.

Note: 1. If the Power Supply has been short-circuited or supplied with an overcurrent longer than 30 seconds, the internal parts of the Power Supply may occasionally be deteriorated or damaged. Do not continue to use for longer than 30 seconds in this state.

2. Internal parts may possibly be deteriorated or 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.

■ 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 140% of the rated voltage or more is output, the output voltage is shut OFF, preventing damage to the load due to overvoltage. Reset the Power Supply by turning it OFF for at least three minutes and then turning it back ON again.



The values shown in the above diagram are for reference only.

*1 S8VM-□□□24A□

*2 Except for S8VM-□□□24A□

Note: 1. Do not turn ON the power again until the cause of the overvoltage has been removed.

2. The overvoltage protection function will be activated when the output voltage adjuster (V.ADJ) is set to a value that exceeds +20% of the rated output voltage.

■ Undervoltage Alarm Function (Indication and Output)

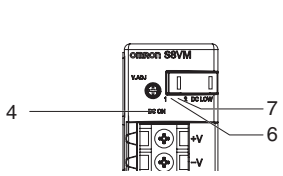
(Only S8VM-□□□24A□)

If an output voltage drop is detected with an S8VM-□□□24A□ with undervoltage alarm function, the DC LOW indicator will light to notify of an output error. The transistor also sends an output externally to notify of the error (except for the S8VM-01524A□ and S8VM-03024A□).

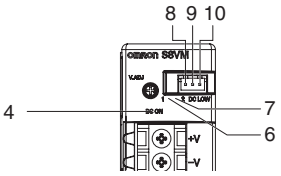
Transistor Output: Open Collector (Sinking type (NPN))
30 VDC max., 50 mA max.

Leakage current when OFF: 0.1 mA or less
Residual voltage when ON: 2 V or less

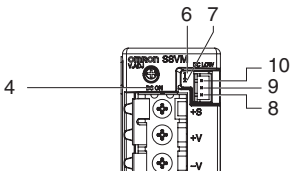
S8VM-01524A□
S8VM-03024A□



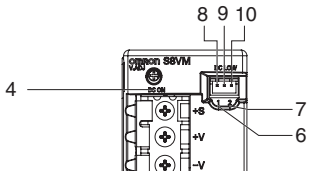
S8VM-05024A□



S8VM-10024A□



S8VM-15024A□



• Undervoltage Alarm Function 1 (DC LOW1)

Only a momentary voltage drop is detected. Detection voltage is automatically adjusted internally by detecting the output voltage (approx. 2.7 V lower than the voltage output at an output voltage of 24.0 V).
During detection, the transistor is OFF (with no continuity across 8 and 10) and the LED (6: Yellow) lights. (The Undervoltage Alarm Function 1 is used as a latch holding function.)

• Undervoltage Alarm Function 2 (DC LOW2)

Detection voltage is set to approx. 20.0 V. (from 18.0 to 21.6 V).
During detection, the transistor is OFF (with no continuity across 9 and 10) and the LED (7: Red) lights.

Note: 1. This function monitors the voltage at the Power Supply output terminals.
To check actual voltage, measure voltage on the load side.

2. Gradual voltage drop is not detected by the Undervoltage Alarm Function 1. (DC LOW1)

3. Once undervoltage is detected by Undervoltage Alarm Function 1 (DC LOW1), the transistor turns OFF and status of the LED (6: Yellow) light is maintained. To reset the function, turn OFF the Power Supply for 60 seconds or longer, and then turn it ON again.

4. If the output voltage remains at 15 V or lower for several seconds when using Undervoltage Alarm Function 1 (DC LOW 1), the output hold status for detection may be reset.

■ Probable Causes of Power Supply Errors and Troubleshooting Using Undervoltage Alarm Function

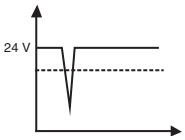
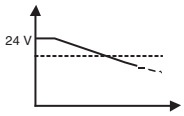
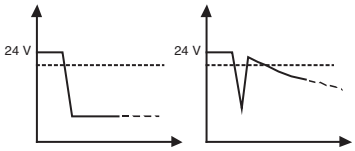
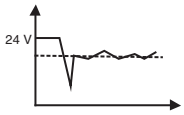
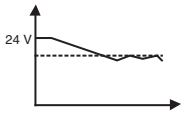
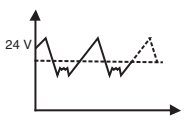
Check the following information if the Undervoltage Alarm Function operates.

Contact your OMRON representative if the Power Supply does not function normally after checking.

The symbols in the table are as follows:

●: Lit, ○: Not lit, ✳: Flashing

Note: Flashing: The output voltage is unstable, causing the LED to repeatedly turn ON and OFF.

	DC ON	DC LOW1		DC LOW2			Output voltage	Power Supply status diagnosis	
	LED ④: Green	LED ⑥: Yellow	Transistor outputs (⑧ to ⑩)	LED ⑦: Red	Transistor outputs (⑨ to ⑩)				
1	●	○	ON	○	ON	→	Normal (approx. 90% min. of rated output voltage)	Normal status	
2	●	●	OFF	○	ON	→	Normal (approx. 90% min. of rated output voltage)	The output voltage has recovered to normal status following a previous sudden voltage drop.	
3	●	○	ON	●	OFF	→	Output drop (approx. 90% max. of rated output voltage)	The output voltage has dropped gradually and remains low.	
4	●	●	OFF	●	OFF	→	Output drop (approx. 90% max. of rated output voltage)	The output voltage remains low following a previous sudden voltage drop.	
5	●	●	OFF	✳	ON ⇳ OFF	→	Output drop (approx. 80% of rated output voltage)	The output voltage remains low and is continuing to fluctuate following a previous sudden voltage drop.	
6	●	○	ON	✳	ON ⇳ OFF	→	Output drop (approx. 80% of rated output voltage)	The output voltage has dropped gradually, remains low, and is continuing to fluctuate.	
7	○	○	OFF	○	OFF	→	No output	No output voltage is being output.	
8	✳	✳	ON ⇳ OFF	✳	ON ⇳ OFF	→	Unstable output	The output voltage is unstable.	

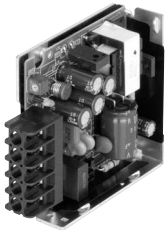
Probable cause of error	Troubleshooting methods	
---	---	1
A momentary power failure has occurred in the input.	Check that the output voltage is normal and no problems have occurred in other devices. No problems will be caused by continuing to use the Power Supply as is. To clear DC LOW1 (LED display and transistor output status), turn OFF the input Power Supply, and wait at least 60 s before turning ON the input Power Supply again.	2
A momentary overload has occurred.	The load current has probably exceeded the rated current. Either reduce the connected load or replace the Power Supply with one that has a higher capacity.	
A momentary output voltage drop has occurred at startup due to the capacity of the capacitor on the load side.	A large inrush current has probably flowed to the load side at startup. Replace the Power Supply with one that has a higher capacity.	
The output voltage has returned to normal voltage following a rapid drop caused by using the output voltage adjuster (V.ADJ).	Turn OFF the input Power Supply, and wait at least 60 s before turning ON the input Power Supply again to clear the indicator status.	
Deterioration due to age (when the Power Supply has been used for several years)	The internal parts of the Power Supply may have deteriorated due to age. Replace the Power Supply. Also replace other Power Supplies that were purchased at the same time.	3
Overload (immediately following first use of the Power Supply or when increasing the load)	The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.	
The output voltage dropped to -10% or lower of the rated voltage resulting from using the output voltage adjuster (V.ADJ)	Adjust the output voltage to the rated values using the output voltage adjuster (V.ADJ).	
A sudden overload occurred and the Unit remains in overload status.	An error has probably occurred in the load device. Turn OFF the input voltage, and check whether any errors have occurred in the load device. Continued use in overload status may damage the Power Supply.	4
The output voltage remains low after a rapid voltage drop caused by using the output voltage adjuster (V.ADJ).	Adjust the output voltage to the rated values using the output voltage adjuster (V.ADJ). To clear DC LOW1 (LED display and transistor output status), turn OFF the input Power Supply, and wait at least 60 s before turning ON the input Power Supply again.	
The overload status continues to fluctuate following a sudden overload.	An error has probably occurred in the load device. Turn OFF the input voltage, and check whether any errors have occurred in the load device. Continued use in overload status may damage the Power Supply.	5
Deterioration due to age (after using the Power Supply for several years)	The internal parts of the Power Supply may have deteriorated due to age. Replace the Power Supply. Also replace other Power Supplies that were purchased at the same time.	6
Overload (immediately following first use of the Power Supply or when increasing the load)	The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.	
Power Supply interrupted or damaged.	Check whether the Power Supply's input voltage is being applied correctly. If there is no output even though the input voltage is applied correctly, the internal circuit is probably damaged. Return the Product to OMRON.	7
Overvoltage protection operation	Turn OFF the input Power Supply, and wait at least 3 min before turning ON the input again. If the same status recurs, the internal circuit is probably damaged. Return the Product to OMRON.	
The short bar has fallen off, or the +S and -S terminals are open.	Check whether the +S and -S terminals are open. If so, the overvoltage protection function is activated. Therefore, turn OFF the input power supply and wait at least three minutes before turning it ON again. (S8VM-10024A□/15024A□ models only)	
Output short-circuit	Remove the cause of the output short-circuit.	
Intermittent operation due to overload (S8VM-01524A□/03024A□ only)	The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.	8
The Power Supply fails to start repeatedly due to the capacity of the capacitor on the load side.	A large inrush current has probably flowed to the load side at startup. Replace the Power Supply with one that has a higher capacity.	
The input turns ON and OFF repeatedly.	Check whether the Power Supply's input voltage is being applied correctly.	
The status repeatedly switches between normal operation and output short-circuit.	An error has probably occurred in the load device. Turn OFF the input voltage, and check whether any errors have occurred in the load device.	

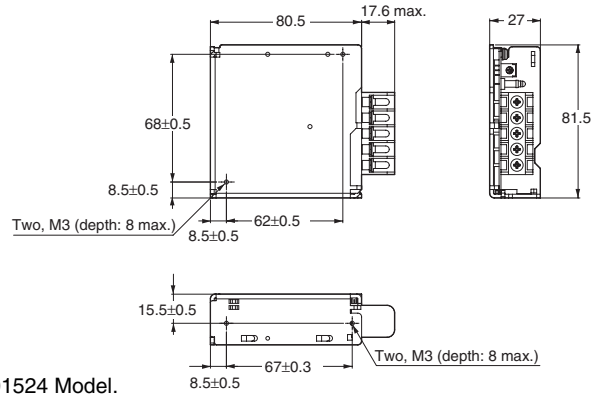
Dimensions

Note: All units are in millimeters unless otherwise indicated.

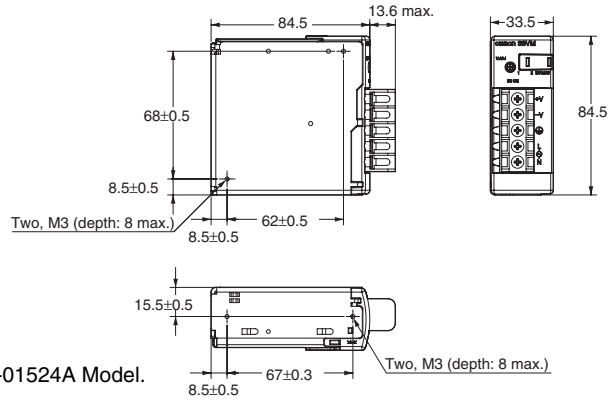
■ Front-mounting Models

S8VM-015□□
S8VM-015□□C
S8VM-01524A





Note: The image is the S8VM-01524 Model.



Note: The image is the S8VM-01524A Model.

Mounting Holes

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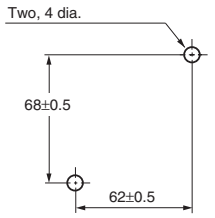
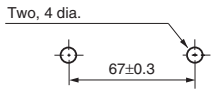
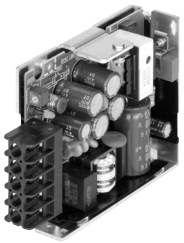
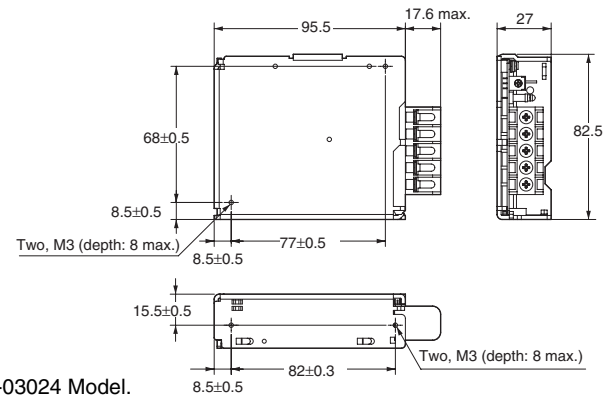
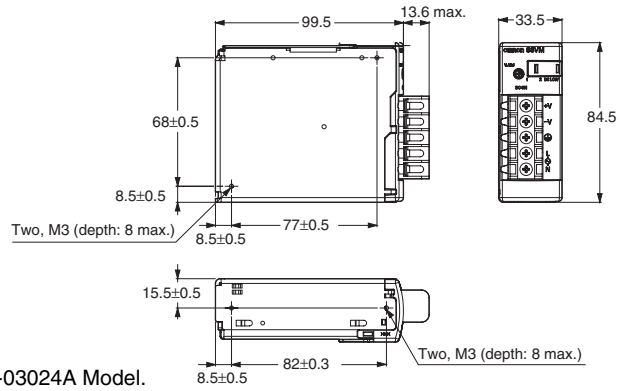
Side Mounting	
Bottom Mounting	

S8VM-030□□
S8VM-030□□C
S8VM-03024A





Note: The image is the S8VM-03024 Model.



Note: The image is the S8VM-03024A Model.

Mounting Holes

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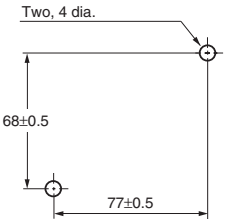
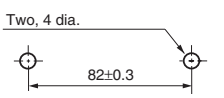
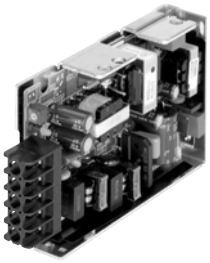
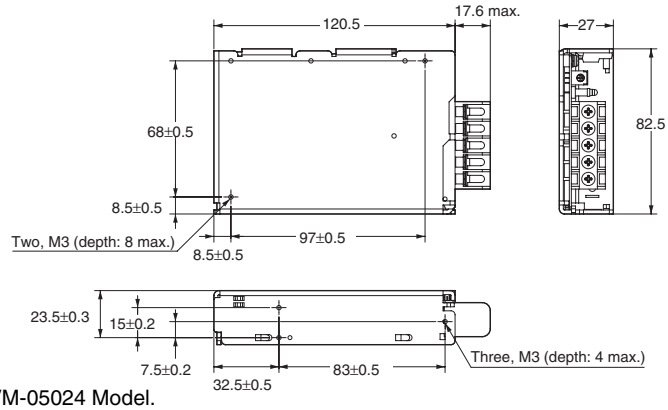
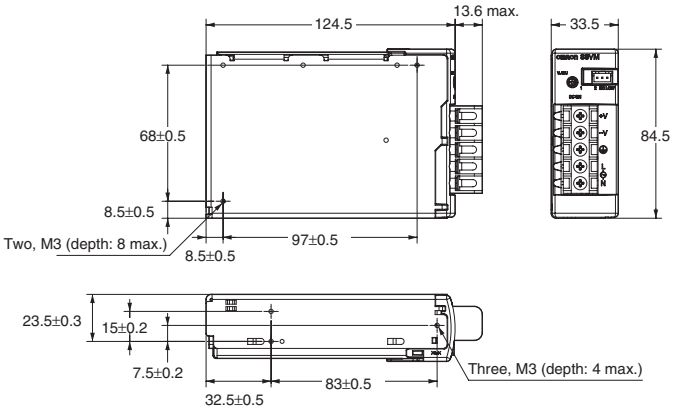
Side Mounting	
Bottom Mounting	

S8VM-050□□
S8VM-050□□C
S8VM-05024A





Note: The image is the S8VM-05024 Model.



Note: The image is the S8VM-05024A Model.

Mounting Holes

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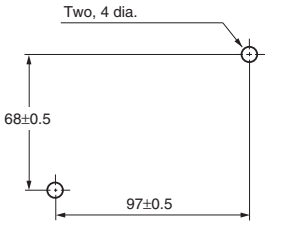
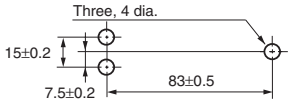
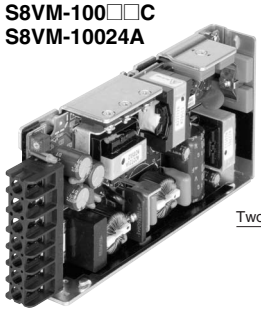
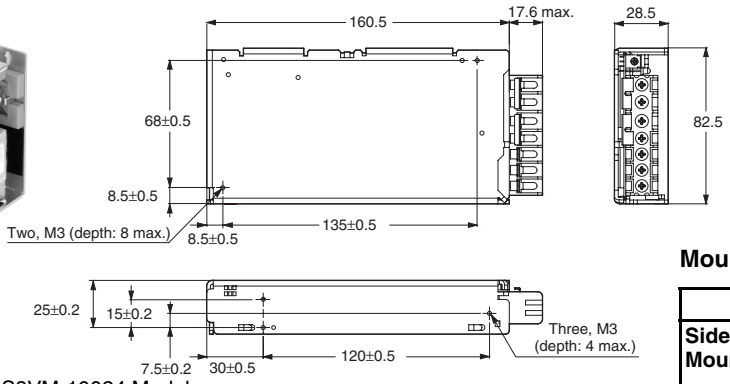
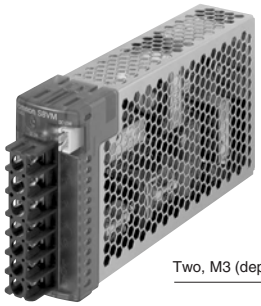
Side Mounting	
Bottom Mounting	

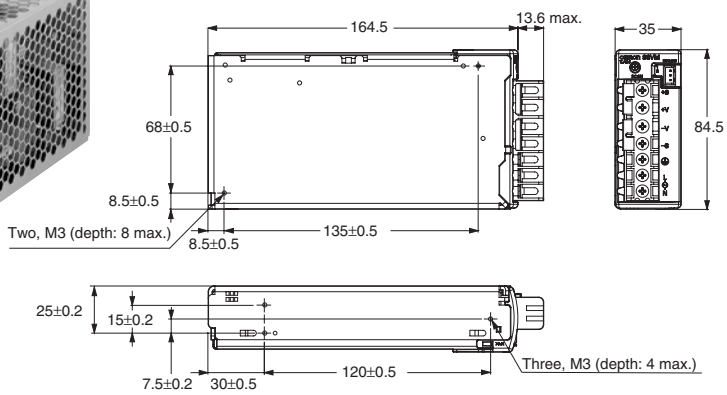
S8VM-100□□
S8VM-100□□C
S8VM-10024A





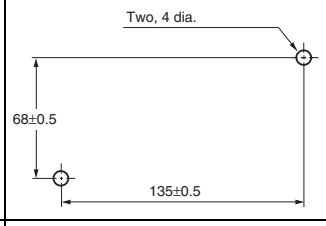
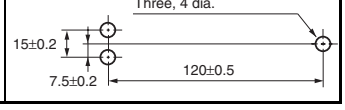
Note: The image is the S8VM-10024 Model.



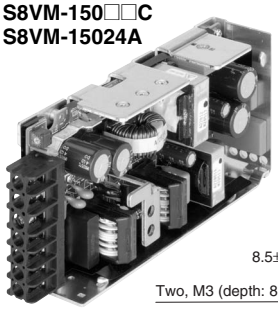


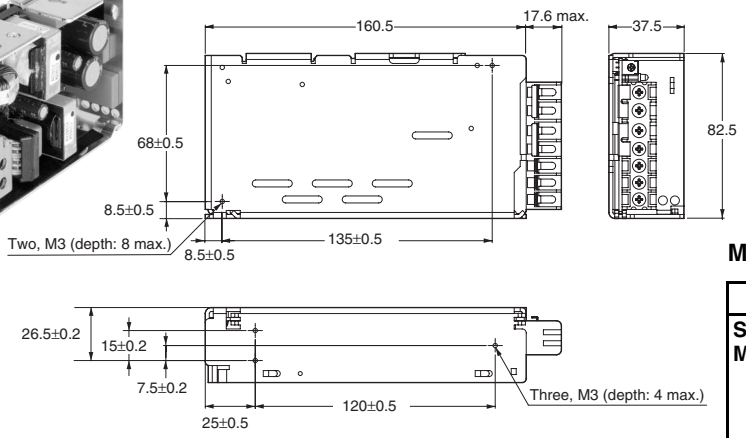
Note: The image is the S8VM-10024A Model.

Mounting Holes

	Surface Screw Mounting
Side Mounting	
Bottom Mounting	

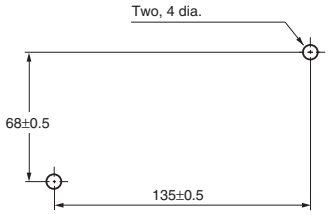
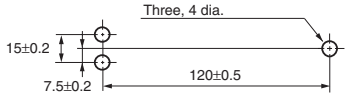
S8VM-150□□
S8VM-150□□C
S8VM-15024A

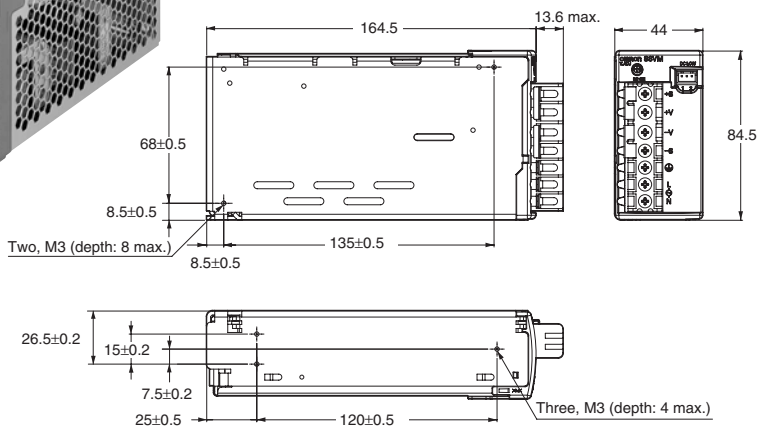




Note: The image is the S8VM-15024 Model.

Mounting Holes

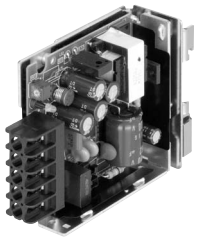
	Surface Screw Mounting
Side Mounting	
Bottom Mounting	

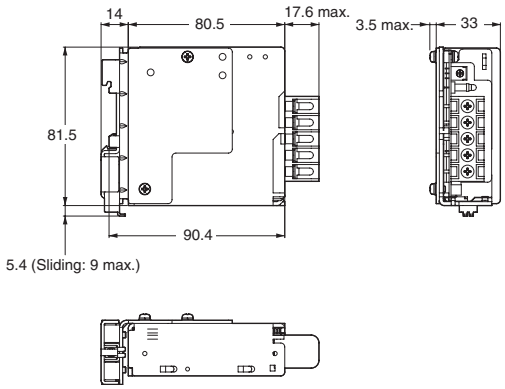


Note: The image is the S8VM-15024A Model.

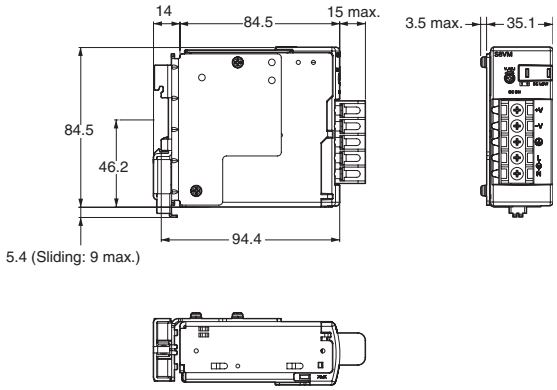
■ DIN Rail Mounting Bracket Models

S8VM-015□□D
S8VM-015□□CD
S8VM-01524AD



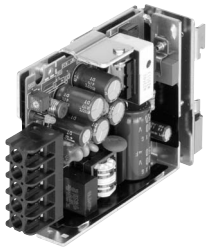


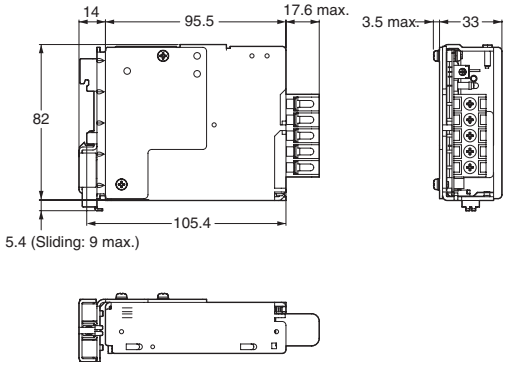
Note: The image is the S8VM-01524D Model.



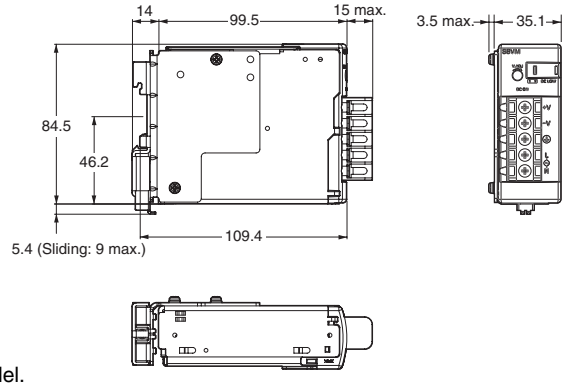
Note: The image is the S8VM-01524AD Model.

S8VM-030□□D
S8VM-030□□CD
S8VM-03024AD



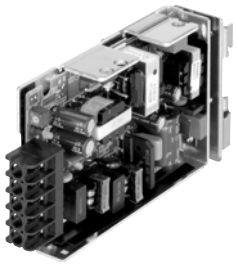


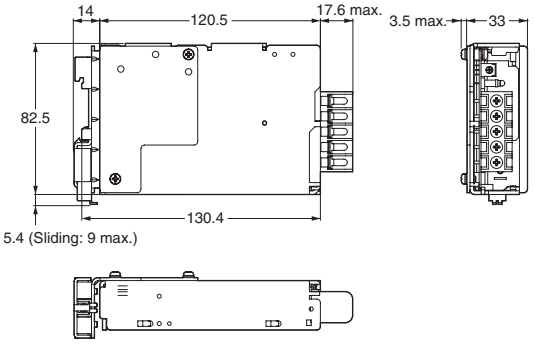
Note: The image is the S8VM-03024D Model.



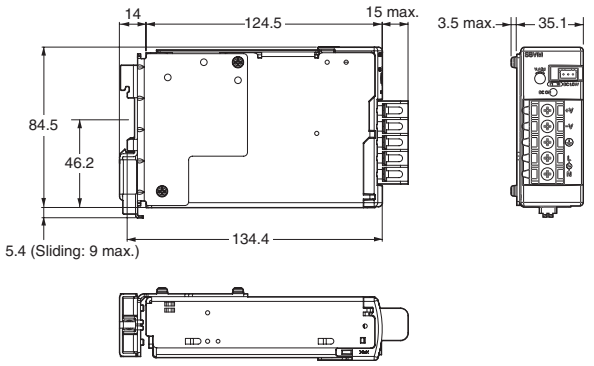
Note: The image is the S8VM-03024AD Model.

S8VM-050□□D
S8VM-050□□CD
S8VM-05024AD



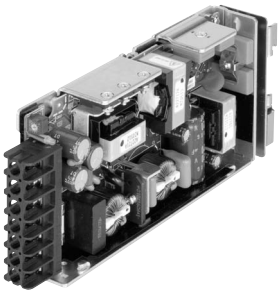


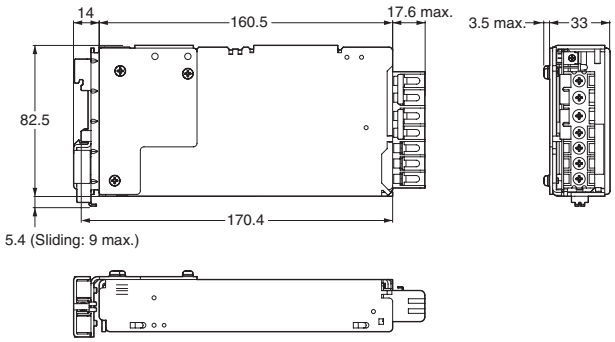
Note: The image is the S8VM-05024D Model.



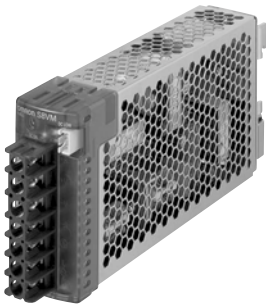
Note: The image is the S8VM-05024AD Model.

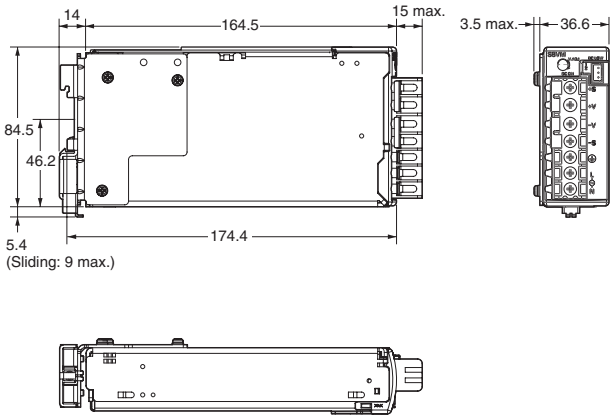
S8VM-100□□D
S8VM-100□□CD
S8VM-10024AD





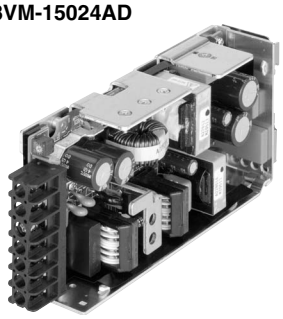
Note: The image is the S8VM-10024D Model.

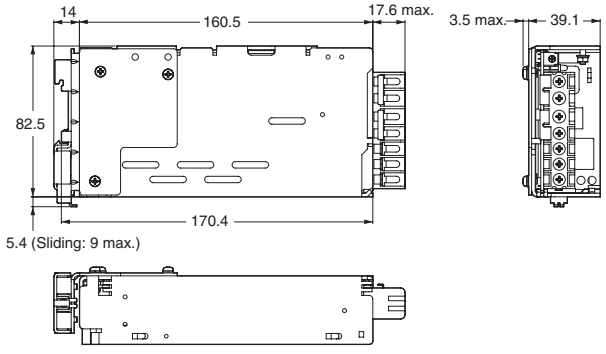




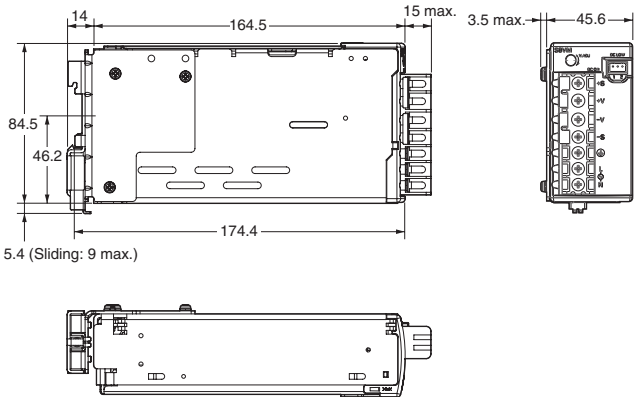
Note: The image is the S8VM-10024AD Model.

S8VM-150□□D
S8VM-150□□CD
S8VM-15024AD





Note: The image is the S8VM-15024D Model.



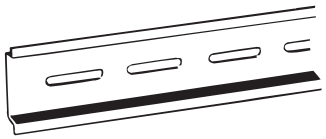
Note: The image is the S8VM-15024AD Model.

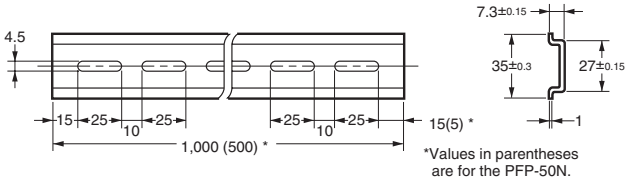
■ DIN Rail (Order Separately)

Note: All units are in millimeters unless otherwise indicated.

Mounting Rail (Material: Aluminum)

PFP-100N
PFP-50N

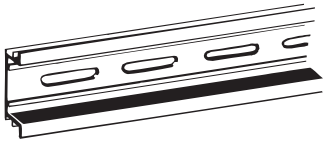


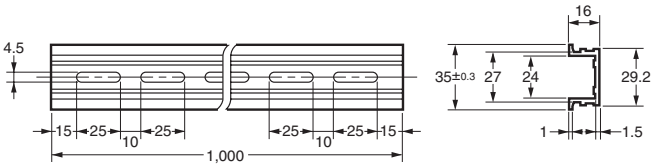


*Values in parentheses are for the PFP-50N.

Mounting Rail (Material: Aluminum)

PFP-100N2





Safety Precautions

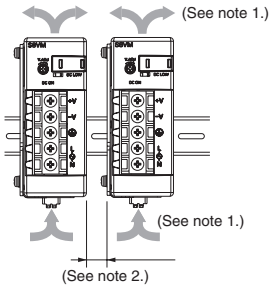
⚠ CAUTION

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.	
Fire may occasionally occur. Tighten terminal screws to the specified torque of 1.6 N·m.	
Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied.	
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.	

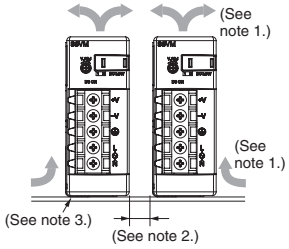
■ Precautions for Safe Use

Mounting

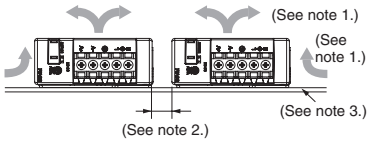
Standard mounting (DIN Rail mounting bracket type)



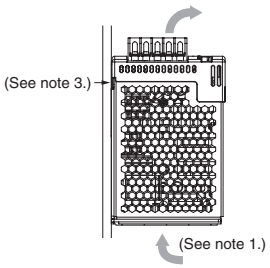
Standard mounting (Front-mounting type)



Horizontal mounting (Front-mounting type)



Face-up mounting (Front-mounting type)



Note: 1. Convection of air
2. 20 mm or more
3. Use a metal plate as the mounting panel.

Take adequate measures to ensure proper heat dissipation to increase the long-term reliability of the Product.
Be sure to allow convection in the atmosphere around devices when mounting. Do not exceed the range of the derating curve.

Use the metal plate as the mounting panel.

When cutting out holes for mounting, make sure that cuttings do not enter the interior of the Product.

Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the Product within the derating curve for the mounting direction that is used.

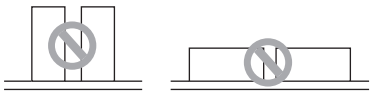
When mounting two or more Power Supplies side-by-side, allow at least 20 mm spacing between them, as shown in the above illustrations.

The internal parts may possibly be damaged if mounting screws are over inserted. Refer to *Dimensions* on page B-42 for maximum depth of insertion inside the Power Supply.

Several Power Supplies cannot be connected. (Only S8VM-100□□□□/150□□□□) Keep the Power Supply as far away from heating elements as possible when installing.

S8VM-100□□□□/S8VM-150□□□□

Incorrect **Incorrect**



Wiring

Connect the ground completely. A protective earthing connection stipulated in safety standards is used. Electric shock or malfunction may occur if the ground is not connected completely.

Minor fire may possibly occur. Ensure that input and output terminals are wired correctly.

Do not apply more than 100 N force to the terminal block when tightening it.

Be sure to remove the sheet covering the Product for machining before power-ON so that it does not interfere with heat dissipation.

Use the following material for the wires to be connected to the S8VM to prevent smoking or ignition caused by abnormal loads.
Over heating or fire can result from inadequately sized wiring materials when problems occur at the load. As a general rule, always select wire sizes suitable for at least 1.6 times the rated current.

Recommended Wire Types

Model		Recommended wire type
S8VM-015□□□□ S8VM-030□□□□ S8VM-050□□□□	(M3.5)	AWG24 to 14 (0.205 to 2.081 mm^2)
S8VM-100□□□□ S8VM-150□□□□	(M3.5)	AWG24 to 14 (0.205 to 2.081 mm^2)
S8VM-100□□□□ S8VM-150□□□□	(M4)	AWG24 to 12 (0.205 to 3.309 mm^2)

Selection of Wires

Select wires for the Power Supply carefully. Refer to this table when selecting the wires.

AWG No.	Cross-sectional area (mm^2)	Configuration (number of conductors/mm)	Voltage drop per 1 A (mV/meter)	Recommended maximum current (A)	
				UL1007 (300 V at 80°C)	UL1015 (600 V at 105°C)
30	0.051	7/0.102	358	0.12	---
28	0.081	7/0.127	222	0.15	0.2
26	0.129	7/0.16	140	0.35	0.5
24	0.205	11/0.16	88.9	0.7	1.0
22	0.326	17/0.16	57.5	1.4	2.0
20	0.517	26/0.16	37.6	2.8	4.0
18	0.823	43/0.16	22.8	4.2	6.0
16	1.309	54/0.18	14.9	5.6	8.0
14	2.081	41/0.26	9.5	---	12.0
12	3.309	65/0.26	6.0	---	22.0
10	5.262	104/0.26	3.8	---	35.0

Recommended Maximum Current

The table is applicable to wires with 1 to 4 conductors. Keep the current value to within 80% of the values shown in this table when using wires having 5 or more conductors.

XH Connector Preparation

The following Products are provided with the S8VM-05024A□, S8VM-10024A□ and S8VM-15024A□ for the undervoltage alarm transistor output wiring.

Connector	S8VM-05024A□	S8VM-10024A□	Manufactured by JST
		S8VM-15024A□	
	S3B-XH-A-1	BH3B-XH-2	
Housing (provided)	XHP-3		
Terminal (provided)	BXH-001T-P0.6 or SXH-001T-P0.6		

Be sure to prepare the connector according to the following instructions to ensure correct wiring. For details, refer to the JST catalog.

- Use a wire size of AWG22 to AWG28.
- The guideline for the length of sheath to be stripped from the wire is 2.1 to 2.6 mm.
- Use either a YC or YRS Crimping Tool (manufactured by JST) to crimp the terminal and wire.
- Be sure to insert the crimped terminal wires into the housing fully until a click is heard. Also, make sure that the wires attached to the housing are securely locked in place.

Installation Environment

Do not use the Power Supply in locations subject to shocks or vibrations. In particular, install the Power Supply as far away as possible from contactors or other devices that are a vibration source.

Install the Power Supply well away from any sources of strong, high-frequency noise and surge.

Operating Life

The life of a Power Supply is determined by the life of the electrolytic capacitors used inside. Here, Arrhenius Law applies, i.e., the life will be halved for each rise of 10°C or the life will be doubled for each drop of 10°C. The life of the Power Supply can thus be increased by reducing its internal temperature.

Ambient Operating and Storage Environments

Store the Power Supply at a temperature of –25 to 65°C and a humidity of 25% to 90%.

The Internal parts may occasionally be deteriorated or damaged. Do not use the Power Supply outside the derating range (i.e., under conditions indicated by the shaded area ( ) in the derating curve diagrams on page B-37.)

Use the Power Supply at a humidity of 30% to 85%.

Do not use the Power Supply in locations subject to direct sunlight.

Do not use the Power Supply in locations where liquids, foreign matter, or corrosive gases may enter the interior of the product.

Overcurrent Protection

If the Power Supply has been short-circuited or supplied with an overcurrent longer than 30 seconds, the internal parts of the Power Supply may occasionally be deteriorated or damaged. Do not continue to use longer than 30 seconds in this state.

Internal parts may possibly be deteriorated or 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 the Battery

If a battery is to be connected as the load, install an overcurrent limiting circuit and an overvoltage protection circuit.

Dielectric Strength Test

If a high voltage is applied between an input and the case (PE/FG), it will pass though the LC of the built-in noise filter and energy will be stored. If the high voltages used for dielectric strength testing are turned ON and OFF with a switch, timer, or similar device, impulse voltage will be generated when the voltage is turned OFF and internal parts may possibly be damaged. To prevent the generation of impulse voltages, reduce the applied voltage slowly with a variable resistor on the test device or turn the voltage ON and OFF at the zero-cross point.

When performing the test, be sure to short-circuit all the output terminals to protect them from damage.

Insulation Test

When performing the test, be sure to short-circuit all the output terminals to protect them from damage.

Inrush Current

When two or more Power Supplies are connected to the same input, inrush current is added to the total current. Select fuses and circuit breakers giving sufficient consideration to the fusing or operating characteristics so that fuses will not burn and breakers will not break due to inrush current.

Output Voltage Adjuster (V.ADJ)

Default Setting: Set at the rated voltage

Adjustable Range: Adjustable with output voltage adjuster (V.ADJ) on the front panel of the Product from –20% to 20% of the rated output voltage (–10% to 20% of the rated voltage for S8VM-□□□24A□)

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.

The output voltage may increase beyond the allowable voltage range (up to +20% of the rated voltage) depending on the operation of the output voltage adjuster (V.ADJ). When adjusting the output voltage, check the output voltage of the Power Supply and be sure that the load is not damaged.

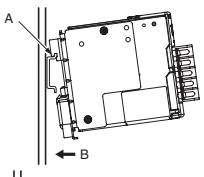
When increasing the output voltage to more than +20% of the rated value using the output voltage adjuster (V. ADJ), the overvoltage protection function may operate.

(S8VM-□□□24A□ Only)

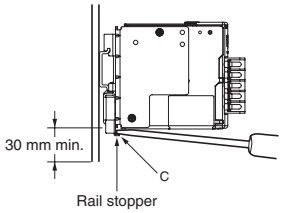
Turn the output voltage adjuster (V.ADJ) slowly. When decreasing the output voltage quickly, or when adjusting the output voltage to less than –10% of the rated value, the undervoltage alarm function may operate.

DIN Rail Mounting

When mounting to a DIN Rail, lower the S8VM onto the Rail until the Rail stopper clicks into place, hook section A over the edge of the Rail and push in the direction of B.



To remove the S8VM from the DIN Rail, insert a screwdriver into section C and pull the S8VM away from the Rail.

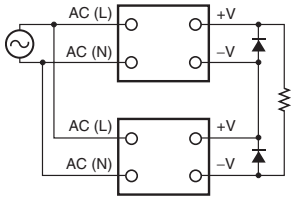


Series Operation

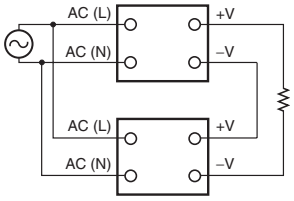
Two Power Supplies can be connected in series.
The (±) voltage output can be accomplished with two Power Supplies.

Series Operation

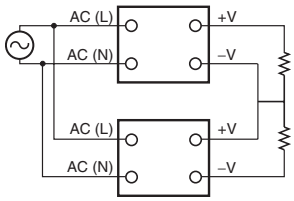
15W/30W
Correct



50W/100W/150W
Correct



Output Voltage (±)
Correct



Note: 1. If the load is short-circuited, a reverse voltage may be applied inside the Power Supply unit, and this may possibly cause the deterioration or damage of the Power Supply unit. Connect the diode as shown in the figure. Use the following guidelines to select the diode to be connected.

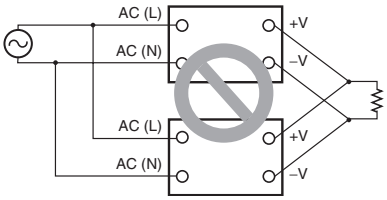
Type	Schottky Barrier diode
Dielectric strength (V_{RRM})	Twice the rated output voltage or above
Forward current (I_F)	Twice the rated output current or above

2. Though 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.

Incorrect



In Case There Is No Output Voltage

The possible cause for no output voltage may be that the overcurrent protection or overvoltage protection has operated. The internal protection circuit may operate if a large amount of surge voltage such as a lightening surge occurs while turning ON the Power Supply.

If there is no output voltage even after checking the following points please contact us.

Check the Overload Protected Status

Check whether the load is in overload status or is short-circuited. Remove wires load when checking.

Attempt to clear the overvoltage or internal protection function:

Turn the Power Supply OFF once, and leave it OFF for at least 3 minutes. Then turn it ON again to see if this clears the condition.

Check whether the +S terminal or –S terminal is opened with the short bar removed. (S8VM-100□□□□/S8VM-150□□□□ only)

Check if the output voltage has been adjusted to more than +20% of the rated value by output voltage adjuster. (V. ADJ).

Noise when the Input is Turned ON (50/100/150W)

A harmonic current suppression circuit is built into the Power Supply. This circuit can create noise when the input is turned ON, but it will last only until internal operation stabilizes and does not indicate any problem in the Product.

Warranty and Application Considerations

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.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS, OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON *Warranty and Limitations of Liability.*

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. T033-E2-02A

In the interest of product improvement, specifications are subject to change without notice.

Switch Mode Power Supply
S8TS

Block-type Switch mode Power Supply That Mounts to DIN-rail

- Power supply range of 60 to 240 W available with just one model (24-V models).
- Easy creation of multi-power supply configurations with different output power supplies connected together (24-V, 12-V, and 5-V models).
- Improve power supply system reliability by creating N+1 redundant systems (24-V and 12-V models).
- Approved by UL/CSA standards, EN60950 (IEC 950), and VDE 0160.

Model Number Structure

■ Model Number Legend

S8TS-□□□□□□-□□
1 2 3 4

1. Capacity
060: 60 W
030: 30 W
025: 25 W

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

3. Structure
None: Screw terminals
F: Connector terminals

4. Bus Line Connectors
None: Basic Block only
E1: S8T-BUS01 and S8T-BUS02 included

Ordering Information

■ Basic Block

Output voltage	Output current	Screw terminal type		Connector terminal type (See note 3.)	
		With Bus Line Connectors (See note 1.)	Without Bus Line Connectors (See note 2.)	With Bus Line Connectors (See note 1.)	Without Bus Line Connectors (See note 2.)
24 V	2.5 A	S8TS-06024-E1	S8TS-06024	S8TS-06024F-E1	S8TS-06024F
12 V	2.5 A	S8TS-03012-E1	S8TS-03012	S8TS-03012F-E1	S8TS-03012F
5 V	5 A	---	S8TS-02505	---	S8TS-02505F

■ Bus Line Connector

Type	Number of Connectors	Model number
AC line + DC line bus (For parallel operation)	1 Connector	S8T-BUS01
	10 Connectors (See note 4.)	S8T-BUS11
AC line bus (For series operation or isolated operation)	1 Connector	S8T-BUS02
	10 Connectors (See note 5.)	S8T-BUS12

Note 1. One S8T-BUS01 Connector and one S8T-BUS02 Connector are included as accessories.
2. Bus Line Connectors are ordered separately if necessary.
3. Attached connectors: 2ESDPLM-05P (for output terminal) and 3ESDPLM-03P (for input terminal) made by DINKLE ENTERPRISE.
4. One package contains 10 S8T-BUS01 Connectors.
5. One package contains 10 S8T-BUS02 Connectors.

Specifications

■ Ratings/Characteristics

24/12-V Models (Basic Block: S8TS-06024□/S8TS-03012□)

Item			Single operation	Parallel operation
Efficiency			24-V models: 75% min.; 12-V models: 70% min. (with rated input, 100% load)	
Input	Voltage		100 to 240 VAC (85 to 264 VAC)	
	Frequency		50/60 Hz (47 to 63 Hz)	
	Current	100 V input	24-V models: 1.0 A max. 12-V models: 0.7 A max.	24-V models: 1.0 A × (No. of Blocks) max. 12-V models: 0.7 A × (No. of Blocks) max.
		200 V input	24-V models: 0.5 A max. 12-V models: 0.4 A max.	24-V models: 0.5 A × (No. of Blocks) max. 12-V models: 0.4 A × (No. of Blocks) max.
	Power factor		24-V models: 0.9 min.; 12-V models: 0.8 min. (with rated input, 100% load) (See note 3.)	
	Leakage current	100 V input	0.35 mA max.	0.35 mA × (No. of Blocks) max.
		240 V input	0.7 mA max.	0.7 mA × (No. of Blocks) max.
	Inrush current (25°C, cold start) (See note 4.)	100 V input	25 A max.	25 A × (No. of Blocks) max.
		200 V input	50 A max.	50 A × (No. of Blocks) max.
Output (See note 3.)	Voltage adjustment range		24-V models: 22 to 28 V 12-V models: 12 V ±10% (with V.ADJ) (See note 1.)	
	Ripple		2% (p-p) max.	
	Input variation influence		0.5% max. (with 85 to 264 VAC input, 100% load)	
	Load variation influence		2% max. (with rated input, 10% to 100% load)	3% max. (with rated input, 10% to 100% load)
	Temperature variation influence		0.05%/°C max. (with rated input and output)	
	Startup time (See note 4.)		1,000 ms max.	
	Hold time (See note 4.)		20 ms min. (with 100/200 VAC, rated input)	
Additional functions	Overcurrent protection (See note 4.)		105% to 125% of rated load current, inverted L drop type, automatic reset	100% to 125% of rated load current inverted L drop type, automatic reset
	Overvoltage protection (See note 4.)		Yes	
	Parallel operation		Yes, 4 Blocks max.	
	N+1 redundant system		Yes, 5 Blocks max.	
	Series operation		Yes	
	Undervoltage indicator (See note 4.)		Yes (color: red)	
	Undervoltage detection output (See note 4.)		Yes (open collector output), 30 VDC max., 50 mA max.	
Other	Ambient operating temperature (See note 4.)		Operating: Refer to the derating curve in *Engineering Data.* Storage: –25 to 65°C (with no icing or condensation)	
	Ambient humidity		Operating: 25% to 85%; Storage: 25% to 90%	
	Dielectric strength		3.0 kVAC, 50/60 Hz for 1 minute (between all inputs and all outputs; detection current: 20 mA)	
			2.0 kVAC, 50/60 Hz for 1 minute (between all inputs and GR terminal; detection current: 20 mA)	
			1.0 kVAC for 1 minute (between all outputs and GR terminal; detection current: 20 mA)	
	Insulation resistance		100 MΩ min. (between all outputs and all inputs, and between all outputs and GR terminal) at 500 VDC	
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions	
	Shock resistance		150 m/s², 3 times each in ±X, ±Y, and ±Z directions	
	Output indicator		Yes (color: green)	
	Electromagnetic interference		Conforms to FCC Class A, EN50081-1	
	EMI		Conforms to EN50081-1/1992	
	Power factor correction		Conforms to EN61000-3-2, EN61000-3-2 A14	
	EMS		Conforms to EN61000-6-2/1999	
	Approved standards		UL: 508 (Listing; Class 2: Per UL1310), 1950, 1604 (Class I, Division 2, Groups A, B, C, D Hazardous Locations)) cUL: CSA C22.2 No.14, No.213 (Class I, Division 2, Groups A, B, C, D Hazardous Locations), No. 950 (Class 2) (See note 2.) EN/VDE: EN50178 (=VDE0160), 60950 (=VDE0806)	
	Weight		450 g max.	450 g × (No. of Blocks) max.

Note 1. Refer to page B-59 for details on adjusting the output voltage for parallel operation. If set to less than −10%, the undervoltage detection function may operate. Ensure that the output capacity and output current after adjustment do not exceed the rated output capacity and rated output current respectively.

2. Class 2 approval does not apply to parallel operation.

3. The output current is specified at power output terminals.

4. Refer to the explanations of functions on page B-56 for details.

5. Be sure to mount End Plates (PFP-M) on both ends of the Power Supply.

5-V Models (Basic Block: S8TS-02505□)

Item			Single operation
Efficiency (typical)			62% min. (with rated input, 100% load)
Input	Voltage		100 to 240 VAC (85 to 264 VAC)
	Frequency		50/60 Hz (47 to 63 Hz)
	Current	100 V input	0.7 A max.
		200 V input	0.4 A max.
	Power factor		0.8 min. (with rated input, 100% load)
	Leakage current	100 V input	0.35 mA max.
		240 V input	0.7 mA max.
	Inrush current (25°C, cold start) (See note 2.)	100 V input	25 A max.
		200 V input	50 A max.
Output (See note 2.)	Voltage adjustment range		5 V ± 10% (with V. ADJ) (See note 1.)
	Ripple		2% (p-p) max.
	Input variation influence		0.5% max. (with 85 to 264 VAC input, 100% load)
	Temperature variation influence		0.05%/°C max. (with rated input and output)
	Load variation influence		1.5% max. (with rated input, 10% to 100% load)
	Startup time (See note 3.)		1,000 ms max.
	Hold time (See note 3.)		20 ms min. (with 100/200 VAC, rated input)
Additional functions	Overcurrent protection (See note 3.)		105% to 125% of rated load current, inverted L drop type, automatic reset
	Overvoltage protection (See note 3.)		Yes
	Parallel operation		No
	N+1 redundant system		No
	Series operation		Yes (with the external diode)
	Undervoltage indicator (See note 3.)		Yes (color: red)
	Undervoltage detection output (See note 3.)		Yes (open collector output), 30 VDC max., 50 mA max.
Other	Ambient operating temperature (See note 3.)		Operating: Refer to the derating curve in *Engineering Data*. Storage: –25 to 65°C (with no icing or condensation)
	Ambient humidity		Operating: 25% to 85%, Storage: 25% to 90%
	Dielectric strength		3.0 kVAC, 50/60 Hz for 1 minute (between all inputs and all outputs; detection current: 20 mA)
			2.0 kVAC, 50/60 Hz for 1 minute (between all inputs and GR terminal; detection current: 20 mA)
			1.0 kVAC for 1 minute (between all outputs and GR terminal; detection current: 20 mA)
	Insulation resistance		100 MΩ min. (between all outputs and all inputs, and between all outputs and GR terminal) at 500 VDC
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions
	Shock resistance		150 m/s^2, 3 times each in ±X, ±Y, and ±Z directions
	Output indicator		Yes (color: green)
	Electromagnetic interference		Conforms to FCC Class A, EN50081-1
	EMI		Conforms to EN50081-1/1992
	Power factor correction		Conforms to EN61000-3-2, EN61000-3-2A14
	EMS		Conforms to EN61000-6-2/1999
	Approved standards		UL: 508 (Listing), 1950, 1604 (Class I, Division 2, Groups A, B, C, D Hazardous Locations) cUL: CSA C22.2 No.14, No.213 (Class I, Division 2, Groups A, B, C, D Hazardous Locations), No. 950 EN/VDE: EN50178 (=VDE0160), 60950 (=VDE0806)
	Weight		450 g max.

Note 1. If set to less than –10%, the undervoltage detection function may operate. Ensure that the output capacity and output current after adjustment do not exceed the rated output capacity and rated output current respectively.

2. The output current is specified at power output terminals.

3. Refer to the explanations of functions on page B-56 for details.

4. Be sure to mount End Plates (PFP-M) on both ends of the Power Supply.

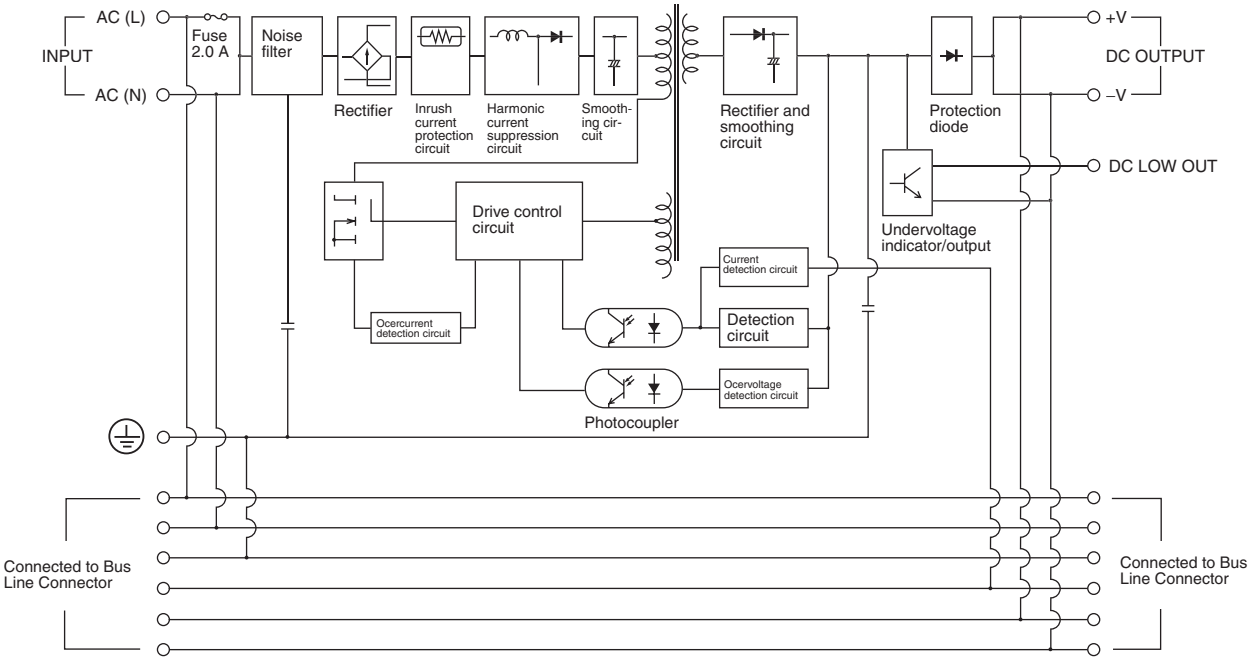
■ Reference Value

Item	Value	Definition
Reliability (MTBF)	250,000 hrs min.	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent the life of the product.
Life expectancy	10 yrs min.	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.

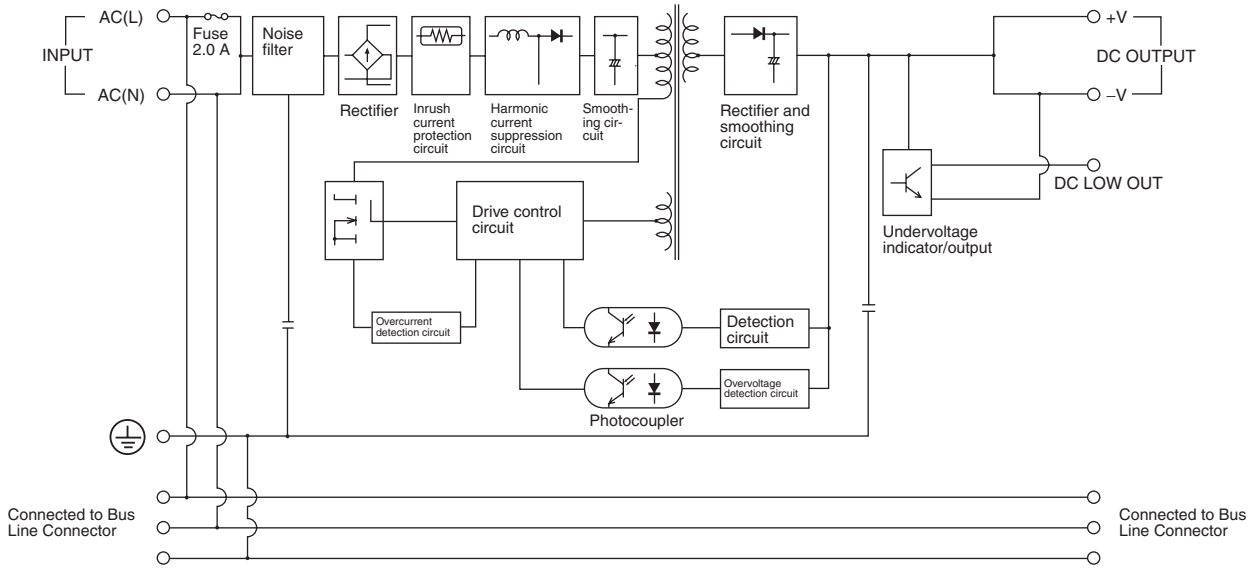
Connections

■ Block Diagrams

S8TS-06024□ and S8TS-03012□

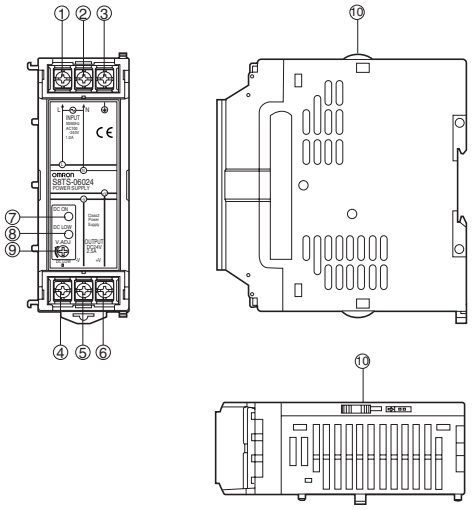


S8TS-02505□

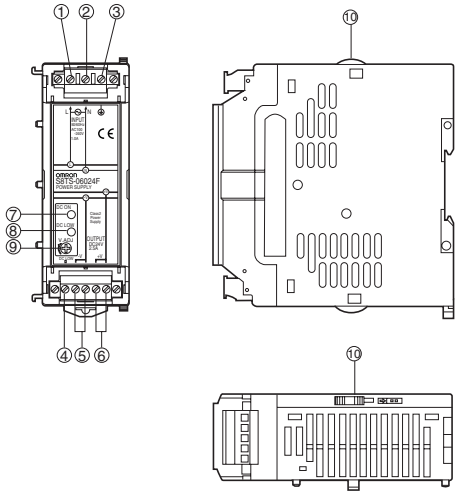


■ Installation

Basic Blocks with Screw Terminals: S8TS-□□□□□



Basic Blocks with Connector Terminals: S8TS-□□□□□F



① **AC Input Terminal (L):** Connect an input line to this terminal.

② **AC Input Terminal (N):** Connect an input line to this terminal.

③ **Ground Terminal (⏚):** Connect a ground line to this terminal.

④ **Undervoltage Detection Output (DC LOW OUT):** Open Collector output

⑤ **DC Output Terminal (–V):** Connect load lines to this terminal.

⑥ **DC Output Terminal (+V):** Connect load lines to this terminal.

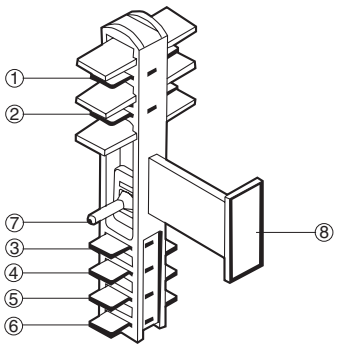
⑦ **Output Indicator (DC ON: Green):** Lights while DC output is ON.

⑧ **Undervoltage Indicator (DC LOW: Red):** Lights when the voltage at the output terminal drops.

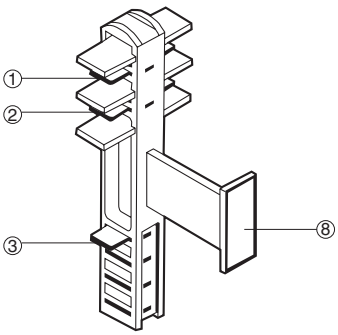
⑨ **Output Voltage Adjuster (V.ADJ):** Use to adjust the voltage.

⑩ **Slider:** Slide to the lock side when connecting. Unlock the slider when disconnecting.

S8T-BUS01 Bus Line Connector (AC Line + DC Line Bus)



S8T-BUS02 Bus Line Connector (AC Line Bus)



① AC Input Terminal (L)

② AC Input Terminal (N)

③ Ground Terminal (⏚)

④ Parallel Operation Signal Terminal

⑤ DC Output Terminal (+V)

⑥ DC Output Terminal (–V)

⑦ Selector

⑧ Projected Indicator Section

Operation

Maximum Number of Blocks That Can Be Linked

Basic Blocks can be linked using Bus Line Connectors.

Increasing Output Capacity

Models	Number of Blocks	N+1 Redundant System
S8TS-06024□	4 Blocks	Yes, 5 Blocks
S8TS-03012□	4 Blocks	Yes, 5 Blocks
S8TS-02505□	No	No

N+1 Redundant Systems

To ensure stable operation when there is a failure in one of the Blocks, use within the derating curve for N+1 redundant systems.

Multi-output Power Supply

Up to 4 Basic Blocks with different output voltage specifications can be linked.

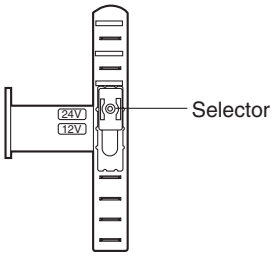
Selecting Bus Line Connectors

Select Bus Line Connectors according to the linking method as follows:

- Using parallel operation:

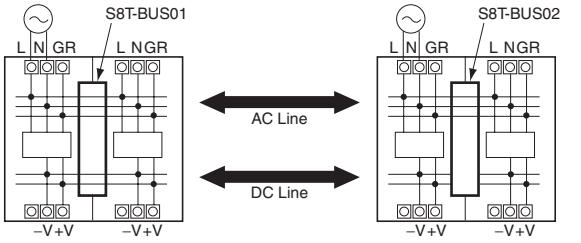
  S8T-BUS01 (DC line connected)

  The S8T-BUS01 Bus Line Connector is equipped with a selector to prevent erroneous connection of Blocks with different output voltage specifications. Slide the selector to the output voltage for parallel operation.



- Not using parallel operation:

  S8T-BUS02 (DC line not connected)



DC line connected (parallel connection)

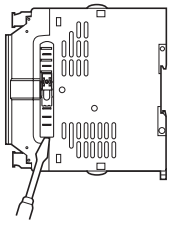
DC line not connected (isolated connection)

Note: Series operation is possible with different specifications, but the current that flows to the load must not exceed the rated output current of any Block.

Mounting and Removing Bus Line Connectors

Pay attention to the following points to maintain electrical characteristics.

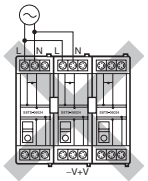
- Do not insert/remove the Connectors more than 20 times.
- Do not touch the Connector terminals.
- To remove the Connectors, insert a flat-bladed screwdriver alternately at both ends.



Wiring Linked Blocks

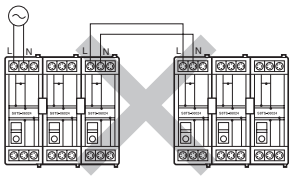
When linking Blocks together, wire input lines to one Block only, otherwise inputs may be shorted internally resulting in damage to the Block.

Do not wire inputs to more than one



Do not cross-wire Blocks or wire between a Block and another device. If the rated current is exceeded, Bus Line Connectors may be damaged.

Do not use cross-wire Blocks.



When Basic Blocks are linked together, it is necessary to wire the GR terminal of only one Block, not all the Blocks.

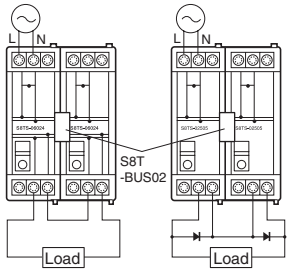
Series Operation and ± Output

Using 2 Basic Blocks enables series operation and the use of ± output. An external diode is not required for S8TS-06024□ and S8TS-03012□ models but is required for S8TS-02505□ models. Use the following as a rough guide for selecting the diode.

Type	Schottky barrier diode
Withstand voltage (V_{RRM})	At least twice the rated output voltage
Current with normal direction (I_F)	At least twice the rated output current

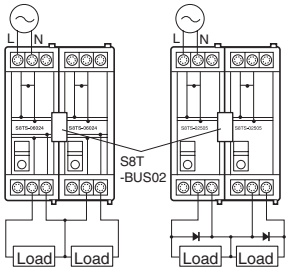
Series Operation

24/12-V models 5-V models



± Output

24/12-V models 5-V models



Adjusting Output Voltage for Parallel Operation

The Blocks are factory-set to the rated output voltage. When adjusting voltages, set the same values for Blocks with V.ADJ before linking them together. Adjust the set values within the limits given in the following table.

Model number	Difference between output voltages
S8TS-06024□	0.24 V max.
S8TS-03012□	0.12 V max.

Do not adjust voltages after Blocks are linked together. The output voltage may become unstable.

Inrush Current

The inrush current per Basic Block is 25 A max. at 100 VAC and 50 A max. at 200 VAC. When N Blocks are linked together, the inrush current will be equal to N times that for 1 Basic Block. Be sure to use a fuse with the appropriate fusing characteristics or a breaker with the appropriate tripping characteristics.

Leakage Current

The leakage current per Basic Block is 0.35 mA at 100 VAC and 0.7 mA at 240 VAC. When N Blocks are linked together, the leakage current will be equal to N times that for 1 Basic Block.

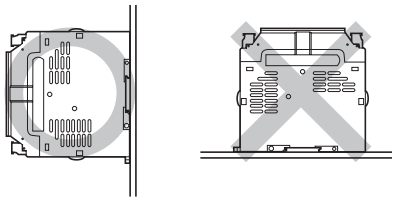
Mounting

Mounting Direction

Standard mounting	Yes
Face-up mounting	No
Other mounting methods	No

Use standard mounting only. Using any other mounting method will prevent proper hear dissipation and may result in deterioration or damage of internal elements.

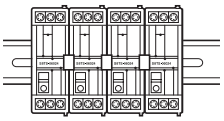
Standard mounting Face-up mounting

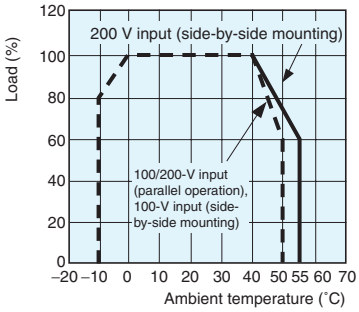


Engineering Data

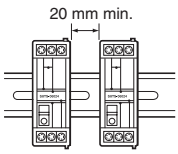
■ Derating Curves

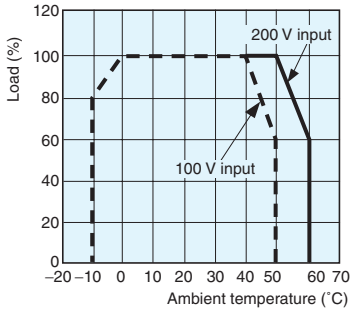
Parallel Operation and Side-by-side Mounting



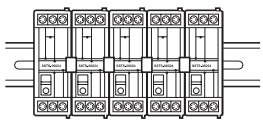


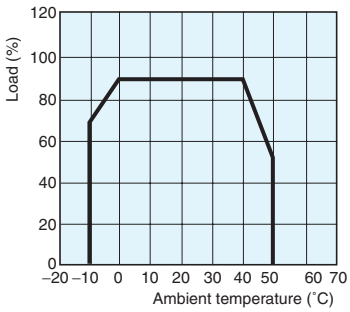
Single Operation with Spaces between Blocks





N+1 Redundant System

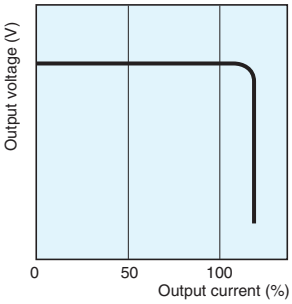




Note: If there is a derating problem, use forced air-cooling.
The ambient temperature is specified for a point 50 mm below the power supply.

■ Overload Protection

The Power Supply is provided with an overload protection function that protects the load and the power supply from possible damage by overcurrent. When the output current rises above 105% min. of the rated current (100% min. of the rated current for parallel operation), the protection function is triggered, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.

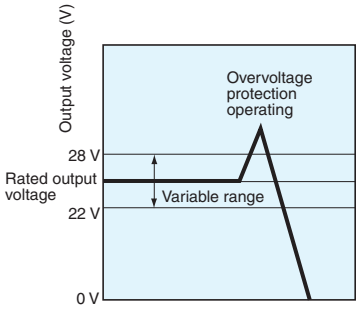


Note: Do not allow the short-circuited or overcurrent state to continue for more than 20 s, otherwise it may damage the element.

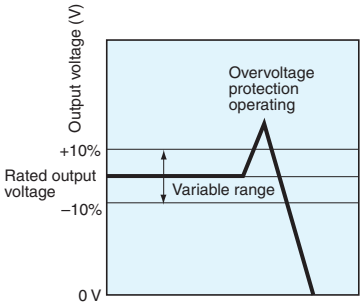
■ Overvoltage Protection

The Power Supply is provided with an overvoltage protection function that protects the load and the Power Supply from possible damage by overvoltage. When an excessive voltage is output, the output voltage is shut OFF. Reset the Power Supply by turning it OFF for at least 1 minute and then turning it back ON again.

24-V Models

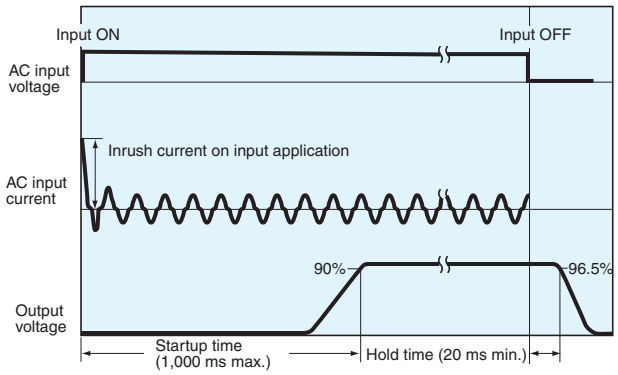


12-V and 5-V Models



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

■ Inrush Current, Startup Time, Hold Time



■ Undervoltage Indicator and Undervoltage Detection Output

When a drop in the output voltage is detected, the red indicator (DC LOW) lights and transistor (DC LOW: OUT) output turns ON. The detection voltage is set to approximately 80% (75% to 90%) of the rated output voltage.

This function monitors the voltage at the output terminals. For accurate confirmation of the output status, measure the voltage at the output terminal.

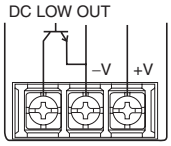
Status of indicator	Voltage status	Output status (See note 1.)
Green: ● DC ON Red: ○ DC LOW	Higher than approx. 80% of the rated output voltage	ON
Green: ● DC ON Red: ● DC LOW (See note 2.)	Less than approx. 80% of the rated output voltage	OFF
Green: ○ DC ON Red: ○ DC LOW	Close to 0 V	OFF

Note 1: Transistor output: Open collector
30 VDC max., 50 mA max.
ON residual voltage: 2 V max.
OFF leakage current: 0.1 mA max.

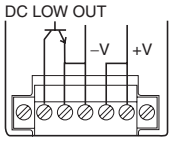
2: The indicators become dimmer as the output voltage approaches 0 V.

Undervoltage Output

Blocks with Screw Terminals



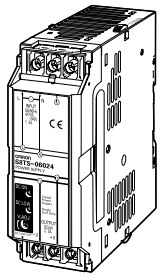
Blocks with Connector Terminals

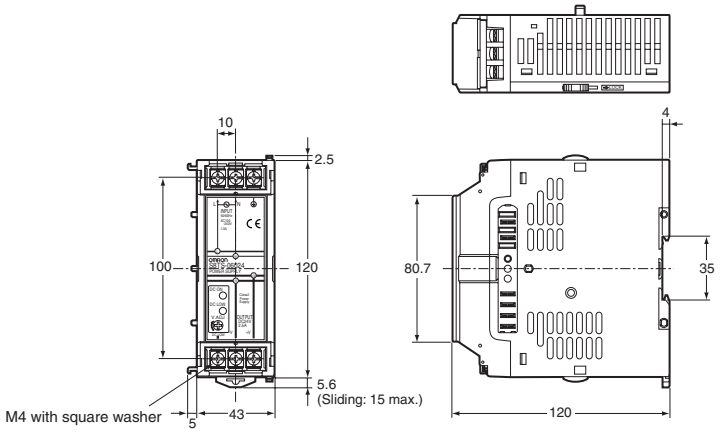


Dimensions

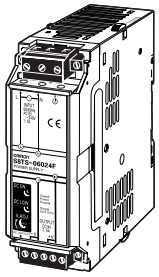
Note: All units are in millimeters unless otherwise indicted.

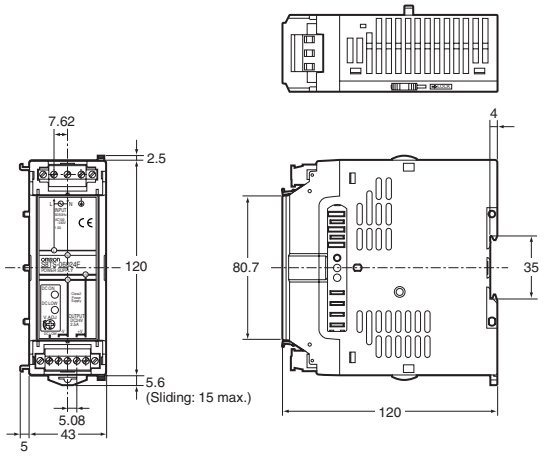
S8TS-□□□□□





S8TS-□□□□□F

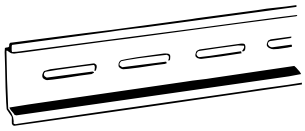


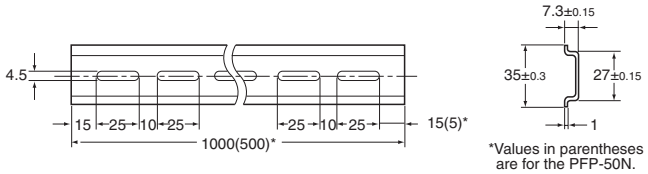


■ Mounting Track (Order Separately)

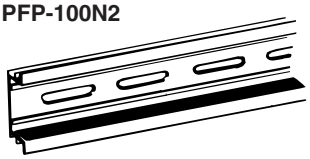
DIN-rail

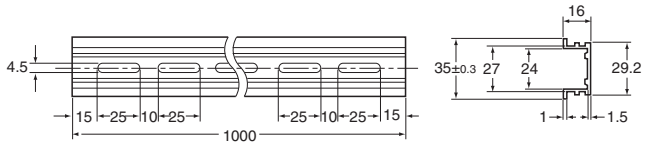
PFP-100N
PFP-50N





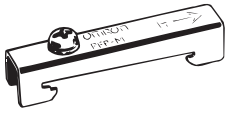
PFP-100N2

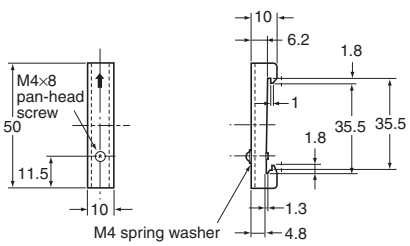




End Plate

PFP-M





Precautions

⚠ WARNING

Do not attempt to take any Block apart or touch the interior of a Block while the power is being supplied. Doing so may result in electric shock.

Do not link or separate any Blocks while the power is being supplied. Doing so may result in electric shock.

Do not remove the connector cover on unused Bus Line Connectors. Doing so may result in electric shock.

Close the terminal covers before use. Not doing so may result in electric shock.

⚠ Caution

When linking Blocks, lock the sliders and track stoppers.

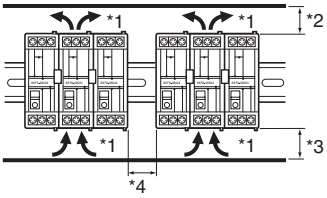
When linking Blocks, wire the input line for 1 Block only. Otherwise, inputs may be shorted internally resulting in damage to the Blocks.

The tightening torque for terminal screws is 1.08 N·m. The tightening torque for connector screws and screw flanges is 0.30 N·m. Loose screws may result in fire.

Do not touch the Power Supply while power is supplied or immediately after power is turned OFF. The Power Supply becomes hot and touching it may result in injury.

Mounting

To improve the long-term reliability of devices, give due consideration to heat dissipation when mounting. With the S8TS, heat is dissipated by natural convection. Mount Blocks in a way that allows convection in the atmosphere around them.



*1. Convection of air

*2. 75 mm min.

*3. 75 mm min.

*4. 10 mm min.

When cutting out holes for mounting, make sure that cuttings do not enter the interior of the products.

Wiring

Be sure to wire I/O terminals correctly. When tightening the terminals, do not exert a force of 100 N or more on terminal blocks or connector terminals.

With Blocks with connector terminals, the current for 1 terminal must not exceed 7.5 A. If a higher current is required, use 2 terminals.

Recommended Wire Size for Single Operation

Model	Recommended wire size
S8TS-06024 S8TS-03012	AWG 14 to 20 (cross-sectional area: 0.517 to 2.081 mm^2)
S8TS-02505	AWG 14 to 18 (cross-sectional area: 0.823 to 2.081 mm^2)
S8TS-06024F S8TS-03012F	AWG 12 to 20 (cross-sectional area: 0.517 to 3.309 mm^2)
S8TS-02505F	AWG 12 to 18 (cross-sectional area: 0.823 to 3.309 mm^2)

Recommended Wire Size for Parallel Operation

Model		Recommended wire size
S8TS-06024 S8TS-03012	For 2 Units connected in parallel	AWG 14 to 18 (cross-sectional area: 0.823 to 2.081 mm^2)
	For 3 Units connected in parallel	AWG 14 to 16 (cross-sectional area: 1.309 to 2.081 mm^2)
	For 4 Units connected in parallel	AWG 14 (cross-sectional area: 2.081 mm^2)
S8TS-06024F S8TS-03012F	For 2 Units connected in parallel	AWG 12 to 18 (cross-sectional area: 0.823 to 3.309 mm^2)
	For 3 Units connected in parallel	AWG 12 to 16 (cross-sectional area: 1.309 to 3.309 mm^2)
	For 4 Units connected in parallel	AWG 12 to 14 (cross-sectional area: 2.081 to 3.309 mm^2)

Blocks with Connector Terminals

- When using Blocks with connector terminals, the current for 1 terminal must not exceed 7.5 A. If a higher current is required, use 2 terminals.
- Do not insert/remove AC input connectors or DC output connector more than 20 times.

Installation Environment

Do not use the Power Supply in locations subject to shocks or vibrations. Be sure to mount End Plates (PFP-M) on both ends of the Power Supply. Install the Power Supply well away from any sources of strong, high-frequency noise.

Operating and Storage Environments

Do not use or store the Power Supply in the following locations. Doing so may result in failure, malfunction, or deterioration of performance characteristics.

- Do not use in locations subject to direct sunlight.
- Do not use in locations where the ambient temperature exceeds the range of the derating curve.
- Do not use in locations where the humidity is outside the range 25% to 85%, or locations subject to condensation due to sudden temperature changes.
- Do not store in locations where the ambient temperature is outside the range –25 to 65°C or where the humidity is outside the range 25% to 95%.
- Do not use in locations where liquids, foreign matter, corrosive gases, or flammable gases may enter the interior of products.

Charging Batteries

If a battery is connected as the load, provide an overcurrent control circuit and an overvoltage protective circuit.

Output Voltage Adjuster (V.ADJ)

Do not exert excessive force on the output voltage adjuster (V.ADJ). Doing so may break the adjuster.

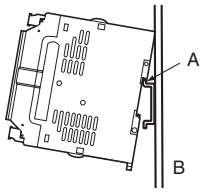
Setting the adjuster to a setting less than 10% may cause the undervoltage detection function to operate.

Bus Line Connectors

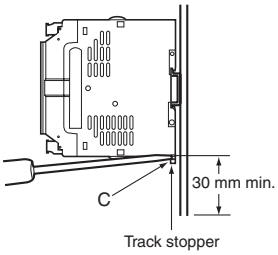
Do not apply sudden shocks (e.g., by dropping) to the Bus Line Connectors. Doing so may result in damage.

DIN-rail Mounting

To mount the Block on a DIN-rail, hook portion (A) of the Block onto the track and press the Block in direction (B).



To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.



No Output Voltage

If there is no output voltage, it is possible that overcurrent protection or overvoltage protection is operating. It is also possible that the latch protection circuit is operating due to the application of a large surge, such as lightning surge. Confirm the 2 points below. If there is still no output voltage, consult your OMRON representative.

- Checking for Overcurrent Protection:
  Separate the load line and confirm that it is not in an overcurrent state (including short-circuits).
- Checking for Overvoltage Protection or Latch Protection:
  Turn the input power supply OFF, and then turn it ON again after 1 minute or more has elapsed.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. T022-E2-03

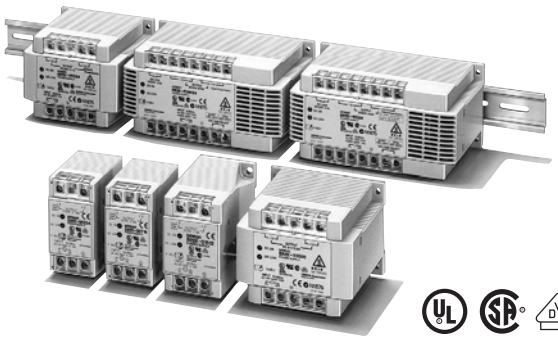
In the interest of product improvement, specifications are subject to change without notice.

Switch Mode Power Supply
S82K

Ultimate DIN-rail-mounting Power Supply with a Power Range of 3 to 100 W

- EMI: EN 61204-3 class B
- Input: 85 to 264 VAC (except 90-W and 100-W models)
- Safety standards: UL 60950-1/508, cUL: C22.2, cUR: No. 60950-1/14, Class 2 (UL, CSA), EN 60950-1 (=VDE 0805, Teil 1)
- Undervoltage alarm indication available for standard models.

Note: Refer to *"Safety Precautions"* on page B-77.



Model Number Structure

■ Model Number Legend

Note: Not all combinations are possible. Please refer to the list of models in *"Ordering Information"* on page B-65.

S82K - □ □ □ □ □ □
1 2 3

1. Power Factor Correction
None: No
P: Yes

2. Power Ratings
003: 3 W
007: 7.5 W
015: 15 W
030: 30 W
050: 50 W
090: 90 W
100: 100 W

3. Output Voltage
05: +5 VDC
12: +12 VDC
15: +15 VDC
24: +24 VDC
27: ±12 VDC
28: ±15 VDC

Ordering Information

■ List of Models

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

Power ratings	Output voltage	Output current	Function Configuration			Models
			Output	Undervoltage alarm indicator/output	PFC	
3 W	5 V	0.6 A	Single output	Yes	No	S82K-00305
	12 V	0.25 A				S82K-00312
	15 V	0.2 A				S82K-00315
	24 V	0.13 A				S82K-00324
7.5 W	5 V	1.5 A				S82K-00705
	12 V	0.6 A				S82K-00712
	15 V	0.5 A				S82K-00715
	24 V	0.3 A				S82K-00724
	±12 V	0.3 A/0.2 A	Dual output			S82K-00727
	±15 V	0.2 A/0.2 A				S82K-00728
15 W	5 V	2.5 A	Single output			S82K-01505
	12 V	1.2 A				S82K-01512
	24 V	0.6 A				S82K-01524
30 W	5 V	5.0 A				S82K-03005 (See note 1.)
	12 V	2.5 A				S82K-03012
	24 V	1.3 A				S82K-03024
50 W	24 V	2.1 A				S82K-05024
90 W	24 V	3.75 A			No	S82K-09024
					Yes	S82K-P09024
100 W	24 V	4.2 A (See note 2.)			No	S82K-10024
					Yes	S82K-P10024

Note:1. The output capacity of the S82K-03005 is 25 W.
2. The output current during parallel operation is 3.78 A.

Specifications

■ Ratings/Characteristics

Item			Power ratings (See note 1.)	S82K				
				Single output		Dual output	Single output	
				3 W	7.5 W	7.5 W	15 W	30 W
Efficiency (typical)				60% min. (Varies depending on specifications)	64% min. (Varies depending on specifications)		66% min. (Varies depending on specifications)	
Input	Voltage (See note 2.)	AC		100 to 240 VAC (85 to 264 VAC)				
		DC		90 to 350 VDC				Not possible
	Frequency			50/60 Hz (47 to 450 Hz)				
	Current (See note 3.)	100-V input		0.15 A max.	0.25 A max.		0.45 A max.	0.9 A max.
		200-V input					0.25 A max.	0.6 A max.
	Power Factor			---				
	Harmonic current emissions			---				
	Leakage current (See note 3.)	100-V input		0.5 mA max.				
		200-V input		1 mA max.				
	Inrush current (See note 3.)	100-V input		15 A max. (for cold start at 25°C)				25 A max. (for cold start at 25°C)
		200-V input		30 A max. (for cold start at 25°C)				50 A max. (for cold start at 25°C)
	Noise filter			Yes				
Output (See note 4.)	Voltage Adjustment Range			±10% (with V. ADJ) (See note 5.)		Not possible (See note 6.)	±10% (with V. ADJ) (–10% to 15% for S82K-03012/-03024) (See note 5.)	
	Ripple (See note 3.)			2% (p-p) max.				
	Input variation influence			0.5% max. (at 85 to 264 VAC input, 100% load)				
	Load variation influence (rated input voltage)			1.5% max. (0 to 100% load)		+V: 1.5% max. –V: 3% max. (0 to 100% load)	1.5% max. (0 to 100% load)	
	Temperature variation influence (See note 3.)			0.05%/°C max.				
	Start up time			100 ms max. (up to 90% of output voltage at rated input and output)				
	Hold time (See note 3.)			20 ms min.				
Additional functions	Overload protection (See note 7.)			105% to 160% of rated load current (105% to 250% of rated load current for dual output models), gradual current/voltage drop, automatic reset (See note 8.)				105% to 160% of rated load current, gradual current increase, voltage drop intermittent operation, automatic reset
	Overvoltage protection			No				
	Undervoltage alarm indication			Yes (color: red)				
	Undervoltage alarm output			No				
	Parallel operation			No				
Other	Operating ambient temperature			Refer to the derating curve in Engineering Data. (with no icing or condensation)				
	Storage temperature			–25 to 65°C (with no icing or condensation)				
	Operating ambient humidity			25°C to 85% (Storage humidity: 25% to 90%)				
	Dielectric strength			3.0 kVAC for 1 min. (between all inputs and all outputs) 2.0 kVAC for 1 min. (between all inputs and PE terminals) 1.0 kVAC for 1 min. (between all outputs and PE terminals)				
		Detection current		10 mA			20 mA	
	Insulation resistance			100 MΩ min. (between all outputs and all inputs, PE terminals) at 500 VDC				
	Vibration resistance			10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions				
	Shock resistance			300 m/s², 3 times each in ±X, ±Y, ±Z directions				
	Output indicator			Yes (color: green)				
	EMI	Conducted Emissions		Conforms to EN61204-3 EN55011 Class B and based on FCC Class B				
		Radiated Emissions		Conforms to EN61204-3 EN55011 Class B				
	EMS			Conforms to EN61204-3 High severity levels				
	Approved standards			UL: UL508 (Listing), 60950-1 Class 2 (excluding Dual output models) CSA: cUL: C22.2 No.14, cUR: No. 60950-1 Class 2 (excluding Dual output models) EN/VDE: EN50178 (VDE=0160), EN60950-1 (=VDE0805 Teil 1) Based on VE0106/P100				
	Weight			150 g max.			260 g max.	380 g max.

Note:1. When a load is connected that has a built-in DC-DC converter, the overload protection may operate at startup and the power supply may not start. Refer to the *Overload Protection* section on page B-72 for details.

2. Use with DC voltage input is beyond the conditions of approval or conformance to applicable safety standards. (DC input possible with 15 W max. Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC. Do not use the 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.

3. Defined with a 100% load and the rated input voltage (100 or 200 VAC.)

4. The output specification is defined at the power supply output terminals.

5. If the V. ADJ adjuster is turned, the voltage will increase by more than +10% of the voltage adjustment range. (+15% for S82K-03012/-03024) When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.

6. The settings for the output voltage must be within the following range:
+V: ±1% of the rated value
–V: ±5% of the rated value

7. Refer to the *Overload Protection* section on page B-72 for details.

8. When using the 7.5-W single-output models within the input voltage range between 90 and 110 VDC, the protection function will operate at a current of 95% to 160% of the rated load current.

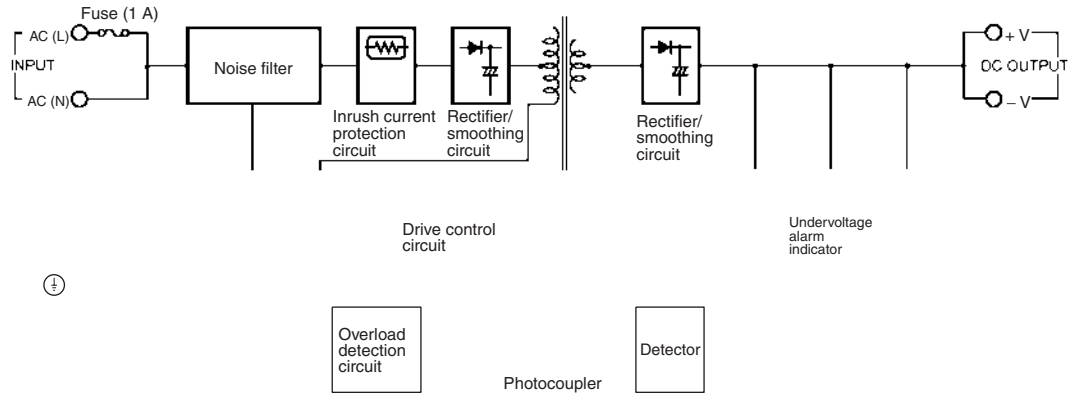
Item			Power ratings (See note 1.)	S82K			S82K-P	
				Single output				
				50 W	90 W	100 W	90 W	100 W
Efficiency (typical)				80% min. (Varies depending on specifications)				
Input	Voltage (See note 2.)	AC		100 to 240 VAC (85 to 264 VAC)	100 V (85 to 132 VAC)/200 V (170 to 264 VAC) Selectable			
		DC		Not possible				
	Frequency			50/60 Hz (47 to 450 Hz)			50/60 Hz (47 to 63 Hz)	
	Current (See note 3.)	100-V input		1.3 A max.	2.5 A max.			
		200-V input		0.8 A max.	1.5 A max.			
	Power Factor			---			0.7 min. (at 200 VAC input, at rated output), 100 V: unlimited	
	Harmonic current emissions			---			Conforms to EN6100-3-2 (200-V only)	
	Leakage current (See note 3.)	100-V input		0.5 mA max.				
		200-V input		1 mA max.				
	Inrush current (See note 3.)	100-V input		25 A max. (for cold start at 25°C)				
		200-V input		50 A max. (for cold start at 25°C)				
	Noise filter			Yes				
Output (See note 4.)	Voltage Adjustment Range			±10% (with V. ADJ) (–10% to 15% for S82K-05024) (See Note 5.)			±10% (with V. ADJ) (See note 5.)	
	Ripple (See note 3.)			2% (p-p) max.				
	Input variation influence			0.5% max. (at 85 to 264 VAC input, 100% load)	0.5% max. (at 85 to 132 VAC input /170 to 264 VAC input, 100% load)			
	Load variation influence (rated input voltage)			1.5% max. (0 to 100% load)				
	Temperature variation influence (See note 3.)			0.05%/°C max.				
	Start up time			100 ms max. (up to 90% of output voltage at rated input and output)	200 ms max.			
	Hold time (See note 3.)			20 ms min.				
Additional functions	Overload protection (See note 6.)			105% to 160% of rated load current, gradual current increase, voltage drop intermittent operation, automatic reset	105% to 160% of rated load current, inverted L drop, automatic reset (See note 7.)			
	Overvoltage protection			No				
	Undervoltage alarm indication			Yes (color: red)				
	Undervoltage alarm output			No	Yes			
	Parallel operation			No		Yes (up to 2 units.)	No	Yes (up to 2 units.) (See note 8.)
Other	Operating ambient temperature			Refer to the derating curve in Engineering Data. (with no icing or condensation)				
	Storage temperature			–25 to 65°C (with no icing or condensation)				
	Operating ambient humidity			25°C to 85% (Storage humidity: 25% to 90%)				
	Dielectric strength			3.0 kVAC for 1 min. (between all inputs and all outputs) 2.0 kVAC for 1 min. (between all inputs and PE terminals) 1.0 kVAC for 1 min. (between all outputs and PE terminals)				
		Detection current		20 mA				
	Insulation resistance			100 MΩ min. (between all outputs and all inputs, PE terminals) at 500 VDC				
	Vibration resistance			10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions				
	Shock resistance			300 m/s², 3 times each in ±X, ±Y, ±Z directions			150 m/s², 3 times each in ±X, ±Y, ±Z directions	
	Output indicator			Yes (color: green)				
	EMI	Conducted Emissions		Conforms to EN61204-3 EN55011 Class B and based on FCC Class B	Conforms to EN61204-3 EN55011 Class B and based on FCC Class A			
		Radiated Emissions		Conforms to EN61204-3 EN55011 Class B				
	EMS			Conforms to EN61204-3 High severity levels				
	Approved standards			UL: UL508 (Listing), 60950-1 Class 2 (excluding Dual output models) (See note 9.) CSA: cUL: C22.2 No.14, cUR: No. 60950-1 Class 2 (excluding Dual output models) (See note 9.) EN/VDE: EN50178 (VDE=0160), EN60950-1 (=VDE0805 Teil 1) Based on VE0106/P100			UL: UL508 (Listing), Class 2 (per UL 1310) 60950-1 (See note 9.) CSA: cUL: C22.2 No.14, cUR: No. 60950-1 Class 2 (See note 9.) EN/VDE: EN50178 (VDE=0160), EN60950-1 (=VDE0805 Teil 1) According to VDE0106/P100"	
	Weight			400 g max.	600 g max.		1000g max.	

Note:
1. When a load is connected that has a built-in DC-DC converter, the overload protection may operate at startup and the power supply may not start. Refer to the *Overload Protection* section on page B-72 for details.
2. Use with DC voltage input is beyond the conditions of approval or conformance to applicable safety standards. (DC input possible with 15 W max. Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC.
Do not use the 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.
3. Defined with a 100% load and the rated input voltage (100 or 200 VAC.)
4. The output specification is defined at the power supply output terminals.
5. If the V. ADJ adjuster is turned, the voltage will increase by more than +10% of the voltage adjustment range. (+15% for S82K-03012/-03024)
When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
6. Refer to the *Overload Protection* section on page B-72 for details.
7. When using the 90-W model at an ambient temperature of 25×C or less, the overload protection function will operate at currents from 101% to 111% of the rated output current. When using the 90-W model at an ambient temperature exceeding 25×C, the overload protection function will operate at currents from 92% to 111% of the rated output current.
8. Parallel operation is set with the Parallel/Single Operation Selector Switch.
9. To meet Class-2 requirements with the 100-W, either a fuse or circuit breaker that is UL listed or CSA certified, and rated at 4.2 A max. should be wired in series with the load to be connected to the Power Supply. Only then can the Power Supply output be considered as meeting Class 2.

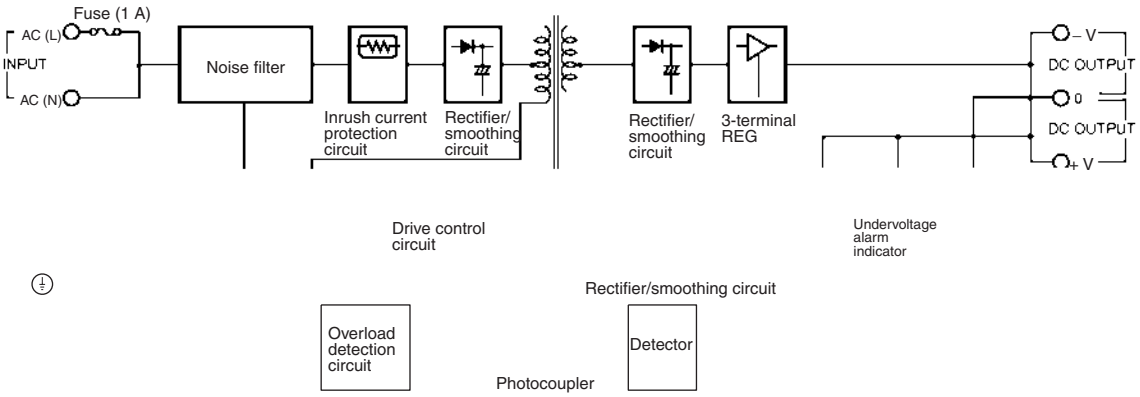
Connections

■ Block Diagrams

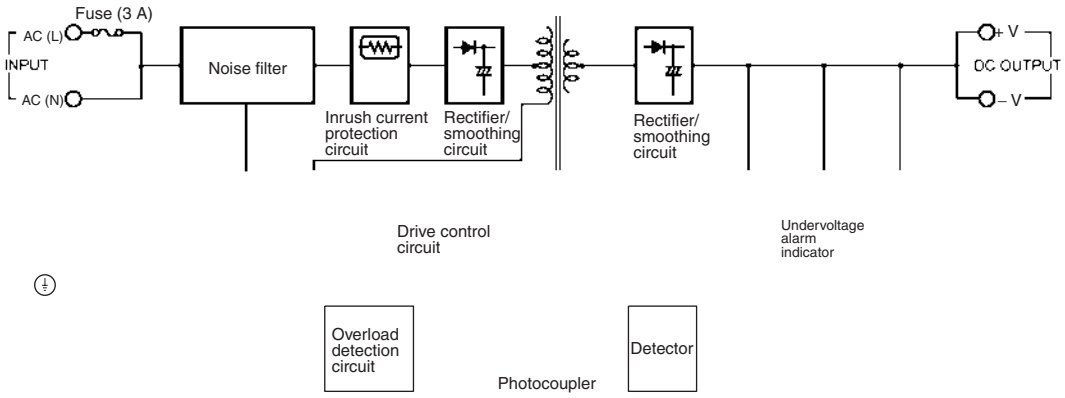
S82K-003□□ (3 W)
S82K-007□□ (7.5 W, Single Output)



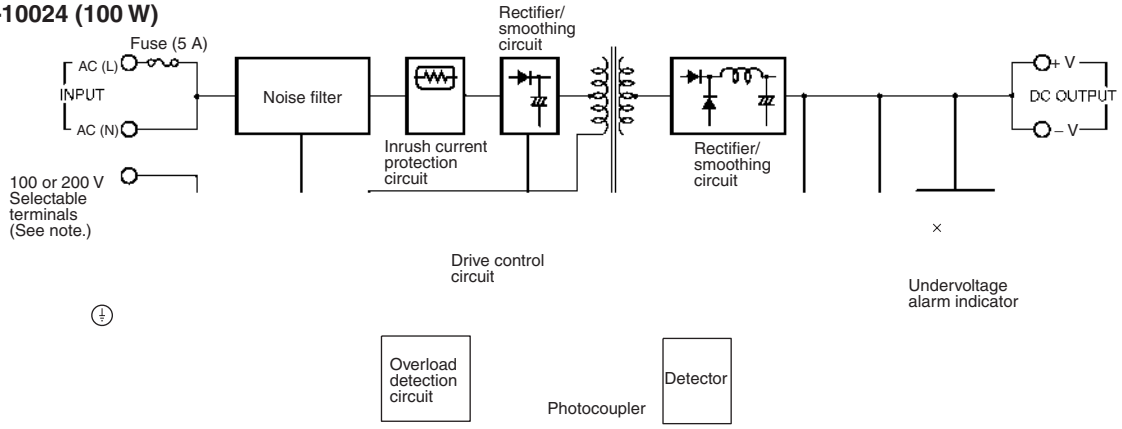
S82K-007□□ (7.5 W, Dual Outputs)



S82K-015□□ (15 W)
S82K-030□□ (30 W)
S82K-05024 (50 W)

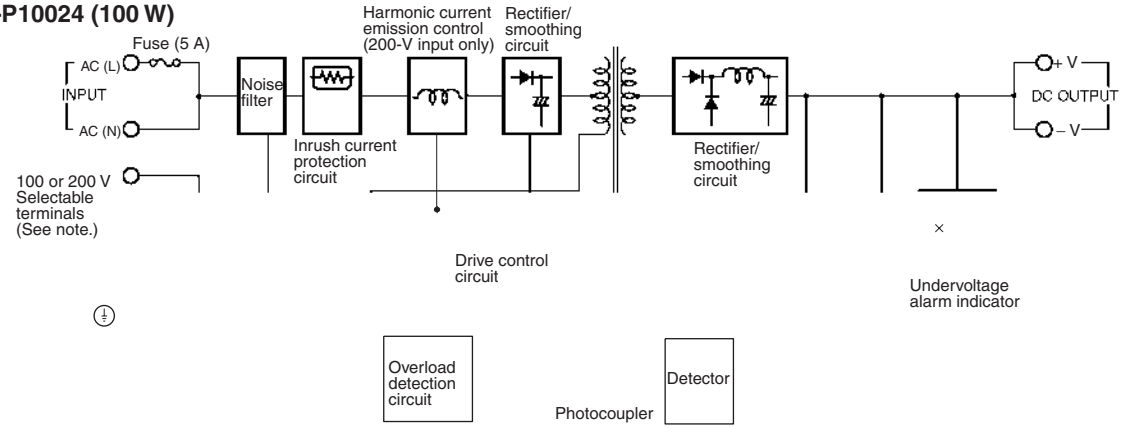


S82K-09024 (90 W)
S82K-10024 (100 W)



Note: Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 240 VAC.

S82K-P09024 (90 W)
S82K-P10024 (100 W)

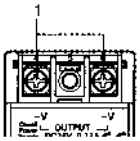


Note: Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 240 VAC.

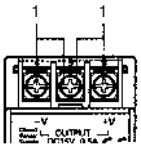
Construction and Nomenclature

■ Nomenclature

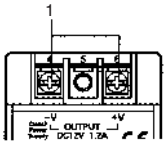
S82K-003□□/S82K-007□□ (Single Output)



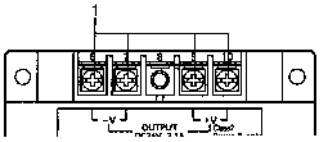
S82K-007□□ (Dual outputs)



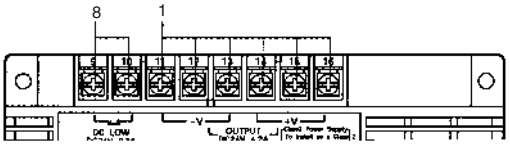
S82K-015□□

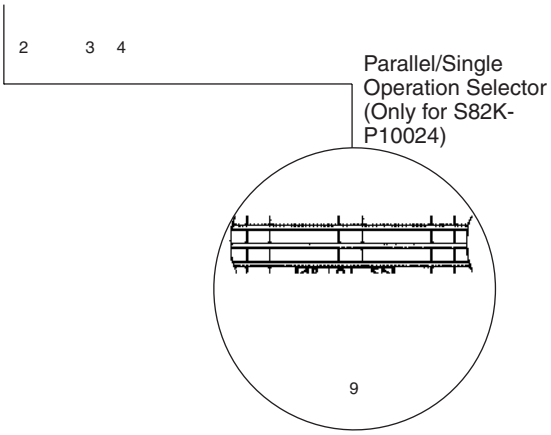


S82K-030□□/S82K-05024



S82K-□09024/S82K-□10024





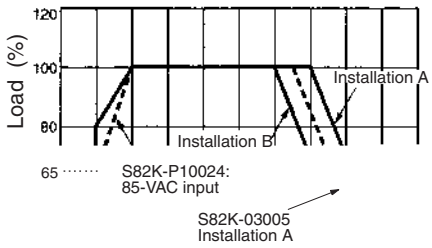
1. **DC Output Terminals:** Connect the load lines to these terminals.
2. **Input Terminals:** Connect the input lines to these terminals.
3. **Protective Earthing Terminals (PE):** Connect a ground line to these terminals.
4. **Input Voltage Selector Terminals (VOLTAGE SELECT):** Selects a 100 V or 200 V input voltage.
5. **Output Indicator (DC ON: green):** Lights while a Direct Current (DC) output is ON.
6. **Output Voltage Adjuster(V.ADJ):** Use to adjust the voltage.
7. **Undervoltage Alarm Indicator Terminal (DC LOW: red):** Lights when there is a drop in the output voltage.
8. **Undervoltage Alarm Output Terminals (DC LOW):** S82K-□09024/-□10024 only.
9. **Parallel/Single Operation Selector:** Set to "PARALLEL" for parallel operation.

Engineering Data

■ Derating Curve (A: Standard mounting, B: Face-up mounting)

3-/7.5-/15-/30-/50-/100-W Models

Single-Unit Operation

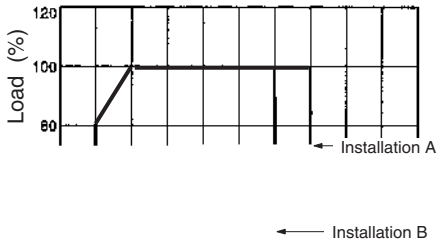


Ambient temperature (°C)

Note: When using the 7.5-W single-output models within the input voltage range between 90 and 110 VDC, the load rate will become 90% or less.

100-W Models without PFC (S82K-10024)

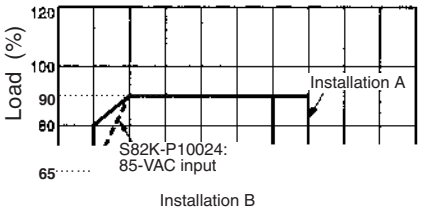
Parallel-Unit Operation



Ambient temperature (°C)

100-W Models with PFC (S82K-P10024)

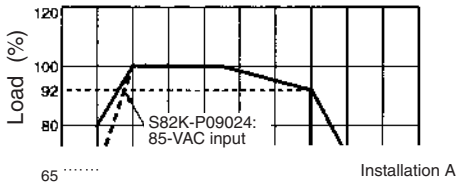
Parallel-Unit Operation



Ambient temperature (°C)

90-W Models

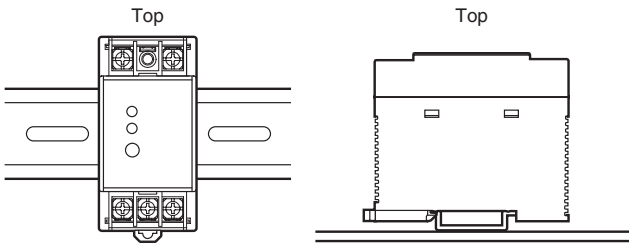
Single-Unit Operation



Ambient temperature (°C)

Note: 1. Note that the derating curve may vary depending on the installation conditions.
2. Multiple units cannot be installed in a configuration where they are lined up vertically.
3. Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC.
4. The cold-start time will be longer when using S82K-P09024 or S82K-P10024 with 85-VAC input.

■ Mounting



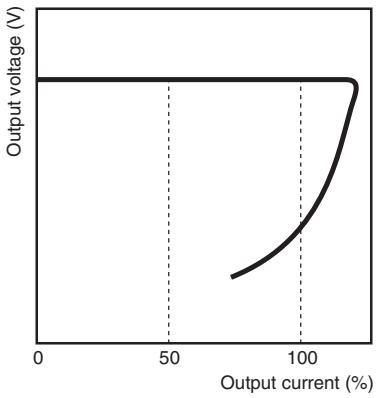
(A) Standard mounting (B) Face-up mounting

Note: Installations other than (A) and (B) are not possible.

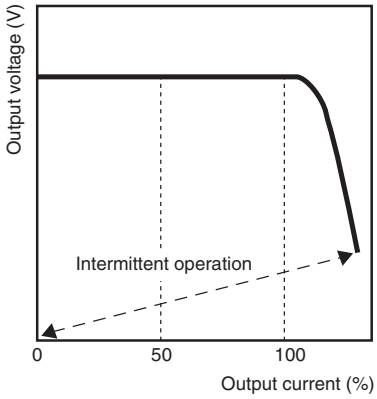
■ Overload Protection

The Power Supply is provided with an overload protection function that protects the Power Supply from possible damage by overcurrent. When the output current rises above 105% min. of the rated current, the protection function is triggered, automatically decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.

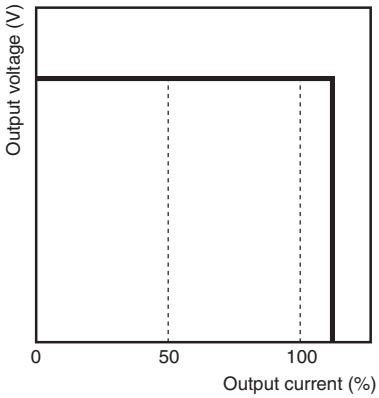
3-/7.5/15 W Models



30-/50 W Models



90-/100 W Models



Note: 1. When connecting a load that has a built-in DC-DC converter, the overcurrent protection function may operate during start-up, thus preventing the Power Supply from starting.

2. Internal parts may occasionally deteriorate or be damaged if a short-circuited or other overcurrent state continues during operation.

3. When using the 7.5-W single-output models within the input voltage range between 90 and 110 VDC, the overload protection function will operate at currents from 95% to 160% of the rated output current.

4. When using the 90-W model at an ambient temperature of 25°C or less, the overload protection function will operate at currents from 101% to 111% of the rated output current. When using the 90-W model at an ambient temperature exceeding 25°C, the overload protection function will operate at currents from 92% to 111% of the rated output current.

5. When using the 100-W model with PFC in parallel operation, operation is limited to a load ratio of 90% to 100% of the rated output current at 4.2 A.

When Using ± Output Models

The +V output detects the total output power (+V output and −V output) to trigger the short-circuit protection against overcurrent. This protection varies depending on the −V output state. The −V output independently triggers the short-circuit protection.

■ Undervoltage Alarm Indicator and Output Function

If the output voltage at the output terminal drops to 75% to 90% of the rated voltage, the red indicator of the S82K (DC LOW indicator) will be lit. In the case of the S82K-□09024/□10024, a voltage drop alarm will be output via the relay available in the models (DC LOW output).

Note: This function detects the voltage at the output terminal of the Power Supply. To check the precise output voltage, measure the voltage at the terminal of the load.

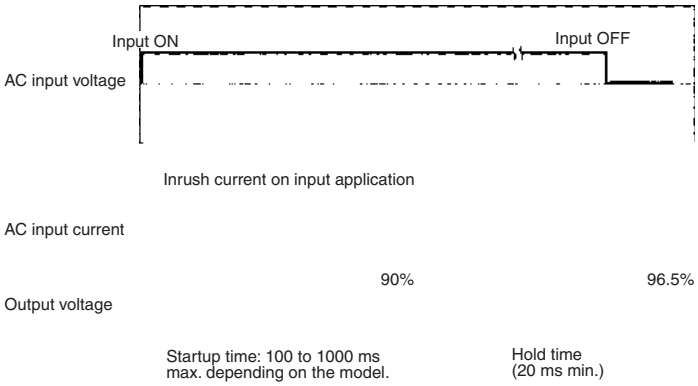
Indicator	Voltage	Operation of □09024/□10024's output (DC LOW output) (See note 2.)
Green: ● DC ON Red: ○ DC LOW	If the voltage at the output terminal is more than 82% of the rated voltage and operation is normal, the green indicator will be lit and the red indicator will not be lit.	
Green: ● DC ON Red: ● DC LOW (See note 1.)	If the voltage at the output terminal drops to below 82% of the rated voltage, the red indicator will be lit. (See note 3.)	
Green: ○ DC ON Red: ○ DC LOW	If the voltage at the output terminal approaches 0 V, both the green and red indicators will not be lit.	

Note: 1. The more the voltage at the output terminal drops, the darker both the green and red indicators will be.

2. The relay contacts have a capacity of 0.1 A at 24 VDC.

3. The red indicator will actually first light at a voltage between 75% and 90% of the rated voltage.

■ Inrush Current, Startup Time, Hold Time



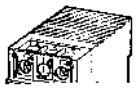
■ Reference Value

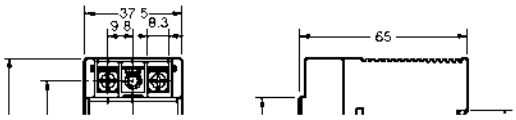
Item	Value	Definition
Reliability (MTBF)	135,000 hrs min.	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent a life of the product.
Life expectancy	8 yrs. min.	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.

Dimensions

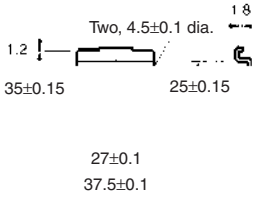
Note: All units are in millimeters unless otherwise indicated.

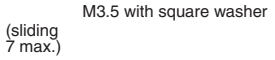
S82K-003□□ (3 W)
S82K-007□□ (7.5 W)



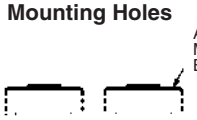


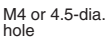
Mounting Brackets (Included)
(Supplied with the Switching Power Supply)
Used when not mounting the Power Supply directly on the DIN-rail.





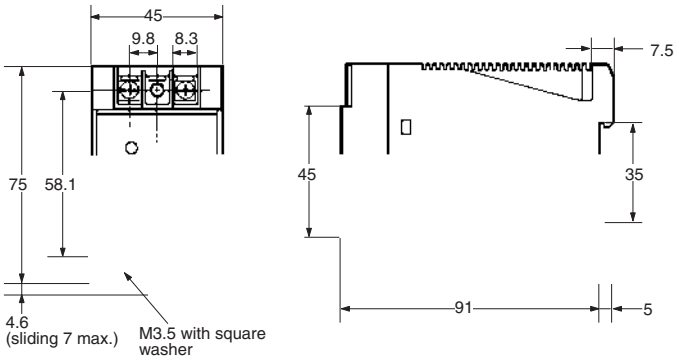
Mounting Holes



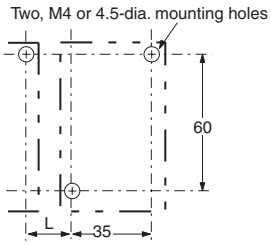


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-015□□ (15 W)

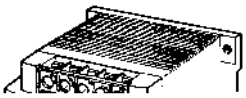


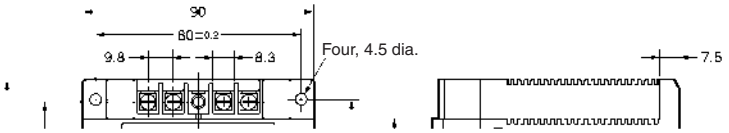
Mounting Holes



Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-030□□ (30 W)
S82K-05024 (50 W)



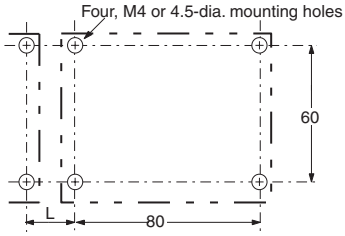


35

4
(sliding 7 max.)

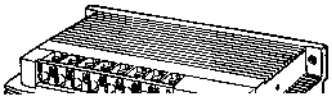
M3.5 with square washer

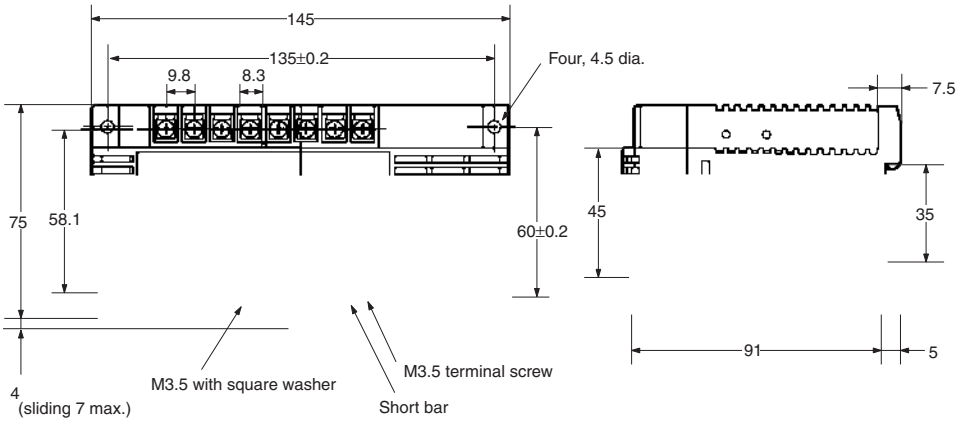
Mounting Holes



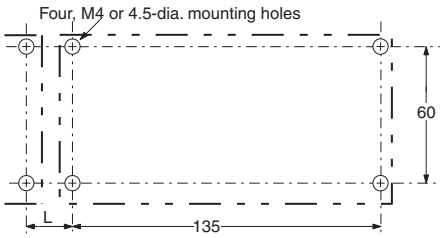
Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-□09024 (90 W)
S82K-□10024 (100 W)





Mounting Holes

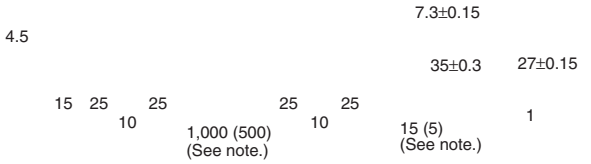


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

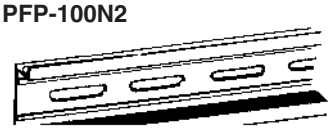
■ Accessories

DIN-rail (Order Separately)

PFP-100N/PFP-50N



PFP-100N2

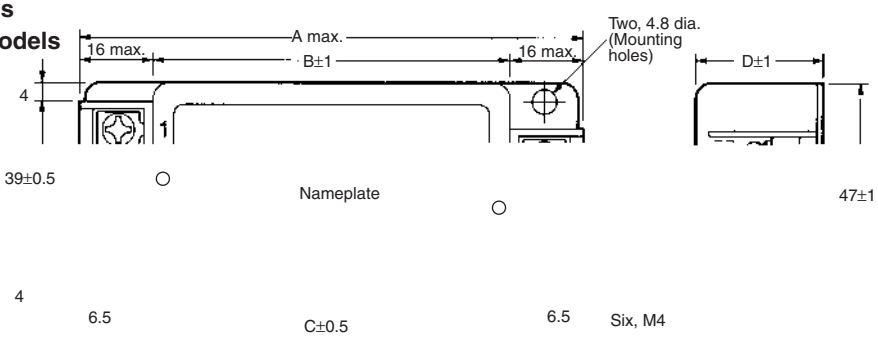


Note: The values shown in parentheses are for the PFP-50N.

Noise Filter (Order Separately)

S82Y-JF3-N for 3- to 50-W Models

S82Y-JF6-N for 90- and 100-W Models



Safety Precautions

⚠ 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.	
Fire may occasionally occur. Tighten terminal screws to the specified torque of 0.98 N·m.	
Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied. Always close the terminal cover after wiring.	
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

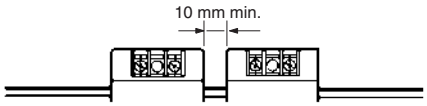
Mounting

Take adequate measures to ensure proper heat dissipation to increase the long-term reliability of the product.

The Power Supply is designed to radiate heat by means of natural air-flow. Therefore, mount the Power Supply so that air flow takes place around the Power Supply.

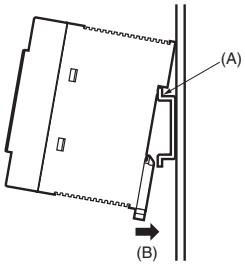
Air

When mounting two or more Power Supplies side-by-side, allow at least 10 mm spacing between them, as shown in the following illustration.
Forced air-cooling is recommended.

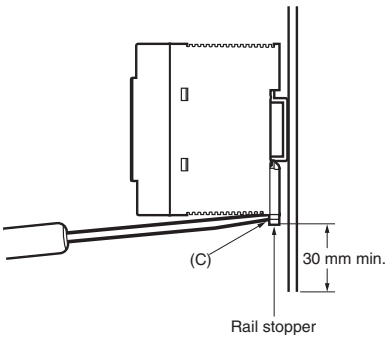


Short bar

To mount the Power Supply on a DIN-rail, hook portion (A) of the Power Supply to the rail and press the Power Supply toward direction (B).



To dismount the Power Supply, pull down portion (C) with a flat-blade screwdriver and pull out the Power Supply.



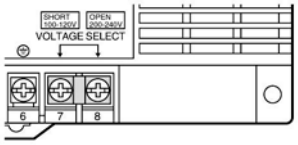
When tightening the terminals, do not tighten the terminal block to a torque greater than 75 N.

Selection of 100 or 200 VAC Input Voltage (S82K-□09024/-□10024)

Select a 100 V or 200 V input by shorting or opening the Input Voltage Selector Terminals, as shown in the following diagram.

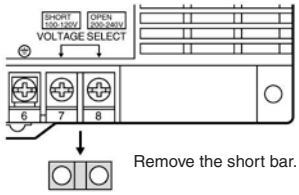
(The default setting is 200 V.)

100 V Input



Use the short bar to short-circuit terminals 7 and 8.

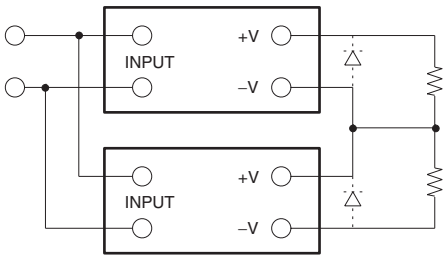
200 V Input



Generating Output Voltage (±)

An output of ± can be generated by using two Power Supplies as shown below, because the Power Supply produces a floating output.

Correct



When connecting the Power Supplies in series with an operation amplifier, connect diodes to the output terminals as shown by the dotted lines in the figure. No diodes are required with S82K 90-W/100-W models.

Charging the Battery

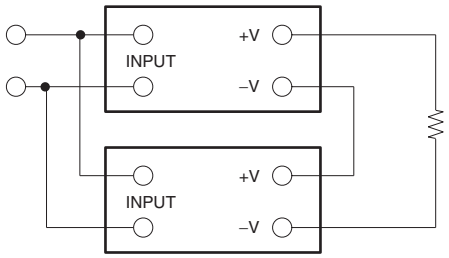
If a battery is to be connected as the load, install an overcurrent limiting circuit and an overvoltage protection circuit.

Series Operation

S82K 90-W/100-W models can be operated in series.
It must be noted that the + output of the 7.5-W dual output model cannot be connected in series to its – output.

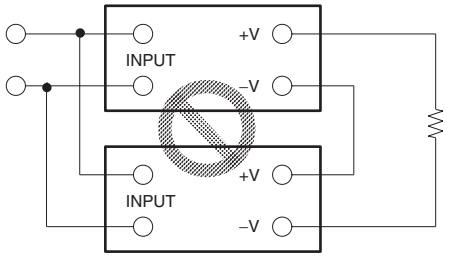
Correct

90-, 100-W Models



Incorrect

3-, 7.5-, 15-, 30-, 50-W Models

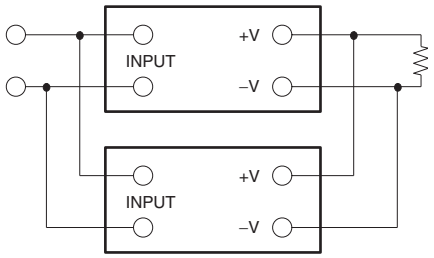


Parallel Operation

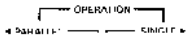
S82K 100-W models can be operated in parallel.
Perform parallel operation with power supplies satisfying the same specifications.

Correct

100-W Models

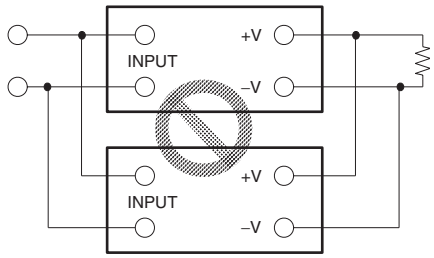


Note: When operating the S82K-P10024 in parallel operation, set the switch to “PARALLEL. In this case, the rated current per S82K-P10024 is 3.78 A.



Incorrect

3-, 7.5-, 15-, 30-, 50- and 90-W Models



Parallel Operation Precautions

The length and thickness of each wire connected to the load must be the same so that there is no difference in voltage drop value between the load and the output terminals of each Power Supply.

Adjust the output voltage of each Power Supply so that there will be no difference in output voltage between each Power Supply.

Wiring

Do not apply more than 75-N force to the terminal block when tightening it.

Ensure that input and output terminals are wired correctly.

Minimum Output Current (S82K-00727/S82K-00728)

The minimum output current of the S82K-00727 and S82K-00728 is restricted by the output voltage and control method.

Note: All the outputs of the S82K-00727 and S82K-00728 are controlled by the +V output. If the +V output current falls to 10% or less of the rated output, the –V output voltage may drop.

Warranty and Application Considerations

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.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS, OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON *Warranty and Limitations of Liability.*

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. T035-E2-01

Three-phase Input Switch Mode
S8PE

DIN-rail mounting, 3-phase input Switch mode Power Supply with a range of 5A to 40A output current

- 3 phase 400/480 or 200/230 VAC input
- 5, 10, 20 and 40A; 24 VDC output
- Higher stability, lower ripple and noise level
- Compact and attractive design, easily mounted to DIN-rail (for 5, 10 and 20A types)
- Natural ventilation, no fan for less maintenance
- UL60950 (CSA22.2-60950), UL508 listing (CSA22.2-14) in addition to the CE mark
- Conform to EN61000-3-2
- All types can be used for parallel & serial operation

Ordering Information

■ S8PE

Input voltage	Power rating	Output voltage	Output current	With Front mounting Bracket	With DIN-rail mounting Bracket
400/480 VAC 3-phase	120 W	24 V	5 A	–	S8PE-F12024CD
	240 W	24 V	10 A	–	S8PE-F24024CD
	480 W	24 V	20 A	S8PE-F48024C	S8PE-F48024CD
	960 W	24 V	40 A	S8PE-F96024C	–
200/230 VAC 3-phase	120 W	24 V	5 A	–	S8PE-J12024CD
	240 W	24 V	10 A	–	S8PE-J24024CD
	480 W	24 V	20 A	–	S8PE-J48024CD
	960 W	24 V	40 A	S8PE-J96024C	–

■ Model Number Legend

S8PE - □ □□□ □□ □□

1 2 3 4

1. Input Voltage

F: 400-480 VAC 3-phase
J: 200-230 VAC 3-phase

2. Power Rating

120: 120 W
240: 240 W
480: 480 W
960: 960 W

3. Output Voltage

24: 24 V

4. Configuration

C: Covered type with Front-mounting bracket
CD: Covered type with DIN-rail mounting bracket

Specifications

Item	Nominal Input Voltage	F: 400...480 VAC				J: 200...230 VAC			
	Nominal Output Current	5 A	10 A	20 A	40 A	5 A	10 A	20 A	40 A
Efficiency (typical)	(Vin = 400 VAC, Pmax) (Vin = 480 VAC, Pmax) (Vin = 230 VAC, Pmax)	85% 84% –	88% 88% –	87% 87% –	90% 90% –	– – 86%	– – 88%	– – 89%	– – 91%
Input	Voltage range	340...576 VAC				180..264 VAC			
	Frequency	50/60 Hz							
	Current (max.) (Vin = Range min., Pmax)	0.5 A	1.0 A	1.5 A	2.5 A	1.0 A	2.0 A	3.0 A	5.0 A
	Power factor (typical) (Vin = 400 VAC, Pmax) (Vin = 480 VAC, Pmax) (Vin = 230 VAC, Pmax)	 0.58 0.52 –	 0.64 0.59 –	 0.89 0.84 –	 0.89 0.84 –	 – – 0.55	 – – 0.55	 – – 0.9	 – – 0.89
	Leakage current (max.) (Vin = 400 VAC, Pmax) (Vin = 480 VAC, Pmax) (Vin = 230 VAC, Pmax)	 0.4 mA 0.5 mA –	 0.9 mA 1.1 mA –	 1.3 mA 1.6 mA –	 0.7 mA 0.9 mA –	 – – 0.3 mA	 – – 0.4 mA	 – – 0.7 mA	 – – 1.4 mA
	Inrush current (max.) (Pmax) (Note 1)	30 A	30 A	40 A	50 A	35 A	35 A	75 A	75 A
Output	Voltage adjustment range	22.5..26.4 VDC min.							
	Tolerance adjustment accuracy	± 0.5%							
	Ripple & noise (Pmax.)	200 mV max.							
	Load variation influence	± 2% max.							
	Input variation influence	± 0.5% max.							
	Temperature variation influence	± 0.01%/°C							
	Startup time (max.)	1.7 s	1.5 s	1.0 s	0.1 s	0.9 s	1.0 s	1.3 s	0.1 s
	Hold time (min.) (Vin = 200 VAC, Pmax) (Vin = 400 VAC, Pmax) (Vin = 480 VAC, Pmax) (Vin = 230 VAC, Pmax)	 – 21 ms 25 ms –	 – 17 ms 26 ms –	 – 11 ms 24 ms –	 – 14 ms 26 ms –	 10 ms – – 20 ms	 4 ms – – 10 ms	 4 ms – – 8 ms	 5 ms – – 13 ms
	Protection	- Short circuit protection with automatic reset - Over load protection - Over voltage protection (Note 4)							
	Parallel operation	Yes (for two units)							
	Serial operation	Yes (for two units)							
	Indicator	Yes (Green LED)							
Others	Heat radiation	Natural air cooling							
	Ambient temperature (Note 2)	-10..60 °C (de-rating: 2%/°C for 50..60 °C)							
	Storage temperature	-25..85 °C							
	Ambient humidity	25..85%							
	Dielectric strength	500 VAC 50/60 Hz (Output - P.E.) Comply to EN60950 F: 2.5 kVAC 50/60 Hz (Input - P.E.) J: 1.5 kVAC 50/60 Hz (Input - P.E.)							
	Insulation resistance	500 M Ω min. at 500 VDC: P.E. - Output							
	EMC	EN55022 class A, EN55011 class A, EN50081-2 EN61000-6-2, EN61000-3-2 class A							
	Approved standards	IEC60950, EN60950, UL60950, CSA22.2-60950 UL508 (Listing), CSA22.2-14, EN50178, EN60204-1							
	Life expectancy (Note 3)	10 years (typical)							
	Weight	750 g	1.0 kg	2.65 kg	4.75 kg	750 g	1.0 kg	2.65 kg	4.75 kg

Note 1. Measured at 25 °C, and cold start condition. (F: Vin = 480 VAC, J: Vin = 230 VAC, duration < 500 μs)

2. For UL and CSA, -105 to 50 °C (de-rating: 2%/°C for 40-50 °C only for 40 A model).

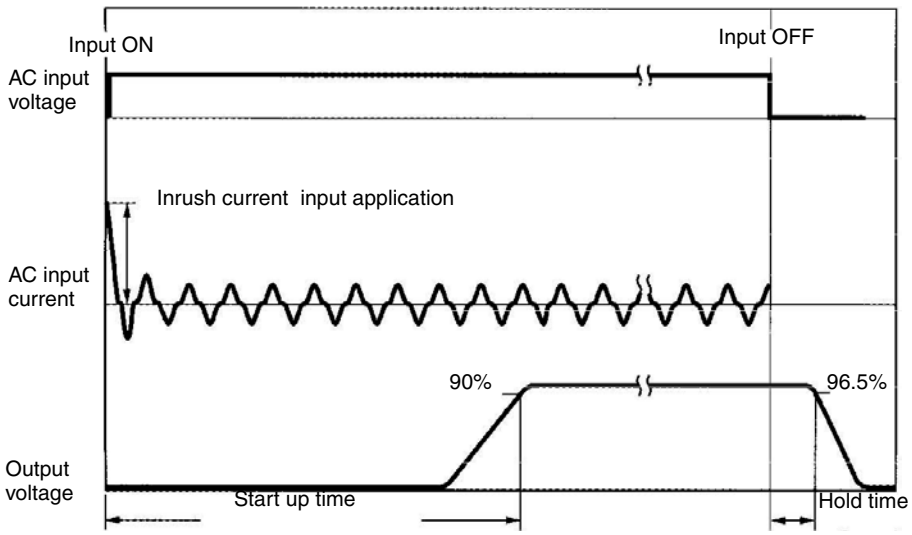
3. Under the ambient temperature of 40 °C, and a load rate of 50%.

4. Over voltage protection is provided for 5A, 10A and 20A models.

For 40A model, no overvoltage protection is provided.

Engineering Data

■ Definition of Inrush Current, Start up Time and Hold Time



■ Overload Protction

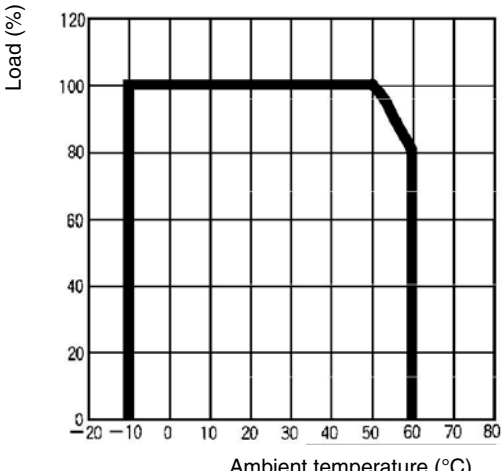
The Power supply is provided with an overload protec tion function that protect the load and the power sup ply from possible damage by over current. When the output current rises above between 105 to 130% of the rated current, the protection function is triggered, decreasing the output voltage. When output current falls within the rated range, the overload protection function is automatically cleared.

■ Overvoltage Protction

(except for 40 A model)

If output voltage exceed the rated voltage more than 20% (50% at maximum) by some reason, then the output voltage will be turned OFF automatically for safety. To restart the S8PE, turn OFF the input voltage, wait for about one minute, then apply the input power again.

■ De-rating Curve

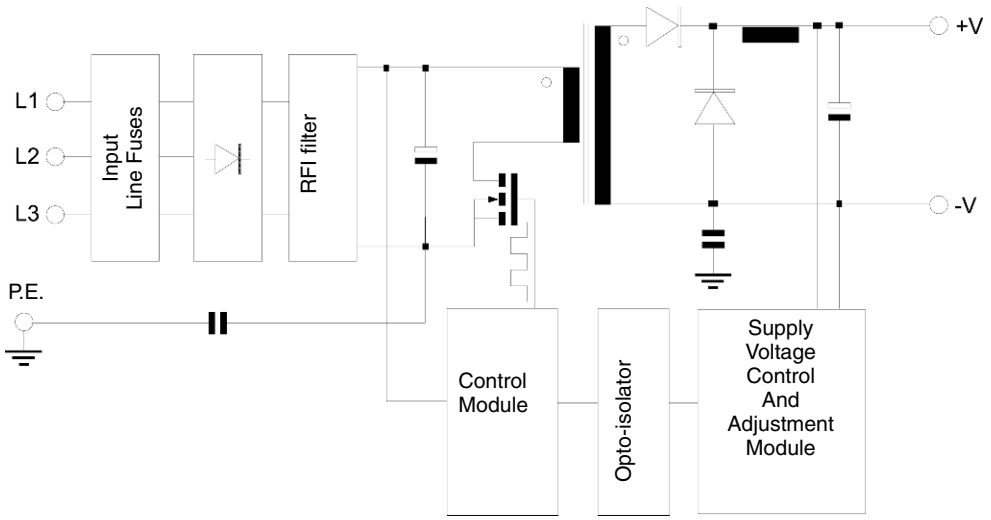


For UL and CSA the maximum temperature is 50% (with derating of 2%/°C from 40 °C to 50 °C, only for 40 A model)

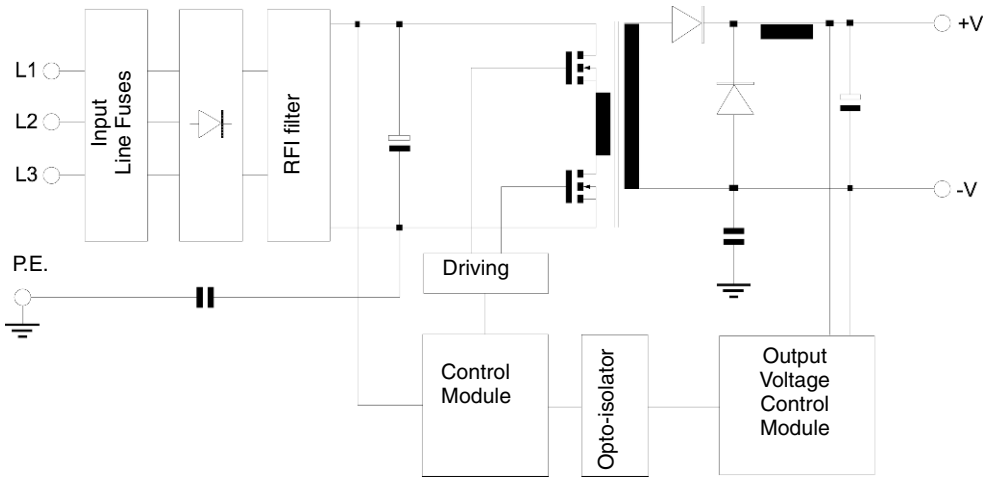
Operation

■ Block Diagram

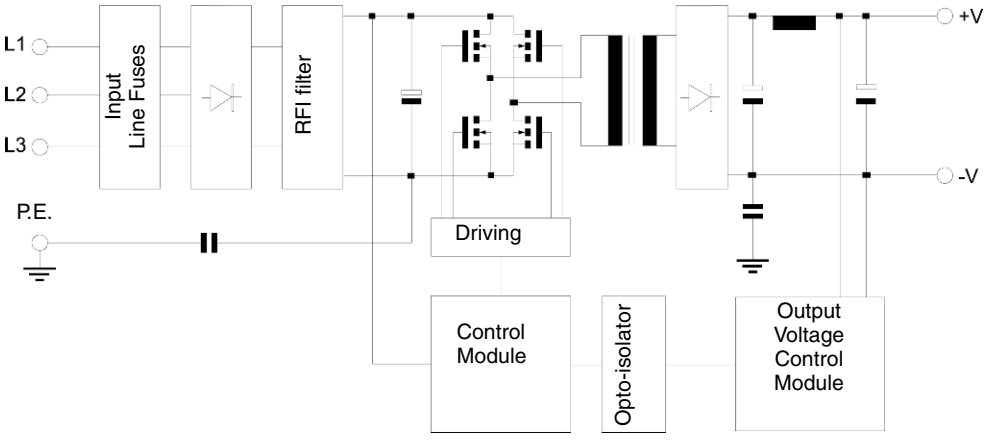
S8PE-F12024CD/J12024CD (5 A)
S8PE-F24024CD/J24024CD (10 A)



S8PE-F48024C (20 A)
S8PE-F48024CD/J48024CD (20 A)



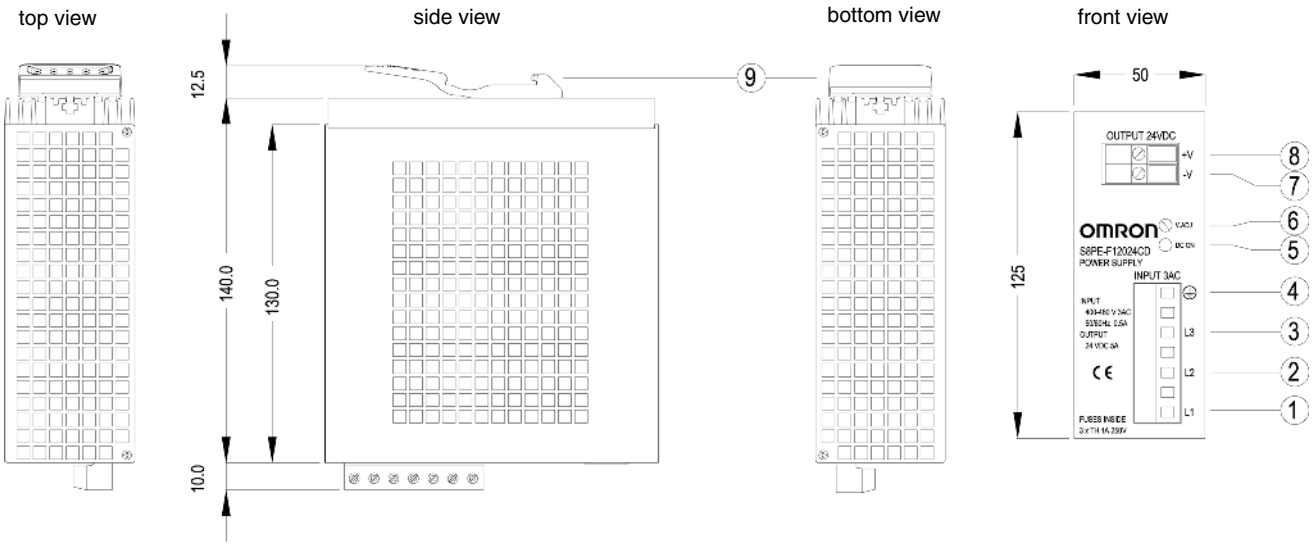
S8PE-F96024C/J96024C (40 A)



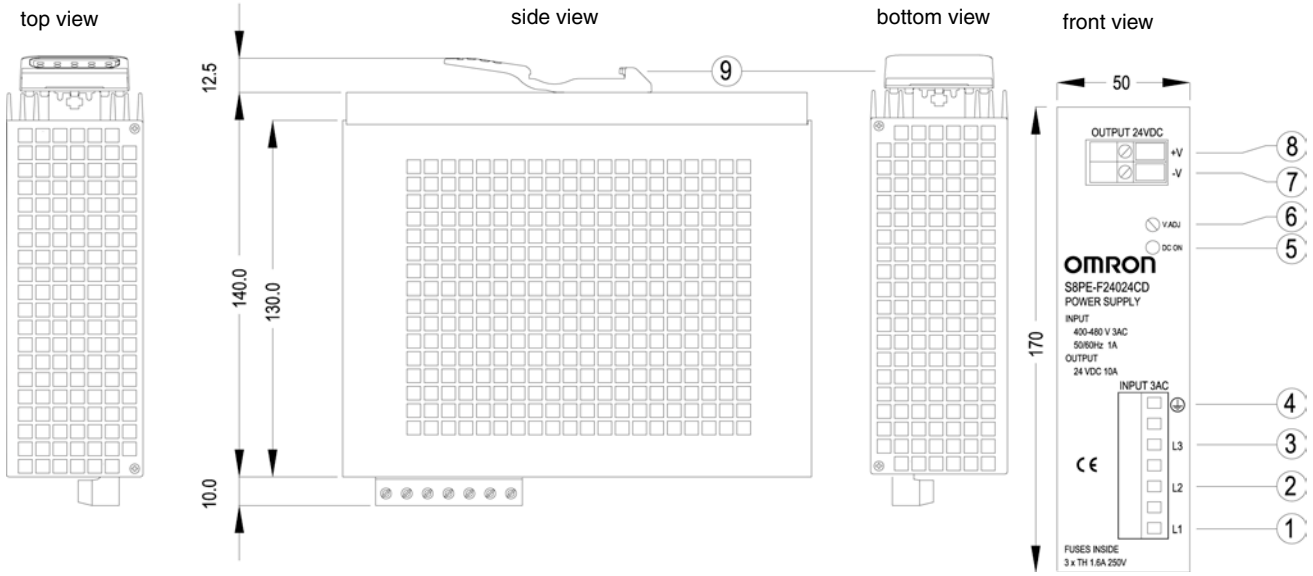
Dimensions and Installation

Note: All dimensions shown are in millimeters.

S8PE-F12024CD/J12024CD (5 A)

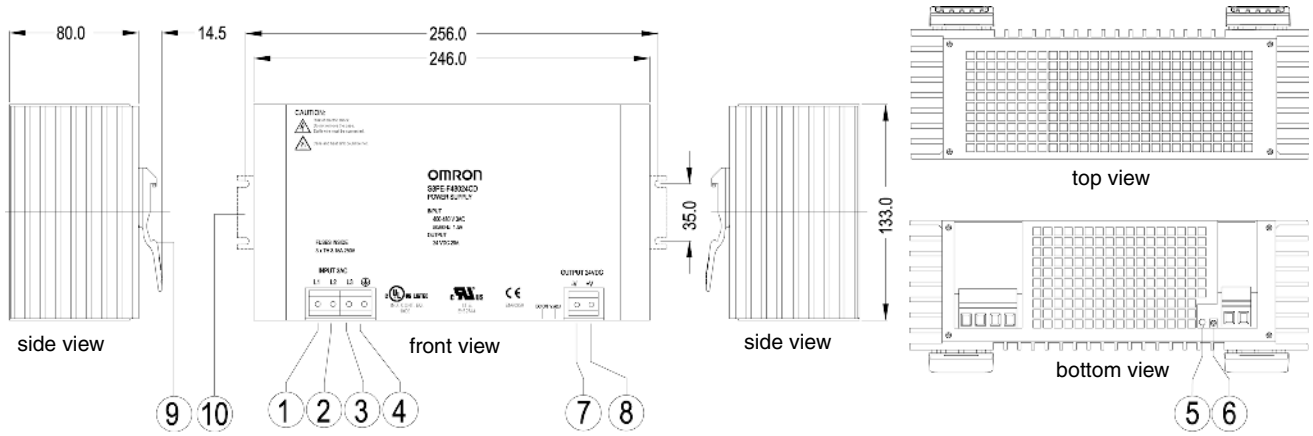


S8PE-F24024CD/J24024CD (10 A)

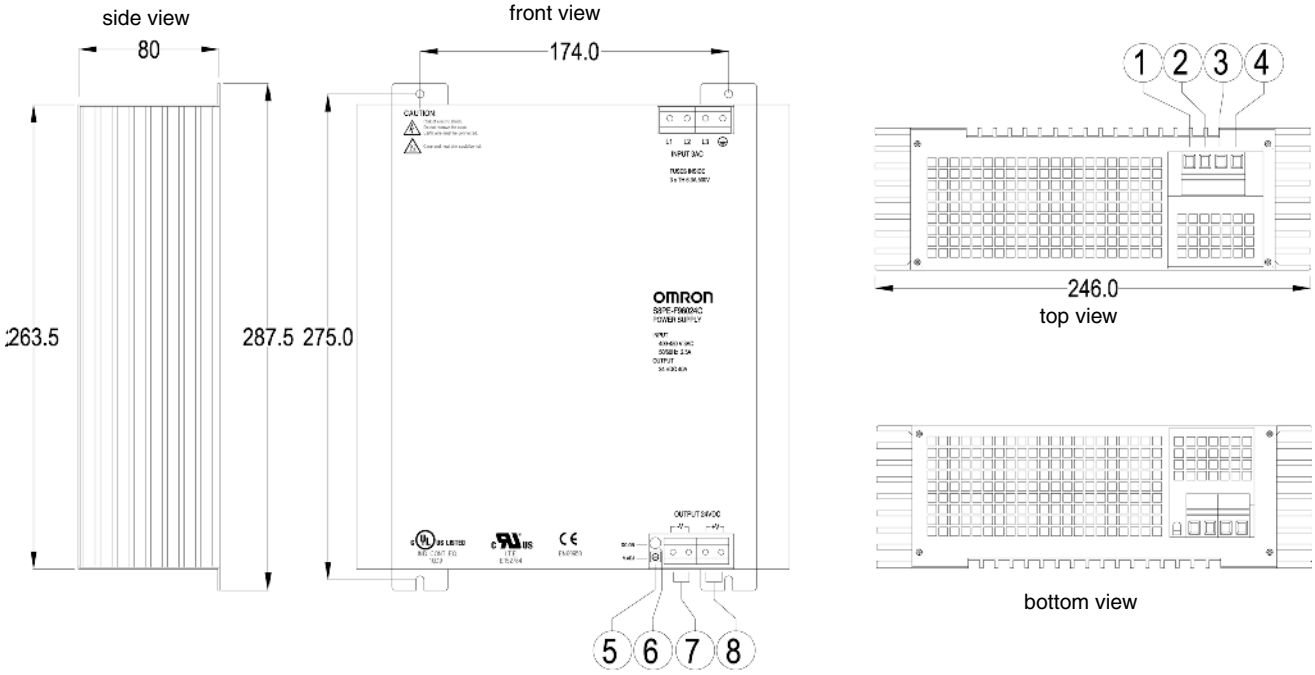


①	AC INPUT L1	⑥	Output Voltage adjustment trimmer V.ADJ
②	AC INPUT L2	⑦	DC OUTPUT -V
③	AC INPUT L3	⑧	DC OUTPUT +V
④	Protective Earth (P.E.)	⑨	35 mm DIN-rail attachment
⑤	DC OUTPUT indicator		

S8PE-F48024C (20 A)
S8PE-F48024CD/J48024CD (20 A)



S8PE-F96024C/J96024C (40 A)



①	AC INPUT L1	⑥	Output Voltage adjustment trimmer V.ADJ
✍	AC INPUT L2	⑦	DC OUTPUT -V
③	AC INPUT L3	⑧	DC OUTPUT +V
④	Protective Earth (P.E.)	⑨	35 mm DIN-rail attachment for S8PE-F48024CD/J48024CD type only
⑤	DC OUTPUT indicator	⑩	Fixing bracket for S8PE-F48024C type only

Notice

Three phase input operation when one phase is missing

The S8PE will in most cases continue to operate even after the loss of one phase of the supply. The perfor mance specifications are of course not guaranteed under these conditions. As the loss of one phase puts additional stress on some components, the life span of the unit could be shortened. It is prudent therefore to regularly check for signs of the following possible conditions.

1. Input terminals wiring open/loose.
2. Incorrect / no voltage on one or more phases of the supply.
3. Abrupt or periodical loss of input voltage.

Three phase input switch off

In order to switch off the Power Supply completely: all 3 phases need to be switched off.

Mounting

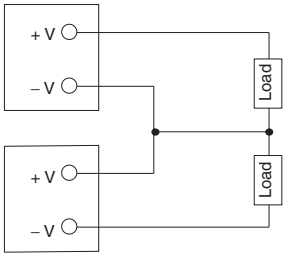
To improve and maintain the reliability of the Power Supply over a long period, adequate consideration must be taken to heat radiation.

The S8PE is designed to radiate heat by natural air cooling, therefore, mount the S8PE so that enough air flow takes place around the power supply.

If installing S8PEs closely, keep the minimum dis tance of 10 cm at 50 °C ambient, 5 cm at 20 °C am bient.

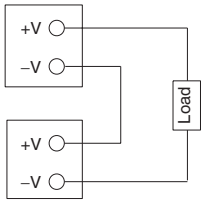
Generating (±) Output Voltage

An output of ± can be generated as shown below, since the S8PE has a floating output.



Serial Operation

As shown below, the output voltage from each S8PE can be added. Types must be the same.



Parallel Operation

Safety Precautions

■ Safety Signal words

This document uses the following signal words to mark safety precautions for the S8PE. These precautions pro vide important information for the safe application of the product. You must be sure to follow the instructions pro vided with safety signal words.

⚠ WARNING	Indicates information that, if ignored, could possibly result in loss of life or seriously injury.

⚠ Caution	Indicates information that, if ignored, could result in relatively serious or minor injury, damage to the product, or faulty operation.

⚠ WARNING

Be sure to connect the grounding line Not doing so may result in electric shock.

⚠ Caution

Do not attempt to disassemble the Power Supply or touch its internal parts while power is being supplied. Doing so may result in electric shock.

⚠ Caution

Do not touch the S8PE while the power is being supplied or immediately after the power is turned OFF. Otherwise hot Switching Power Supply.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. M02E-EN-01

In the interest of product improvement, specifications are subject to change without notice.