

GENERAL CATALOGUE 2004/2005

Industrial Components




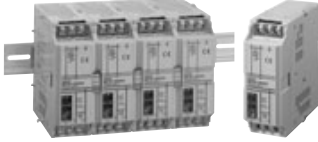




- Electromechanical Relays
- Timers
- Counters
- Programmable Relays
- Level Controllers
- Limit Switches
- Pushbutton Switches
- Low Voltage Switch Gear
- Temperature Controllers
- Solid State Relays
- Panel Indicators
- Power Supplies

Advanced Industrial Automation

Cat. No. Y202-EN2-02 ICD

OMRON





Power Supplies

Classification	DIN track-mounting Power Supplies					
Model	S82K		S8TS		S8VS	
Appearance						
						
Features	<ul style="list-style-type: none"> • Plastic housing • Under voltage detection • PFC (Power factor correction) 		<ul style="list-style-type: none"> • Block concept (connecting in parallel by connectors) • Plastic housing • PFC (Power factor correction) • Under voltage detection • Power back-up system available <ul style="list-style-type: none"> - DC backup block - Buffer block (applicable to all other 24VD models) 		<ul style="list-style-type: none"> • LED display to monitor various device's status • Slim ultra-compact size • Sleek front design • PFC (Power factor correction) • Under voltage detection 	
Input voltage	100 to 120/200 to 240VAC or 100 to 240VAC		100..240 VAC		100..240 VAC	
Output	5 V	3 W (0.6 A) 7.5 W (1.5 A) 15 W (2.5 A) 30 W (5 A)	5 V	25 W (5 A)	24 V	60 W (2.5 A) 90 W (3.75 A) 120 W (5 A) 180 W (7.5 A) 240 W (10 A)
	12 V	3 W (0.25 A) 7.5 W (0.6 A) 15 W (1.2 A) 30 W (2.5 A)	12 V	30 W (2.5 A) 60 W (2 pcs *2.5 A) 90 W (3 pcs *2.5 A) 60 W (4 pcs *2.5 A)		
	15 V	3 W (0.2 A) 7.5 W (0.5 A)	24 V	60 W (2.5 A) 120 W (2 pcs *2.5 A) 180 W (3 pcs *2.5 A) 240 W (4 pcs *2.5 A)		
	24 V	3 W (0.6 A) 7.5 W (1.5 A) 15 W (2.5 A) 30 W (5 A) 50 W (2.1 A) 90 W (3.75 A) 100 W (4.2 A) 240 W (10 A)				
	± 12 V	7.5 W (0.3 A/0.2 A)				
	± 15 V	7.5 W (0.2 A/0.2 A)				
Dimensions W x H x D (mm)	Power	Width*Height*Depth	Power	Width*Height*Depth	Power	Width*Height*Depth
	3 W	37.5*75*65 mm	25 W (5 V)	43*120*120 mm	60 W	40*95*108.3 mm
	7.5 W	37.5*75*65 mm	30 W (12 V)	43*120*120 mm	90 W	50*115*121.3 mm
	15 W	45*75*96 mm	60 W (24 V)	43*120*120 mm	120 W	50*115*121.3 mm
	30 W	90*75*96 mm	DC back-up as well as Buffer block	43*120*130 mm	180 W	75*115*125.3mm
	50 W	90*75*96 mm			240 W	100*115*125.3 mm
	90 W	135*75*96 mm				
	100 W	135*75*96 mm				
	240 W	280*130*130 mm				
Page No.	L-5		L-25		L-79	

DIN track-mounting Power Supplies

S8PS		S82J		S8PE	
 		 		 	
<ul style="list-style-type: none"> • Compact metal housing • PFC (Power factor correction) 		<ul style="list-style-type: none"> • Economical power supply • Various mounting and configuration option available 		<ul style="list-style-type: none"> • Three phase input type • DIN rail mounting (except for 960W) • PFC (Power factor correction) 	
100..240 VAC		100 to 120/200 to 240VAC or 100 to 240 VAC		340 to 576V 3AC and 180 to 264V 3AC	
5 V	50 W (10 A)	5 V	10 W (2 A)	24 V	120 W (5 A)
12 V	50 W (4.2 A)		25 W (5 A)		240 W (10 A)
24 V	50 W (2.1 A)		50 W (10 A)		480 W (10 A)
	100 W (4.5 A)		100 W (20 A)		960 W (40 A)
	150 W (6.5 A)	12 V	10 W (1 A)		
	300 W (14 A)		25 W (2.1 A)		
600 W (27 A)		50 W (4.2 A)			
			100 W (8.5 A)		
		15V	10 W (0.7 A)		
			25 W (1.7 A)		
			100 W (7 A)		
		24 V	10 W (2 A)		
			25 W (5 A)		
			50 W (10 A)		
			100 W (20 A)		
			150 W (6.5 A)		
			300 W (14 A)		
			600 W (27 A)		
Power	Width*Height*Depth	Power	Width*Height*Depth	Power	Width*Height*Depth
50 W	40*85*127 mm	10 W	35*97*70 mm	120 W	50*125*150 mm
100 W	50*92*145 mm	25 W	40*97*124 mm	240 W	50*170*150 mm
150 W	50*92*175 mm	50 W	40*97*161 mm	480 W	246*133*80 mm
300 W	110*92*200 mm	100 W	50*97*170 mm	960 W	246*263.5*80 mm
600 W	170*92*210 mm	150 W	50*97*188 mm		
		300 W	120*92*200 mm		
		600 W	170*92*200 mm		
L-99		L-111		L-131	

Power Supplies

Classification	DIN track-mounting Power Supplies				
Model	S82H		S82S		
Appearance	 		 		
Features	<ul style="list-style-type: none"> Wide output variation PFC (Power factor correction) 		<ul style="list-style-type: none"> DC / DC converter 		
Input voltage	100 to 120/200 to 240 VAC or 100 to 240 VAC		12..24 VDC		
Output	5 V	15 W (3 A)	5 V	3 W (0.6 A)	
		30 W (6 A)		7.5 W (1.5 A)	
		50 W (10 A)		12 V	3 W (0.25 A)
		100 W (20 A)		7.5 W (0.6 A)	
		150 W (40 A)		15 V	3 W (0.2 A)
		300 W (60 A)			7.5 W (0.5 A)
	12 V	600 W (120 A)	24 V	3 W (0.13 A)	
		15 W (1.2 A)	± 12 V	7.5 W (0.3 A)	
		30 W (2.5 A)		3 W (0.6 A)	
		50 W (4.5 A)	± 15	7.5 W (1.5 A)	
		100 W (9 A)		3 W (0.6 A)	
		150 W (13.5 A)		7.5 W (1.5 A)	
	300 W (27 A)				
	15 V	600 W (53 A)			
		15 W (1 A)			
		30 W (2 A)			
		50 W (3.4 A)			
		100 W (7.2 A)			
		150 W (10 A)			
	24 V	300 W (20 A)			
600 W (40 A)					
15 W (0.6 A)					
30 W (1.3 A)					
50 W (2.3 A)					
100 W (4.6 A)					
24 V	150 W (7 A)				
	300 W (14 A)				
	600 W (27 A)				
Dimensions W x H x D (mm)	Power	Width*Height*Depth	Power	Width*Height*Depth	
	15 W	35*90*125 mm	3 W	37.5*75*65 mm	
	30 W	40*90*155 mm	7.5 W	37.5*75*65 mm	
	50 W	45*90*175 mm			
	100 W	60*110*225 mm			
	150 W	74*120*255 mm			
	300 W	120*92*220 mm			
	600 W	190*92*250 mm			
Page No.	This product is not shown in the catalogue. For more information please contact your local Omron sales office or download the data from www.eu.omron.com		This product is not shown in the catalogue. For more information please contact your local Omron sales office or download the data from www.eu.omron.com		

Switch Mode Power Supply S82K

Ultimate DIN-track-mounting Power Supply with a Wide Power Range from 3 to 240 W

- Wide power range: 3 to 240 W
- Wide AC input voltage range: 100 to 240 V on one body.
- Undervoltage alarm function (indicator) incorporated as standard. (With the 240-W models, applicable only to the “-T” models.) 90 and 100-W models standardized with the alarm output.
- Output/input terminal parts separated on body upper/bottom side, respectively, for safe and smart wiring.
- Multiple pairs of output terminals;
Three pairs for 90, 100, and 240-W models
Two pairs for 30 and 50-W models
- Finger-safe terminal block with cover according to VDE0106/P100.
- Conforms to the stringent EN50081-1 standard for universal use in any environment subject to EMI conditions (except for 240-W models) in addition to EN50082-2 conformity for use at any EMS environment.
- DC output ports comply to EN55022 class A, thus ensuring use in any environment subject to EMI with recommended external filters (3- to 100-W models).
- Meets EN61000-3-2 (limits for harmonic current emissions) with PFC on 90, 100, and 240-W models.
- Parallel running operation (100 and 240-W models).
- Class 2 approved (except for 240-W models and 7.5-W dual output models).
- Approvals of various international safety standards for industrial control equipment and industrial computing systems (ITE/TE), in addition to other important approvals.
- Six-language instruction manual provided.



Model Number Structure

Model Number Legend

S82K -

1 2 3 4

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
240: 240 W
100: 100 W
240: 240 W

3. Output Voltage

05: +5 VDC
12: +12 VDC
15: +15 VDC
24: +24 VDC
27: ±12 VDC
28: ±15 VDC

4. Undervoltage alarm indicator/output

<For 3- to 100-W models>
None: Yes
<For 240-W models>
None: No
T: Yes

Ordering Information

■ List of Models

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				Dual output	Yes	No	S82K-00705				
	12 V	0.6 A							S82K-00712				
	15 V	0.5 A							S82K-00715				
	24 V	0.3 A							S82K-00724				
	+V12/-V12	0.3 A/0.2 A							S82K-00727				
	+V15/-V15	0.2 A/0.2 A							S82K-00728				
15 W	5 V	2.5 A				Single output	Yes	No	S82K-01505				
	12 V	1.2 A							S82K-01512				
	24 V	0.6 A	S82K-01524										
30 W	5 V	5.0 A	Single output	Yes	No				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							Single output	Yes	No	S82K-05024	
90 W	24 V	3.75 A										S82K-P09024	
100 W	24 V	4.2 A (see note 2)										No (see note 4)	S82K-09024
												Yes	S82K-P10024
240 W	24 V	10 A (see note 3)										No (see note 4)	S82K-10024
												No	S82K-24024T*
						No	Yes	S82K-P24024*					
							No	S82K-24024*					

- Note:**
1. The output capacity of the S82K-03005 is 25 W.
 2. The output current during parallel operation is 3.78 A.
 3. The output current during parallel operation is 9 A.
 4. Comply to EN61000-3-2 A14

Note: * S82K 240 W models 24024T, P24024 and 24024 will be discontinued in March 2005. Replacement model: S8VS.

■ Accessories (Order Separately)

Mounting Track	50 cm (l) × 7.3 mm (t)	PFP-50N
	1 m (l) × 7.3 mm (t)	PFP-100N
	1 m (l) × 16 mm (t)	PFP-100N2
Noise Filter	for 3- to 50-W models	S82Y-JF3-N
	for 90-W and 100-W models	S82Y-JF6-N

Specifications

■ Ratings/Characteristics

3- to 240-W models without PFC

Item			Single output		Dual outputs	Single output					
			3 W	7.5 W	7.5 W	15 W	30 W	50 W	90 W	100 W	240 W
Efficiency (typical)			60% to 80% (Varies depending on specifications.)								
Input	Voltage (see note 1)	AC	100 to 240 V (85 to 264 V)					100 V (85 to 132 V)/ 200 V (170 to 264 V) Selectable		100 V (85 to 132 V)/ 200 V (170 to 253 V) Selectable	
		DC	90 to 350 V (see note 2)			Not possible					
Frequency			50/60 Hz (47 to 450 Hz)								
Current (see note 3)	100-V input	200-V input	0.15 A max.	0.25 A max.		0.45 A max.	0.9 A max.	1.3 A max.	2.5 A max.		5.5 A max.
					0.25 A max.	0.6 A max.	0.8 A max.	1.5 A max.		3.5 A max.	
Power factor			---								
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.					25 A max.				
	200-V input	30 A max.					50 A max.				
Noise filter			Yes								

- Note:**
1. Use with DC voltage input is beyond the conditions of approval or conformance to applicable safety standards.
 2. Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC.
 3. Defined with a 100% load and the rated input voltage (100 or 200 VAC).

3- to 240-W models without PFC

Item	Single output		Dual outputs	Single output						
	3 W	7.5 W	7.5 W	15 W	30 W	50 W	90 W	100 W	240 W	
Output (see note 2)	Voltage adjustment range	±10% (V.ADJ)		Not possible (see note 3)	±10% (V.ADJ); -10% to 15% for S82K-03012/-03024/-05024					
	Ripple (see note 1)	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/170 to 264 VAC input, 100% load)		0.5% max. (at 85 to 132 VAC/170 to 253 VAC input, 100% load)	
	Load variation influence	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)						1.5% max. (10 to 100% load)
	Temperature variation influence (see note 1)	0.05%/°C max.								
	Start up time	100 ms max. (up to 90% of output voltage at rated input and output)						200 ms max.		300 ms max.
	Hold time (see note 1)	20 ms min.								
Additional function	Overload protection	105% to 160% of rated load current, inverted L drop, automatic reset (see note 4)	105% to 250% of rated load current, inverted L drop, automatic reset	105% to 160% of rated load current, inverted L drop, automatic reset (30-W, 50-W models: inverted L drop, intermittent, automatic reset)	101% to 111% of rated load current, inverted L drop, automatic reset (see note 5)	105% to 160% of rated load current, inverted L drop, automatic reset				
	Overvoltage protection (see note 6)	No							S82K-24024T model only	
	Undervoltage alarm indicator (DC LOW indicator)	Yes (color: red)							S82K-24024T model only	
	Undervoltage alarm output (DC LOW output)	No					Yes		S82K-24024T model only	
	Parallel operation	Impossible						Possible (2 units max.) (see note 7)		

- Note:**
- Defined with a 100% load and the rated input voltage (100 or 200 VAC).
 - The output specification is defined at the power supply output terminals.
 - The settings for the output voltage must be within the following range:
+V: ±1% of the rated value
-V: ±5% of the rated value
 - 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.
 - When the ambient temperature exceeds 25°C, the protection function will operate at a current of 92% to 111% of the rated load current.
 - Circuit-breaker type. To reset, turn the input power supply OFF, then after 1 min has elapsed, turn the input power supply ON again.
 - Parallel operation is set with the Parallel/Single Operation Selector Switch. (This setting is not required for S82K-10024 models.)

3- to 240-W models without PFC

Item	Single output		Dual outputs	Single output						
	3 W	7.5 W	7.5 W	15 W	30 W	50 W	90 W	100 W	240 W	
Other	Ambient temperature	Operating: See the derating curve in the <i>Engineering Data</i> section (no condensation or icing) Storage: -25°C to 65°C (no condensation or icing)								
	Ambient humidity	Operating: 25% to 85% Storage: 25% to 90%								
	Dielectric strength	3,000 VAC at 50/60 Hz for 1 min (between all inputs and outputs) 2,000 VAC at 50/60 Hz for 1 min (between all inputs and GR terminal) 1,000 VAC at 50/60 Hz for 1 min (between all outputs and GR terminal) Alarm current: 10 mA (3- to 7.5-W models) 20 mA (15- to 100-W models) 25 mA (240-W models)								
	Insulation resistance	100 MΩ min. at 500 VDC (between all outputs and all inputs/GR terminal)								
	Vibration resistance	Malfunction: 10 to 55 Hz, 0.375-mm single amplitude for 2 hrs each in X, Y, and Z directions							Malfunction: 10 to 55 Hz, 0.15-mm single amplitude for 2 hrs each in X, Y, and Z directions	
	Shock resistance	Malfunction: 300 m/s ² , 3 times each in ±X, ±Y, and ±Z directions								
	Screw tightening torque	0.74 N • m max. (see note 2)								
	Output indicator	Yes (green)								
	Electromagnetic interference (see note 1)	Conforms to FCC class B						Conforms to FCC class A		
	EMC (see note 3)	<u>3 to 100-W Models</u> (EMI): EN50081-1 Emission Enclosure: EN55022 class B (equivalent to EN55011 class B) Emission AC Mains: EN55022 class B (equivalent to EN55011 class B) Emission Output Ports: EN55022 class A (with a recommended optional filter) (see note 3) <u>240-W Models</u> (EMI): EN50081-2 Emission Enclosure: EN55011 class A Emission AC Mains: EN55011 class A <u>Common to All Models</u> (EMS): EN50082-2 Immunity ESD: EN61000-4-2: 4-kV contact discharge (level 2) 8-kV air discharge (level 3) Immunity Burst: EN61000-4-4: 2-kV power-line (level 3) 2-kV output line (level 4) Immunity Surge: EN61000-4-5: between 2-kV lines (except for 240-W models) between 4-kV line and FG (except for 240-W models)								
	Approved standards	Class 2 (UL 1310)/Class 2 (CSA C22.2 No. 950) (see notes 4 and 5) UL 508 (Listing)/1950 CSA C22.2 No.14/No.950, EN50178 (VDE0160), EN60950 Conforms to VDE0106/P100							UL 508 (Listing)/1012 CSA C22.2 No.14, CSA E.B. 1402C, EN50178 (VDE0160), EN60950 Conforms to VDE0106/P100	
	Weight	150 g max.		260 g max.	380 g max.	400 g max.	600 g max.		1,800 g max.	

- Note:**
- Defined with a 100% load and the rated input voltage (100 or 200 VAC).
 - Do not press down on the terminal block with a force exceeding 75 N while tightening the terminals.
 - To ensure the emission ratings, a noise filter should be used on the output lines at the closest point.
(3- to 50-W models: S82Y-JF3-N, 90- and 100-W models: S82Y-JF6-N)
 - Models other than dual output models satisfy the Class-2 requirements.
 - To meet Class-2 requirements with the 100-W model, 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.

90-/100-/240W models with PFC (S82K-P□□□24 models)

Item		Single output			
		90 W	100 W	240 W	
Efficiency (typical)		60% to 80% (Varies depending on specifications.)			
Input	Voltage	100 V (85 to 132 VAC)/200 V (170 to 264 VAC) Selectable		100 to 230 V (85 to 253 VAC)	
	Frequency	50/60 Hz (47 to 63 Hz)			
	Current (see note 1)	100-V input	2.5 A max.		4 A max.
		200-V input	1.0 A max.		2 A max.
	Power factor	100-V input	---		0.95 min.
		200-V input	0.7 min.		0.95 min.
	Leakage current (see note 1)	100-V input	0.5 mA max.		
		200-V input	1 mA max.		
Inrush current (see note 1)	100-V input	25 A max.			
	200-V input	50 A max.			
Noise filter		Yes			
Output (see note 2)	Voltage adjustment range	±10% (V.ADJ)			
	Ripple (see note 1)	2% (p-p) max.			
	Input variation influence	0.5% max. (at 85 to 132 VAC/170 to 264 VAC input, 100% load)		0.5% max. (at 85 to 253 VAC input, 100% load)	
	Load variation influence	1.5% max. (0 to 100% load)		1.5% max. (10 to 100% load)	
	Temperature variation	0.05%/°C max.			
	Startup time	200 ms max.		1,000 ms max.	
Hold time (see note 1)		20 ms min.			
Additional function	Overload protection	101% to 111% of rated load current, inverted L drop, automatic reset (see note 3)	105% to 160% of rated load current, inverted L drop, automatic re-set		
	Overvoltage protection	No			
	Under voltage alarm indicator	Yes (color: red)		No	
	Under voltage alarm output	Yes		No	
Parallel operation		Impossible	Possible (2 units max.) (see note 4)		

- Note:** 1. Defined with a 100% load and the rated input voltage (100 or 200 VAC)
 2. The output specification is defined at the power supply output terminals.
 3. When the ambient temperature exceeds 25°C, the protection function will operate at a current of 92% to 111% of the rated load current.
 4. Parallel operation is set with the Parallel/Single Operation Selector Switch.

90-/100-/240W models with PFC (S82K-P□□□24 models)

Item	Single output			
	90 W	100 W	240 W	
Other	Ambient temperature	Operating: See the derating curve in the Engineering Data section (No condensation or icing) Storage: -25°C to 65°C (no condensation or icing)		
	Ambient humidity	Operating: 25% to 85% Storage: 25% to 90%		
	Dielectric strength	3,000 VAC at 50/60 Hz for 1 min. (between all inputs and outputs) 2,000 VAC at 50/60 Hz for 1 min. (between all inputs and GR terminal) 1,000 VAC at 50/60 Hz for 1 min. (between all outputs and GR terminal) Alarm current: 20 mA (90- and 100-W models) 25 mA (240-W models)		
	Insulation resistance	100 MΩ min. at 500 VDC (between all outputs and all inputs/GR terminal)		
	Vibration resistance	Malfunction: 10 to 55 Hz, 0.375-mm single amplitude for 2 hrs each in X, Y, and Z directions	Malfunction: 10 to 55 Hz, 0.15-mm single amplitude for 2 hrs each in X, Y, and Z directions	
	Shock resistance	Malfunction: 150 m/s ² , 3 times each in ±X, ±Y, and ±Z directions	Malfunction: 300 m/s ² , 3 times each in ±X, ±Y, and ±Z directions	
	Screw tightening torque	0.74 N • m max. (see note 2)		
	Output indicator	Yes (Green)		
	Electromagnetic interference (see note 1)	Conforms to FCC class A		
	EMC (see note 3, 4)	<u>90-, 100-W Models</u> (EMI): EN50081-1 Harmonic Current: EN61000-3-2 (200 VAC input only) Emission Enclosure: EN55022 class B Emission AC Mains: EN55022 class B Emission Output Ports: EN55022 class A (with a recommended optional filter) (see note 3) <u>240-W Model</u> (EMI): EN50081-2 Harmonic Current: EN61000-3-2 Emission Enclosure: EN55011 class A (see note 4) Emission AC Mains: EN55011 class A <u>Common to All Models</u> (EMS): EN50082-2 Immunity ESD: EN61000-4-2: 4-kV contact discharge (level 2) 8-kV air discharge (level 3) Immunity Burst: EN61000-4-4: 2-kV power-line (level 3) 2-kV output line (level 4) Immunity Surge: EN61000-4-5: between 2-kV lines (except for 240-W models) between 4-kV line and FG (except for 240-W models)		
	Approved standards	Class 2 (UL1310)/Class 2 (CSA C22.2 No. 950) (see note 5) UL508 (Listing)/1950 CSA C22.2 No. 14/No. 950, EN50178 (VDE0160), EN60950 Conforms to VDE0106/P100	UL508 (Listing)/1012 CSA C22.2 No. 14/E.B. 1402C, EN50178 (VDE0160), EN60950, Conforms to VDE0106/P100	
Weight	1,000 g max.	2,200 g max.		

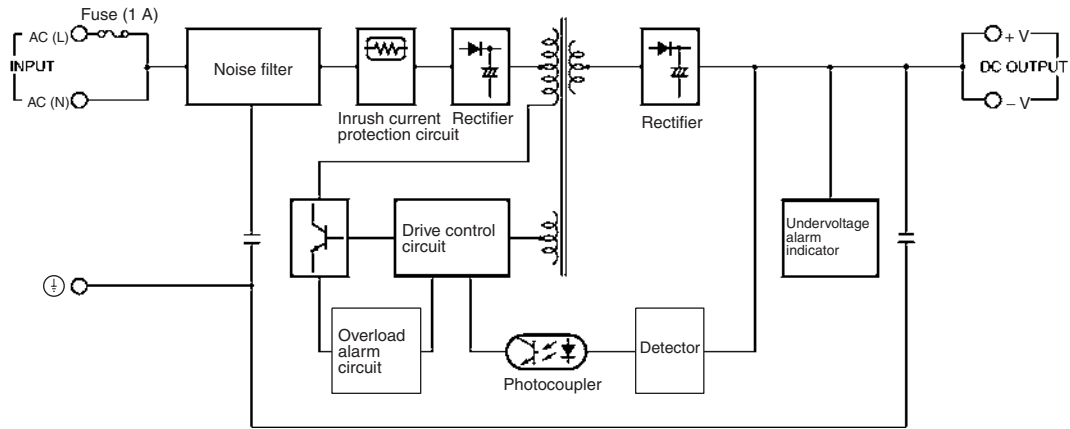
- Note:**
- Defined with a 100% load and the rated input voltage (100 or 200 VAC)
 - Do not press down on the terminal block with a force exceeding 75 N while tightening the terminals.
 - To ensure the Emission Enclosure ratings, a noise filter should be used on the output lines at the closest point. (90- and 100-W models: S82Y-JF6-N)
 - To ensure the Emission Enclosure rating, a ferrite ring core should be used on all cables.
 - To meet Class-2 requirements with the 100-W model, 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

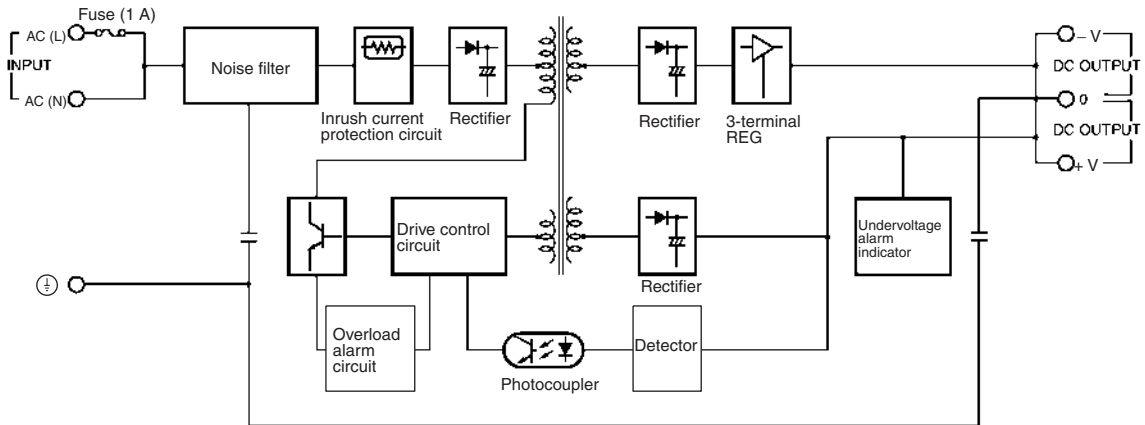
■ Block Diagrams

S82K-003□□ (3 W)

S82K-007□□ (7.5 W, Single Output)



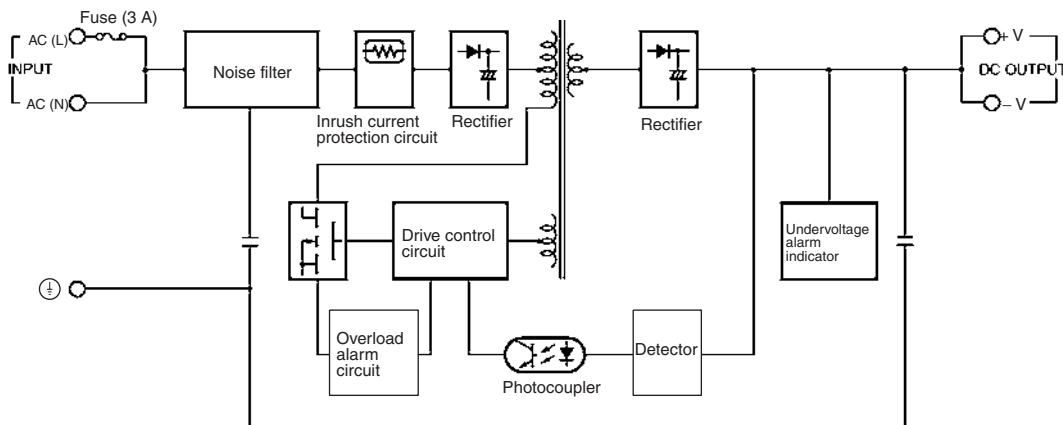
S82K-007□□ (7.5 W, Dual Outputs)



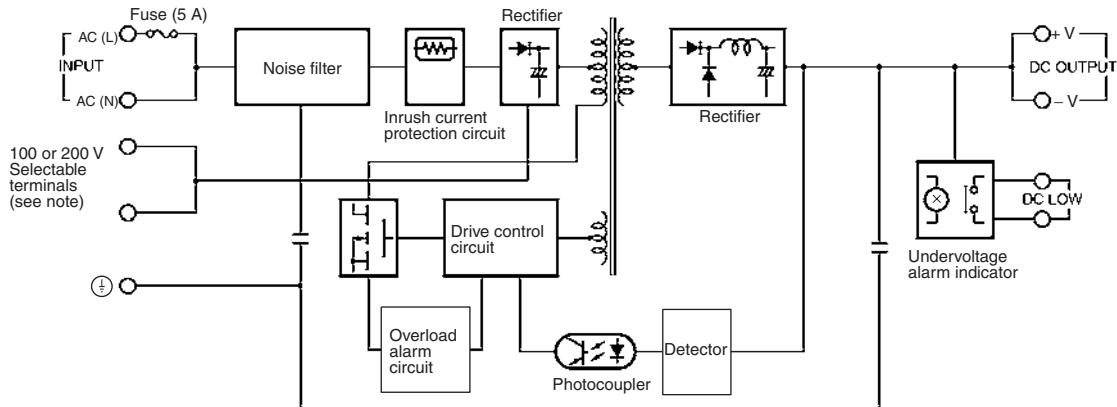
S82K-015□□ (15 W)

S82K-030□□ (30 W)

S82K-05024 (50 W)

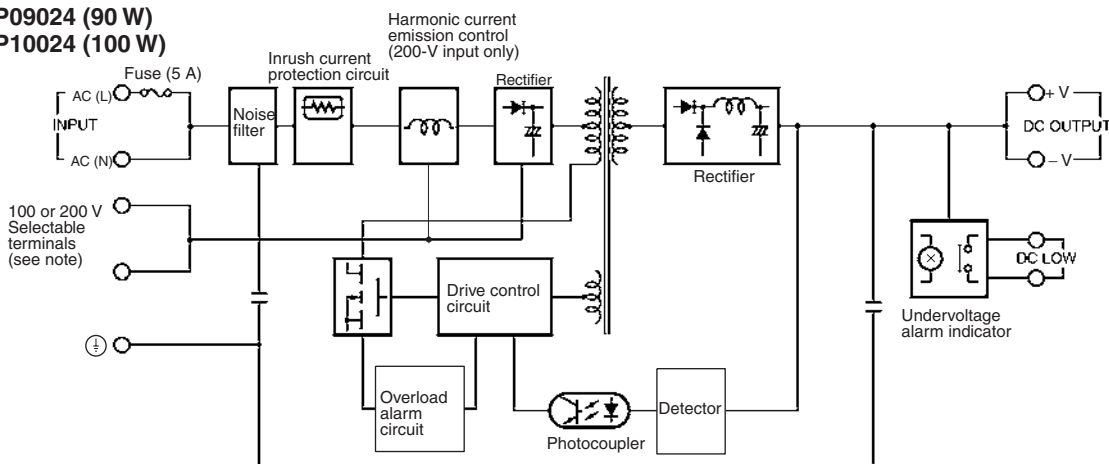


S82K-09024 (90 W)
S82K-10024 (100 W)



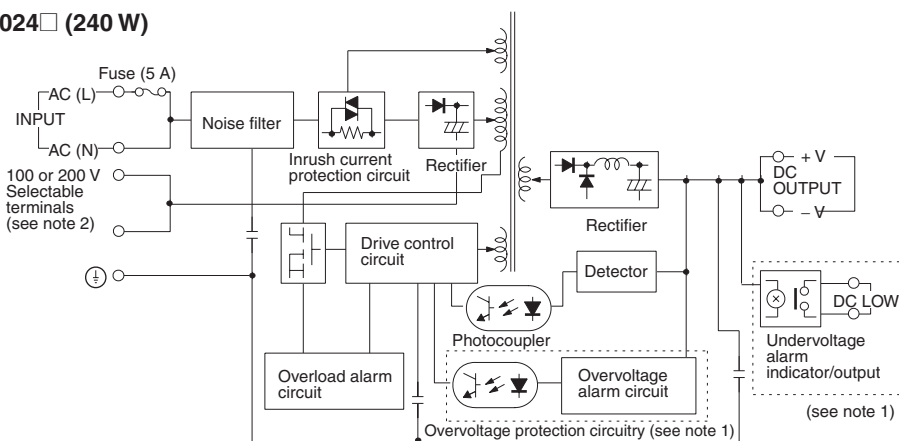
Note: Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 240 VAC.

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



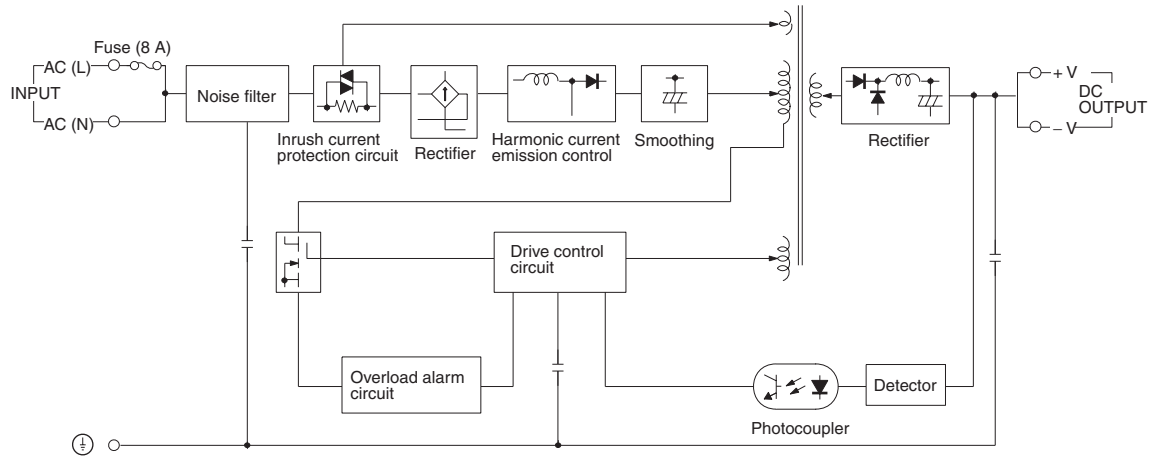
Note: Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 240 VAC.

S82K-24024□ (240 W)



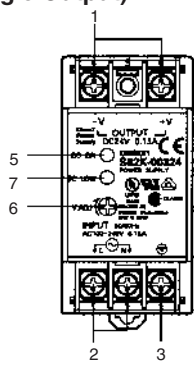
- Note:**
1. The overvoltage protection circuitry and undervoltage alarm indicator are available in the S82K-24024T only.
 2. Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 230 VAC.

S82K-P24024 (240 W)

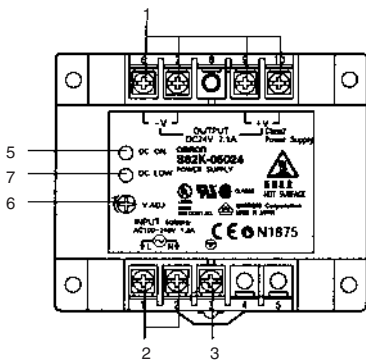


Installation

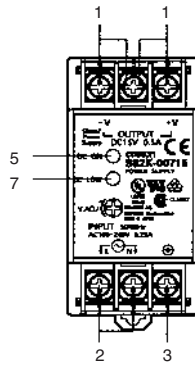
S82K-003□□/S82K-007□□
(Single Output)



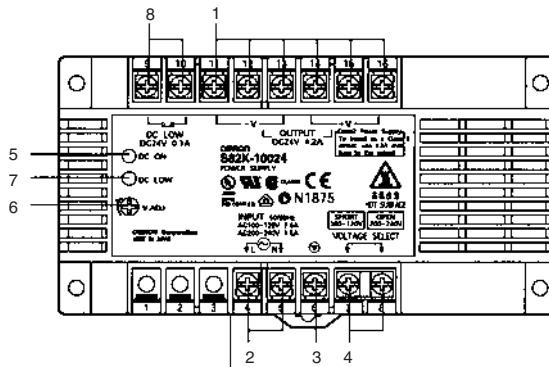
S82K-030□□/S82K-05024



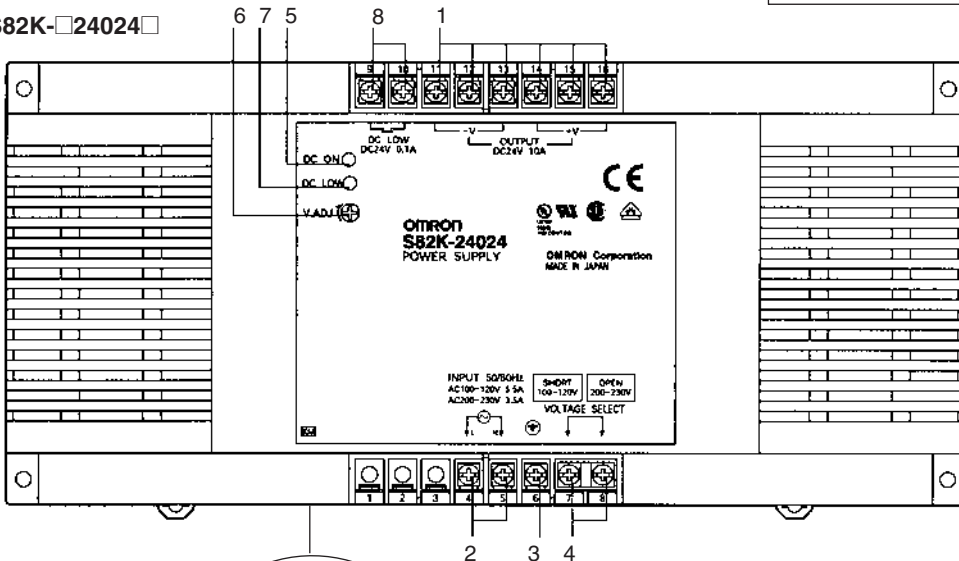
S82K-007□□ (Dual outputs)



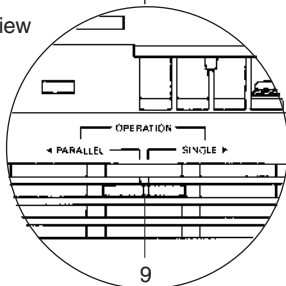
S82K-□09024/S82K-□10024



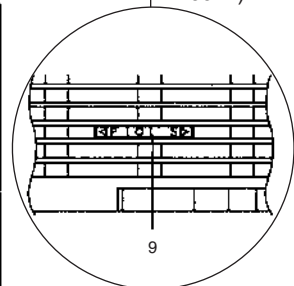
S82K-□24024□



Bottom view



Bottom view
(Only for S82K-P10024)






1. **DC Output Terminals:** Connect the load lines to these terminals.
2. **Input Terminals:** Connect the input lines to these terminals.
3. **Ground Terminal (GR):** Connect a ground line to this terminal.
4. **Input Voltage Selector Terminals:** Selects a 100 V or 200 V input voltage.
5. **Output Indicator (DC ON):** Lights while a Direct Current (DC) output is ON.
6. **Output Voltage Adjuster(V.ADJ):** It is possible to increase or decrease the output voltage.
7. **Undervoltage Alarm Indicator (DC LOW):** Other than S82K-24024 and S82K-P24024 models.
8. **Undervoltage Alarm Output (DC LOW):** S82K-□09024/-□10024/-24024T models only.
9. **Parallel/Single Operation Selector:** Set to "PARALLEL" or "P" for parallel operation.

Operation

■ Undervoltage Alarm Indicator and Output Function (All Models Except for S82K-24024/P24024)

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/□10024/24024T, 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/□10024/24024T'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.

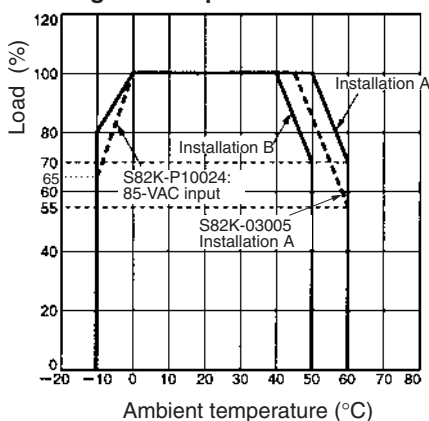
Engineering Data

■ Reference Value

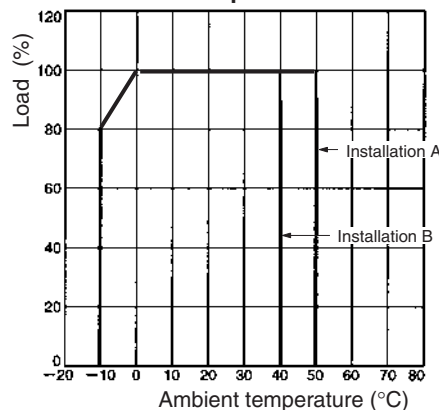
Item	Value	Definition
Reliability (MTBF)	135,000 hrs min.	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent a life of the product.
Life expectancy	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.

■ Derating Curve

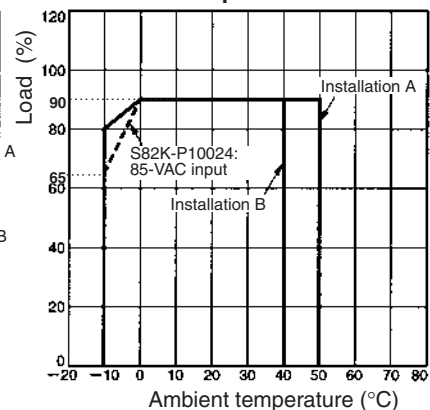
3-/7.5-/15-/30-/50-/100-W Models Single-Unit Operation



100-W Models without PFC Parallel-Unit Operation

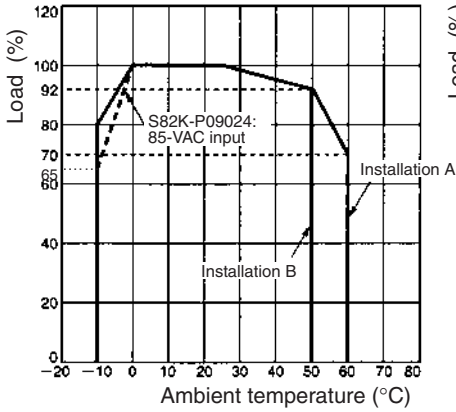


100-W Models with PFC Parallel-Unit Operation

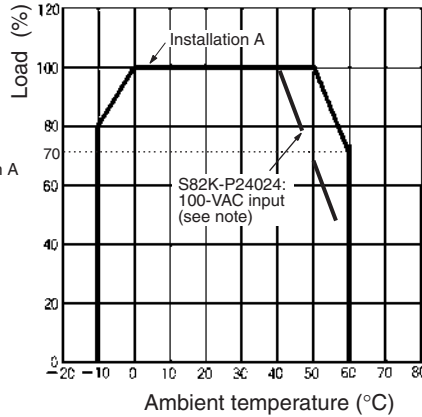


Note: When using the 7.5-W single-output models within the input voltage range between 90 and 110 VDC, the load rate will become 90% or less.

90-W Models
Single-Unit Operation

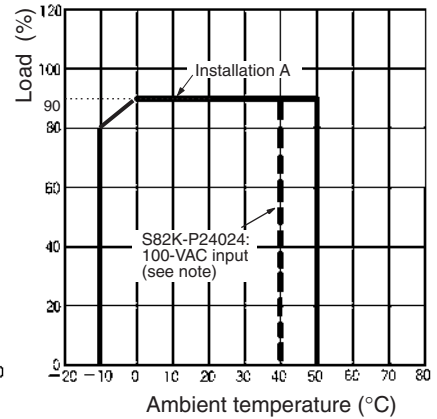


240-W Model
Single-Unit Operation



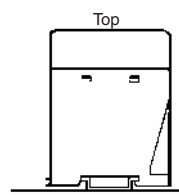
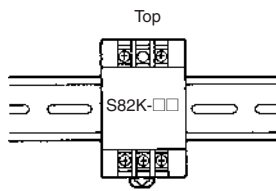
Note: 100-VAC input: 85 to 132 VAC

240-W Model
Parallel-Unit Operation



Note: 100-VAC input: 85 to 132 VAC

(A) Standard (Vertical) Installation (B) Horizontal Installation



(Not permitted for 240-W models.)

Note: The derating curve above can be ensured for the above two kinds of installations.

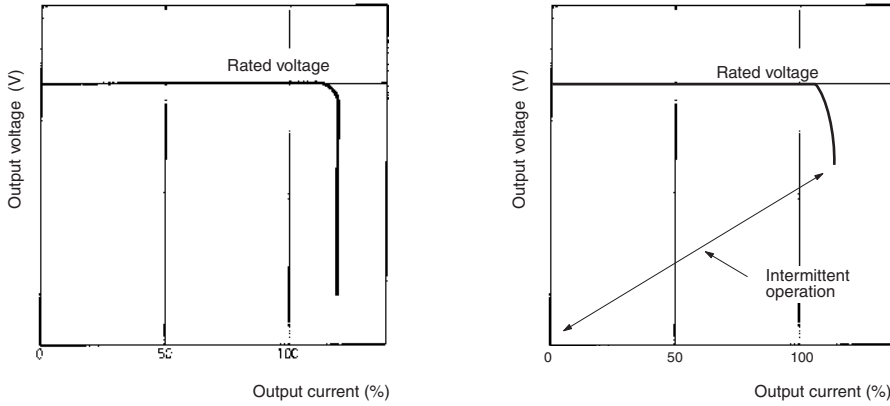
Overload Protection

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 a set value (refer to the table below), 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.

	Single output		Dual outputs	Single output					
	3 W	7.5 W	7.5 W	15 W	30 W	50 W	90 W	100 W	240 W
Set value	105% to 160% of rated load current (see note 1)		105% to 250% of rated load current	105% to 160% of rated load current			101% to 111% of rated load current (see notes 2 and 3)	105% to 160% of rated load current (see note 3)	
Operation	Inverted L drop type, automatic reset			Inverted L drop/intermittent operation type, automatic reset		Inverted L drop type, automatic reset			

- Note: 1. 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 load current.
 2. 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 load current.
 3. When using the 100-W model with PFC in parallel operation, the overload protection function will operate at currents from 3.78 to 4.2 A.

3-/7.5-/15-/90-/100-/240-W Models 30-/50-W Models



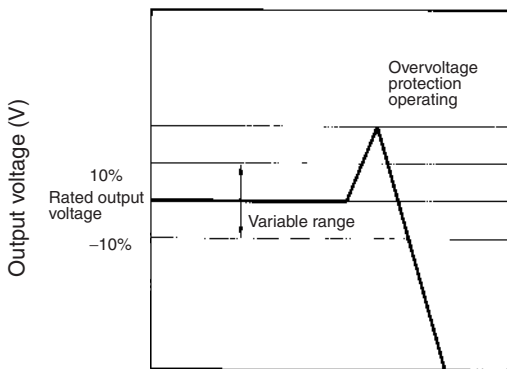
Note: Do not short-circuit the output terminals of the S82K or use the S82K with excessive output current for a long time, otherwise the internal circuitry of the S82K may be deteriorated or damaged.

When Using ± Output Models

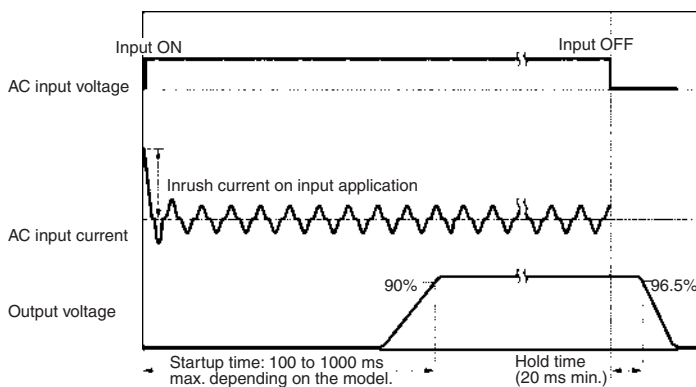
The +V output detects the total output power (+V output and -V output) to trigger the short-circuit protection against overcurrent. This protection varies depending on the -V output state. The -V output independently triggers the short-circuit protection.

Overvoltage Protection (S82K-24024T Models Only)

The Power Supply is provided with an overvoltage protection function that protects the load and the Power Supply from possible damage by overvoltage. When the output voltage rises above a set value, the protection function is triggered, shutting off the output voltage. If this occurs, reset the Power Supply by turning it off for 1 minute min. and then turning it on again.



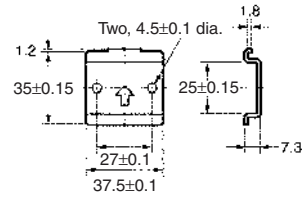
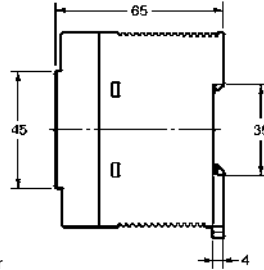
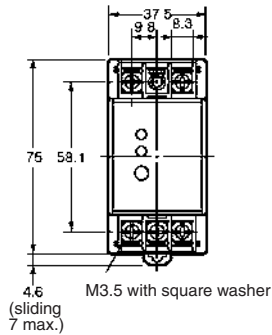
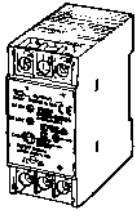
Inrush Current, Startup Time, Hold Time



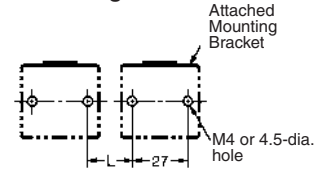
Dimensions

Note: All units are in millimeters unless otherwise indicated.

S82K-003□□ (3 W)
S82K-007□□ (7.5 W)

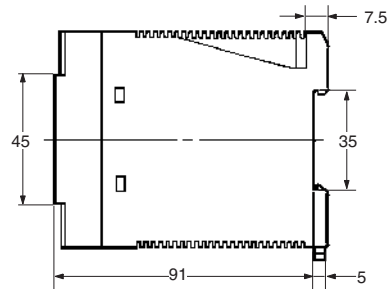
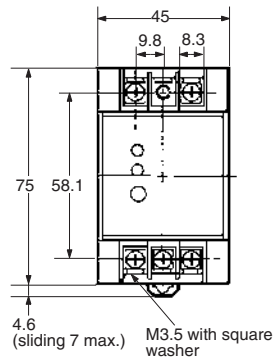
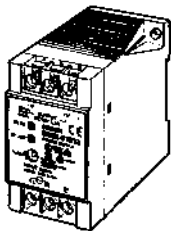


Mounting Holes



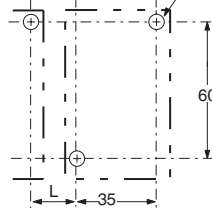
Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-015□□ (15 W)



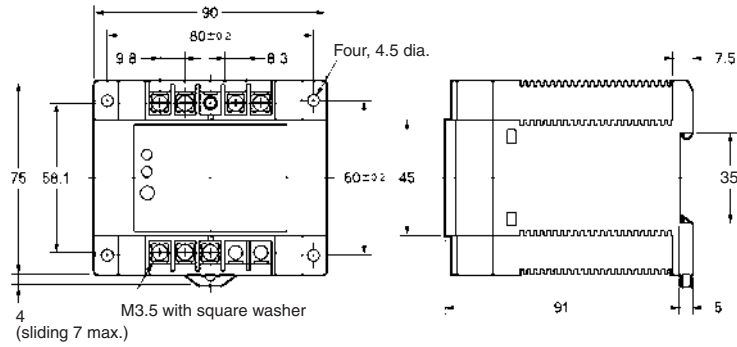
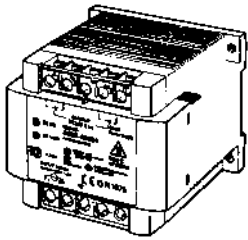
Mounting Holes

Two, M4 or 4.5-dia. mounting holes

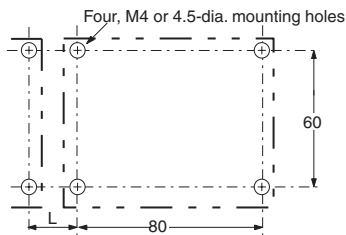


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-030□□ (30 W)
S82K-05024 (50 W)

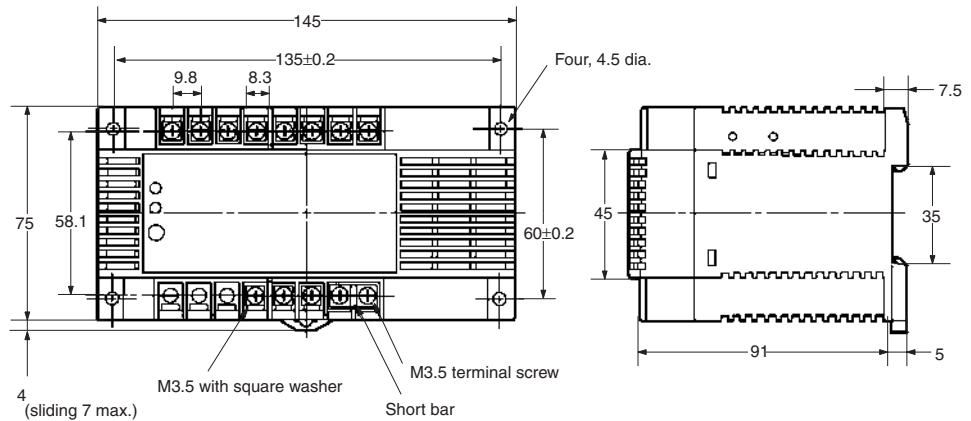
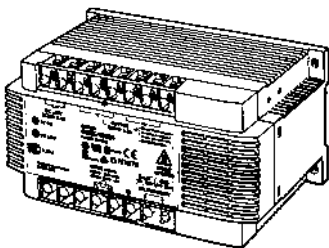


Mounting Holes

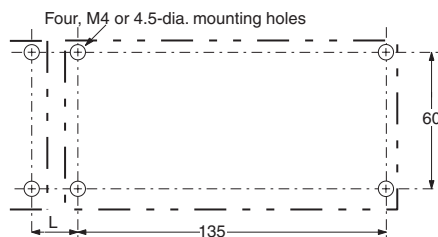


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

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

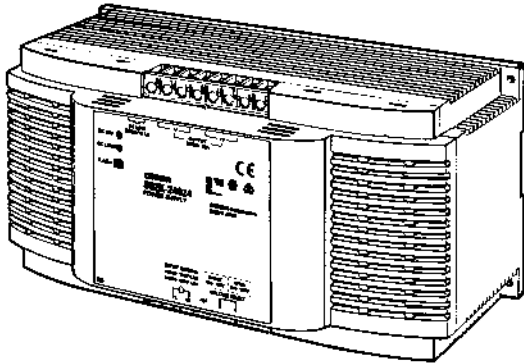
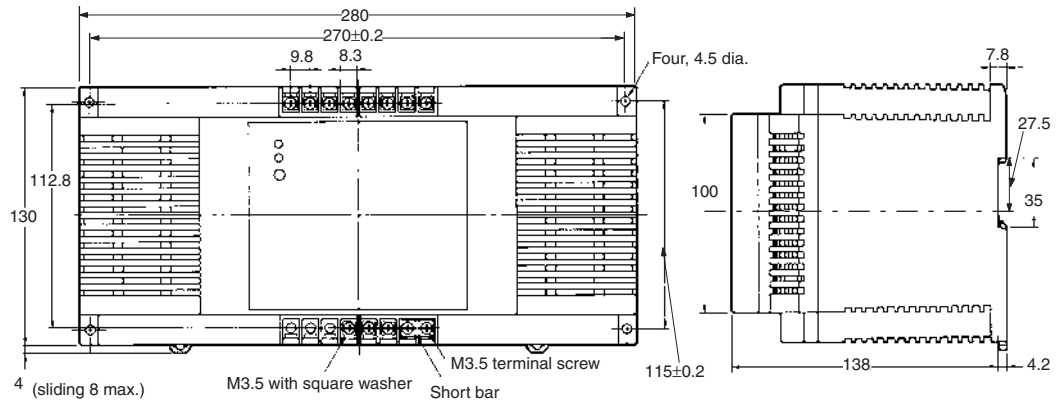


Mounting Holes

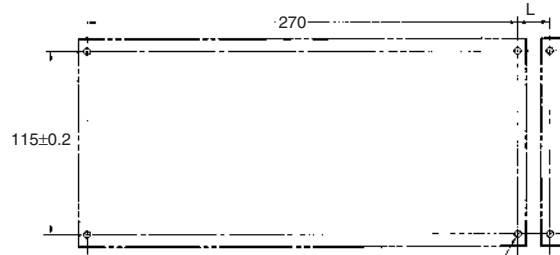


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

S82K-□24024□



Mounting Holes

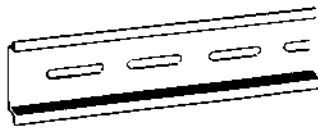


Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

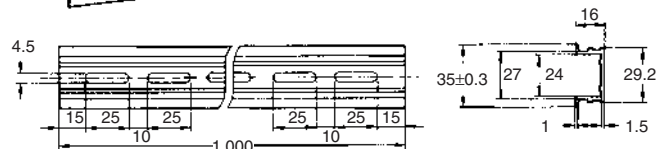
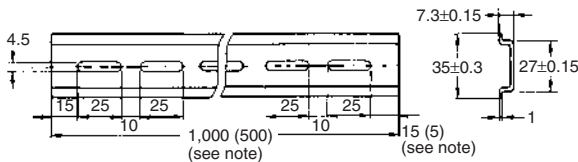
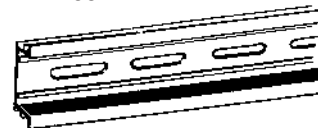
Accessories

Mounting Track (Order Separately)

PPF-100N/PPF-50N



PPF-100N2

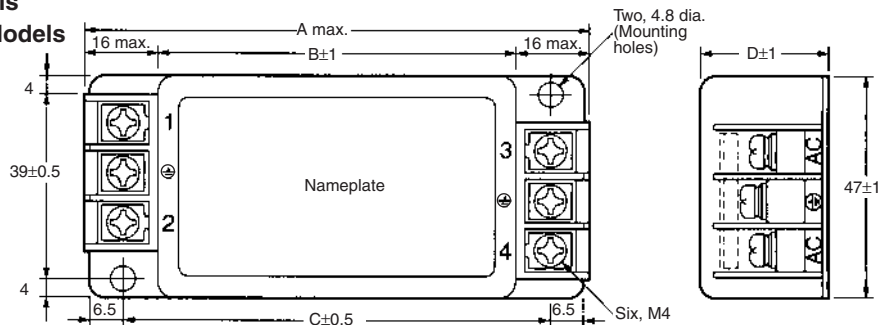


Note: The values shown in parentheses are for the PPF-50N.

Noise Filter (Order Separately)

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

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



Model	A	B	C	D
S82Y-JF3-N	107	75	90	26
S82Y-JF6-N	117	85	100	30

Precautions

Caution

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

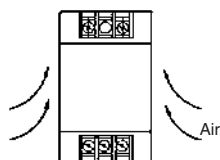
WARNING

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.
 Do not touch the terminals of the Power Supply within one minute after power has been turned OFF. Doing so may result in electric shock due to a residual voltage.
 Do not touch the Power Supply Unit while power is being supplied or immediately after power has been turned OFF. Doing so may result in a skin burn due to high temperature of the Power Supply.

Mounting

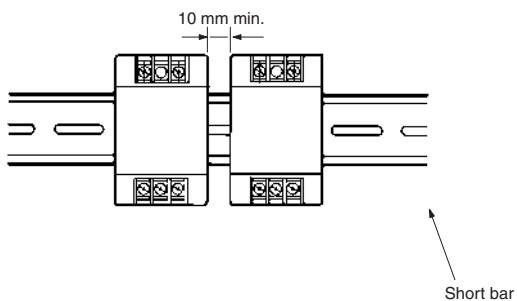
To improve and maintain the reliability of the Power Supply over a long period of time, adequate consideration must be given to heat radiation.

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.

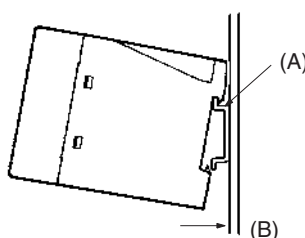


When mounting two or more Power Supplies side-by-side, allow at least 10 mm spacing between them, as shown in the following illustration.

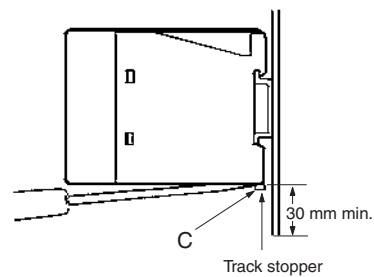
Forced air-cooling is recommended.



To mount the Power Supply on a DIN track, hook portion (A) of the Power Supply to the track 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.

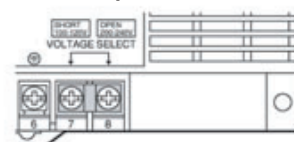
Selection of 100 or 200 VAC Input Voltage

(S82K-□09024/-□10024/-24024/-24024T)

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

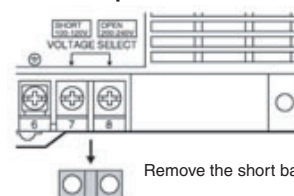
The default setting is 200 V.

100 V Input



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

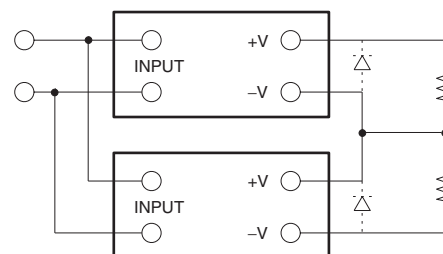
200 V Input



Remove the short bar.

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.



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/240-W models.

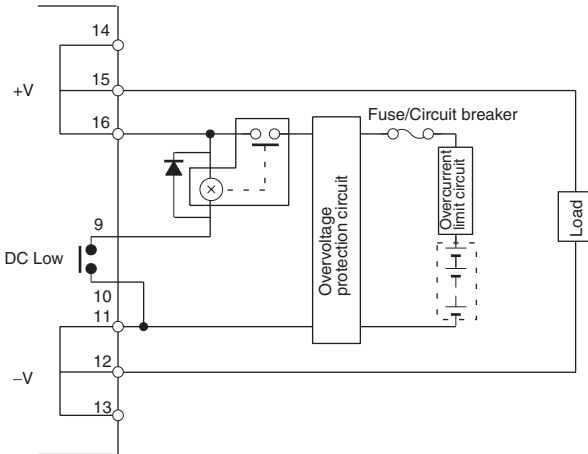
Wiring

Carefully wire the input/output terminals while paying attention to their polarities so as to prevent incorrect wiring.

Battery Charging/Backup

With S82K-□09024/-□10024/-24024T models, a reduction in lifetime due to over discharge of the battery can be prevented using the DC LOW output. (Discharge can be interrupted at 0.75 to 0.9×24 V.)

Example: Lead Storage Battery Backup Circuit



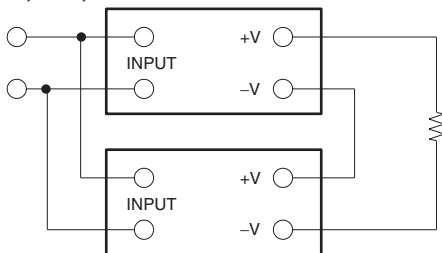
- Note:**
- For details of charging voltages and charging currents, refer to the specifications for the battery.
 - In order to prevent overvoltage to the battery, install an overvoltage protection circuit (90/100-W models).
 - To protect the battery in the event of incorrect operation, such as load short-circuiting, be sure to install a fuse or circuit breaker.
 - To limit the level of charging current to the battery, install an overcurrent limit circuit.

With other models, when connecting a battery to the load, install an overcurrent limit circuit and overvoltage protection circuit.

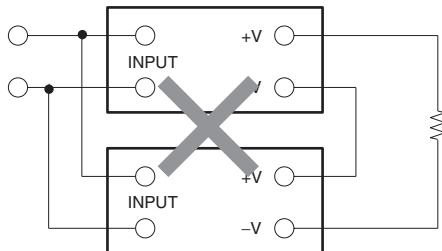
Series Operation

S82K 90-W/100-W/240-W model 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.

90-, 100-, and 240-W Models



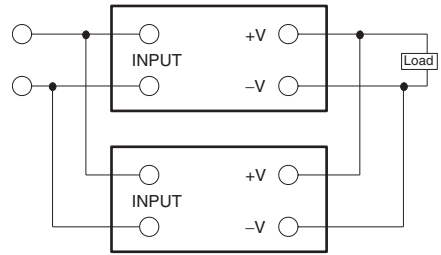
3-, 7.5-, 15-, 30-, 50-W Models



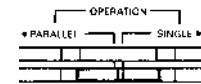
Parallel Operation

S82K 100-W/240-W models can be operated in parallel. Perform parallel operation with power supplies satisfying the same specifications.

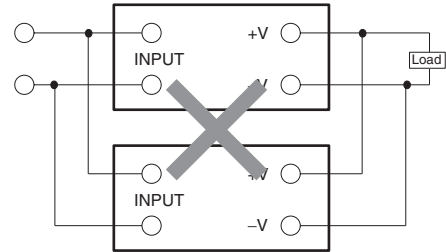
100- and 240-W Models



Note: When operating the S82K-P10024 or S82K-□24024□ in parallel operation, set the switch to "PARALLEL." Refer to the derating curve for the rated current under this operation.



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.
- If the S82K-P10024 or S82K-□24024□ models are used in single operation under the parallel operation setting, the overcurrent protection will be actuated at an output of 90% to 95% (in current), and will not allow a 100% output.
- If the S82K-P10024 or S82K-□24024□ models are used in parallel operation under the single operation setting, one of them will operate at 110% output, causing severe heat derating and shortening the service life.

Minimum Output Current

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.

Operating and Storage Environments

Do not use or store the Unit in the following places, otherwise the Unit may malfunction or the characteristics of the Unit may deteriorate.

- Locations subject to direct sunlight.
- Locations subject to ambient operating temperatures outside the range indicated by the derating curve.
- Locations subject to ambient operating humidity outside the range of 25% to 85%.
- Locations subject to condensation as the result of severe changes in temperature.
- Locations subject to ambient storage temperatures outside the range of -25°C to 65°C.
- Locations subject to corrosive or flammable gases.
- Locations subject to dust (especially iron dust) or salts.
- Locations subject to shock or vibration.
- Locations subject to exposure to water, oil, or chemicals.

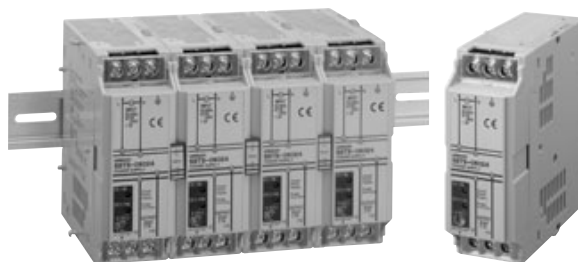
ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

Switch Mode Power Supply S8TS

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

- 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 <i>Engineering Data</i> . 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, EN61000-3-2 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 31 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 28 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 <i>Engineering Data</i> . 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.
- The output current is specified at power output terminals.
 - Refer to the explanations of functions on page 28 for details.
 - Be sure to mount End Plates (PFP-M) on both ends of the Power Supply.

Reference Value

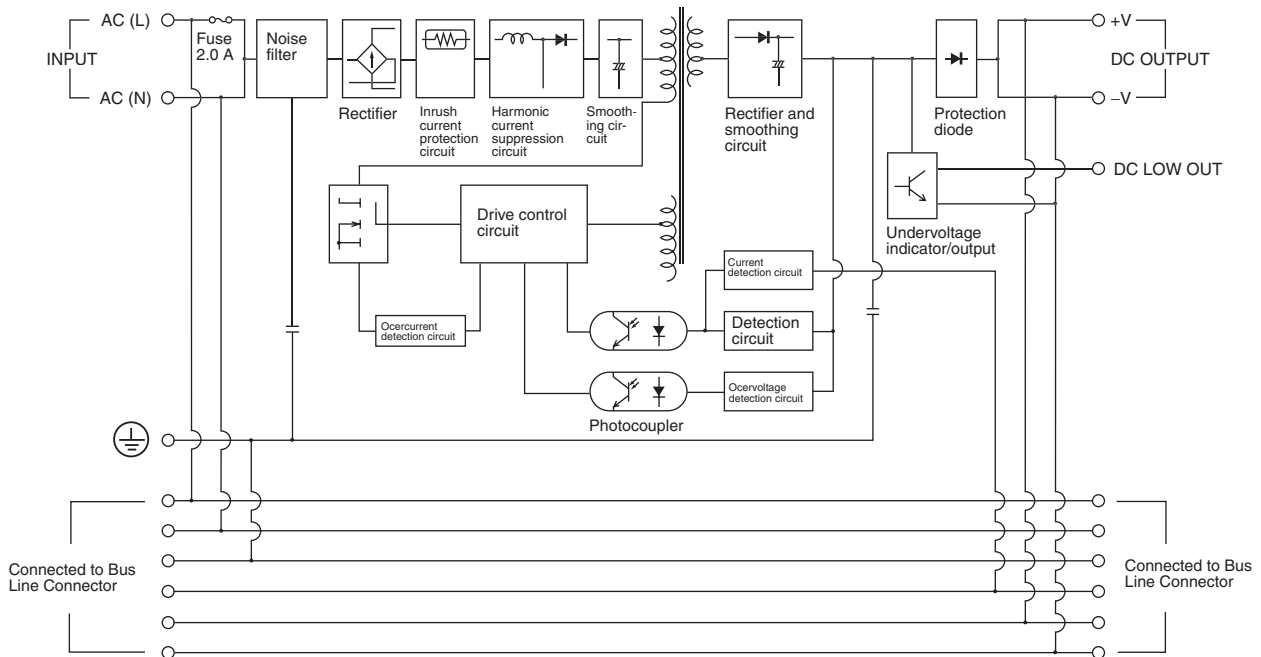
Item	Value	Definition
Reliability (MTBF)	250,000 hrs min.	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent the life of the product.
Life expectancy	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.

Power Supplies

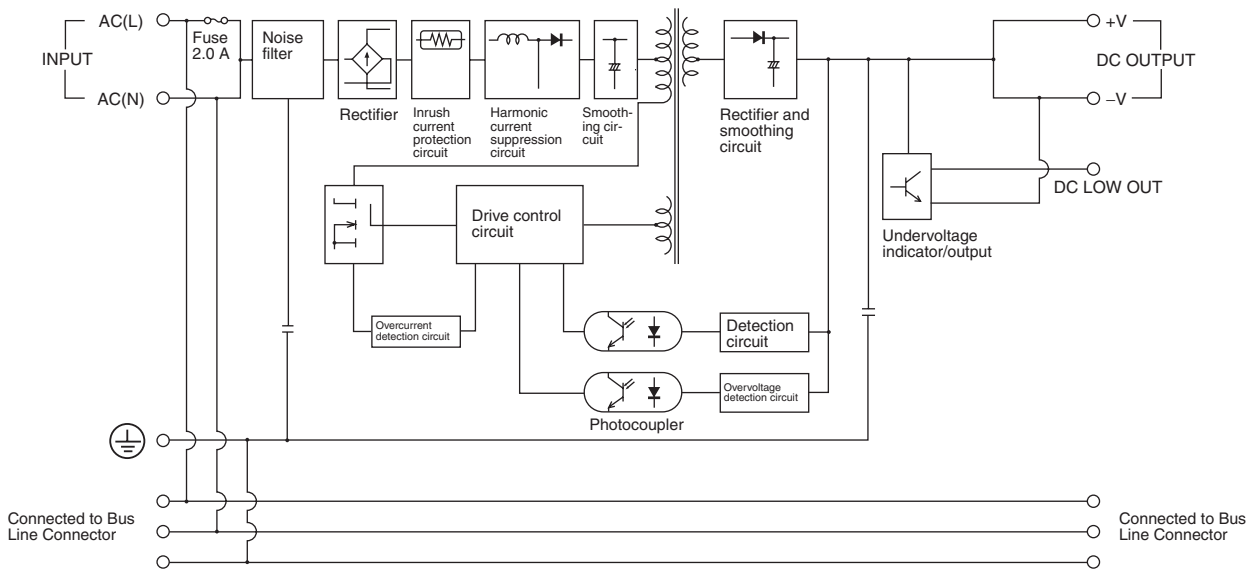
Connections

■ Block Diagrams

S8TS-06024□ and S8TS-03012□

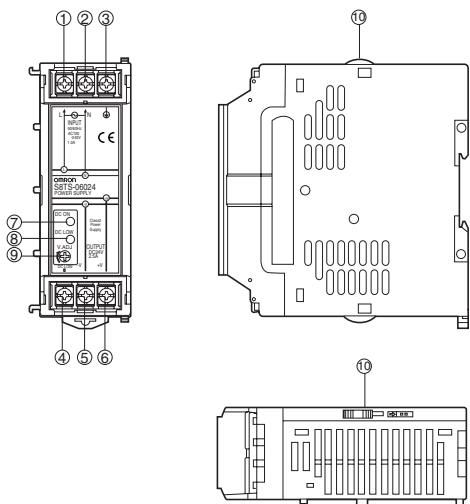


S8TS-02505□

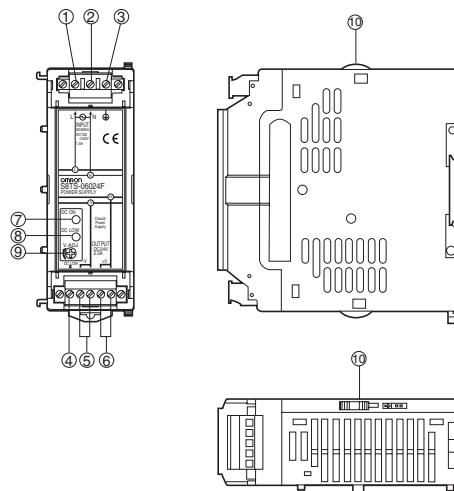


Installation

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

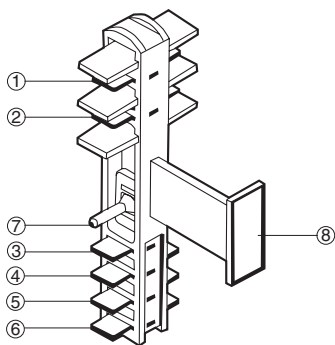


Basic Blocks with Connector Terminals: S8TS-□□□□□F

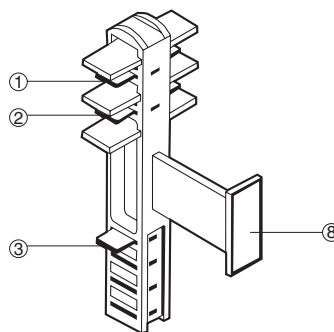


- ① **AC Input Terminal (L):** Connect an input line to this terminal.
- ② **AC Input Terminal (N):** Connect an input line to this terminal.
- ③ **Ground Terminal (⊕):** Connect a ground line to this terminal.
- ④ **Undervoltage Detection Output (DC LOW OUT):** Open Collector output
- ⑤ **DC Output 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.

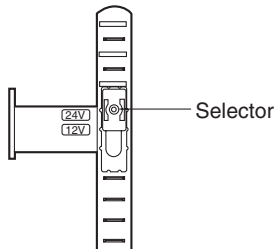
Selecting Bus Line Connectors

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

- Using parallel operation:

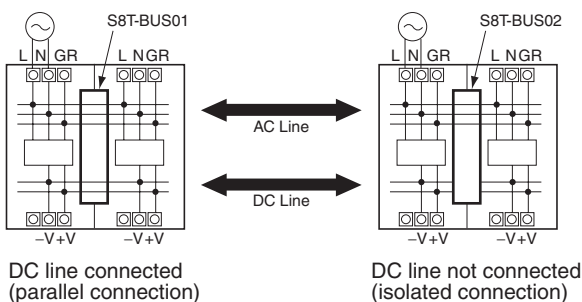
S8T-BUS01 (DC line connected)

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)

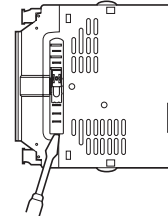


Note: Series operation is possible with different specifications, but the current that flows to the load must not exceed the rated output current of any Block.

Mounting and Removing Bus Line Connectors

Pay attention to the following points to maintain electrical characteristics.

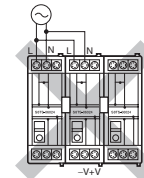
- Do not insert/remove the Connectors more than 20 times.
- Do not touch the Connector terminals.
- To remove the Connectors, insert a flat-bladed screwdriver alternately at both ends.



Wiring Linked Blocks

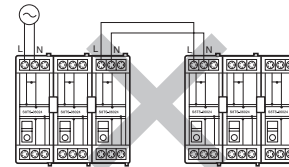
When linking Blocks together, wire input lines to one Block only, otherwise inputs may be shorted internally resulting in damage to the Block.

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.

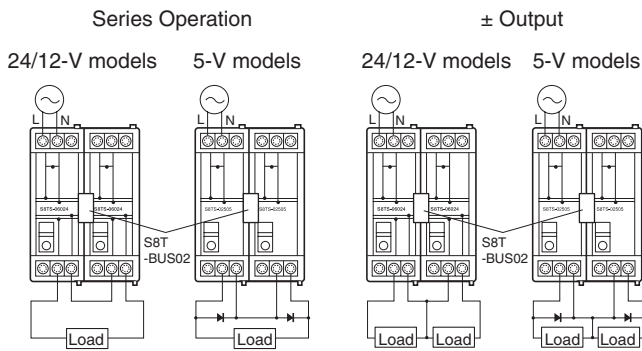


When Basic Blocks are linked together, it is necessary to wire the GR terminal of only one Block, not all the Blocks.

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 di-rection (I_F)	At least twice the rated output current



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

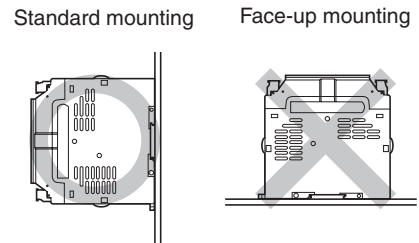
The leakage current per Basic Block is 0.35 mA at 100 VAC and 0.7 mA at 240 VAC. When N Blocks are linked together, the leakage current will be equal to N times that for 1 Basic Block.

Mounting

Mounting Direction

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

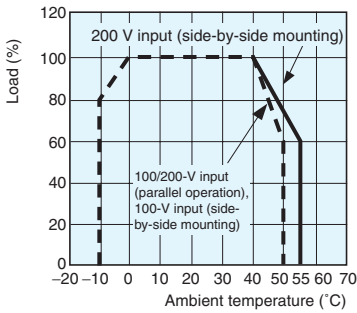
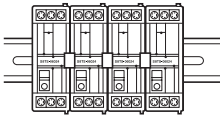
Use standard mounting only. Using any other mounting method will prevent proper heat dissipation and may result in deterioration or damage of internal elements.



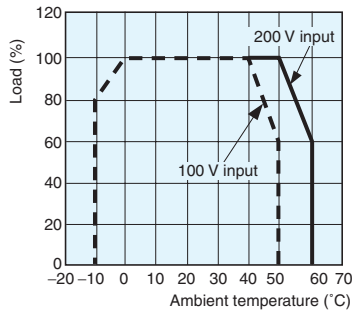
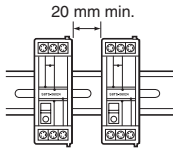
Engineering Data

Derating Curves

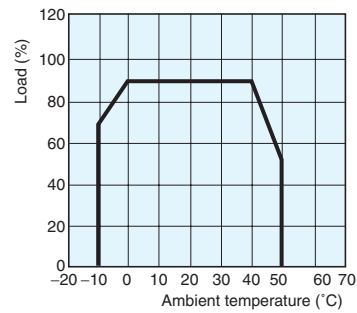
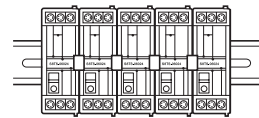
Parallel Operation and Side-by-side Mounting



Single Operation with Spaces between Blocks



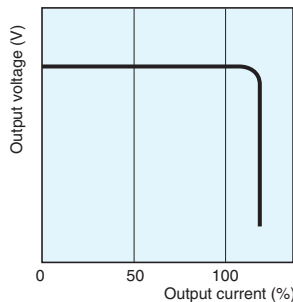
N+1 Redundant System



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.

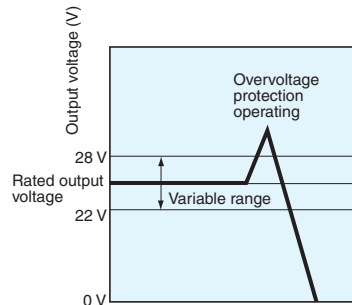


Note: Do not allow the short-circuited or overcurrent state to continue for more than 20 s, otherwise it may damage the element.

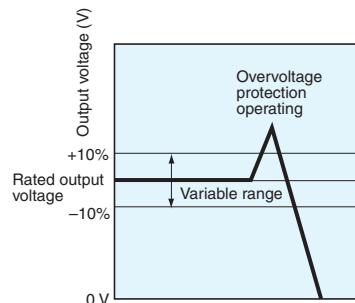
Overvoltage Protection

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

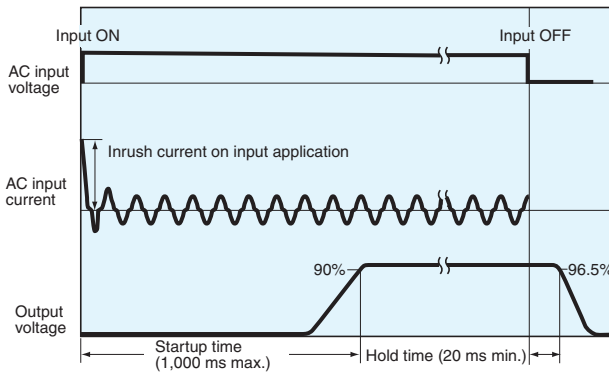


12-V and 5-V Models



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.

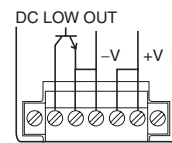
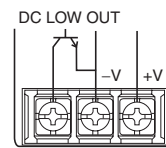
Status of indicator	Voltage status	Output status (See note 1.)
Green: ● DC ON Red: ○ DC LOW	Higher than approx. 80% of the rated output voltage	ON
Green: ● DC ON (See note 2.) Red: ● DC LOW	Less than approx. 80% of the rated output voltage	OFF
Green: ○ DC ON Red: ○ DC LOW	Close to 0 V	OFF

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

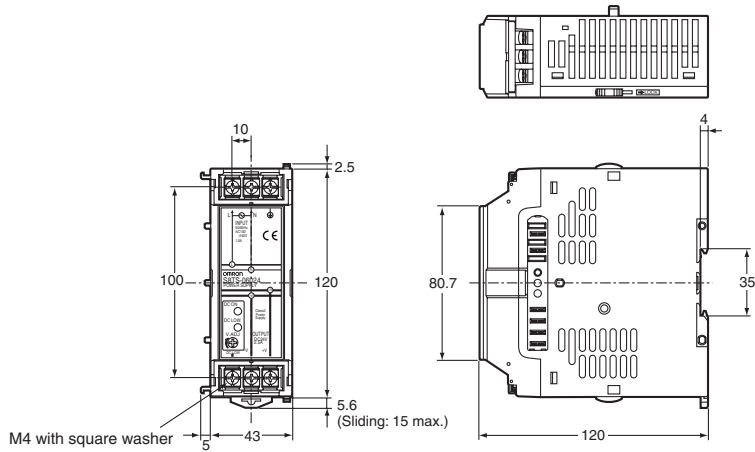
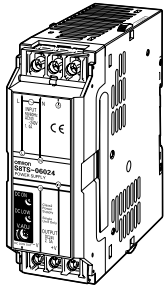
Blocks with Screw Terminals Blocks with Connector Terminals



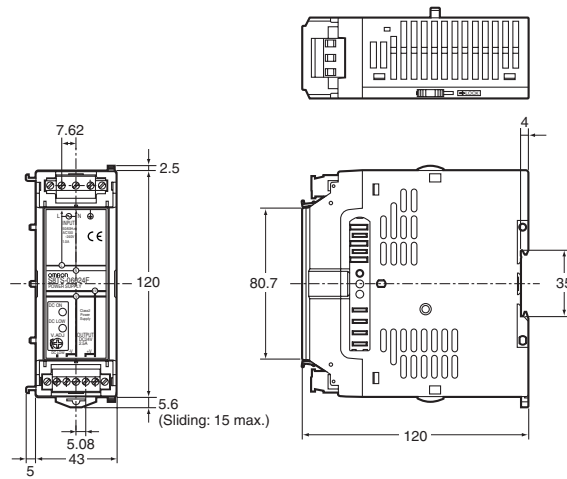
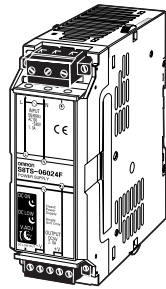
Dimensions

Note: All units are in millimeters unless otherwise indicated.

S8TS-□□□□□



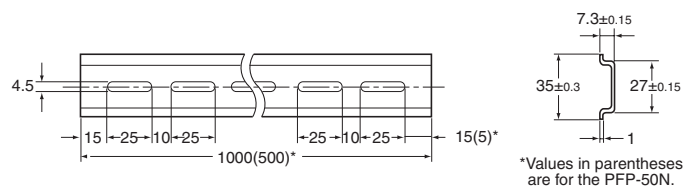
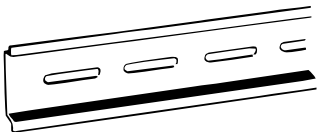
S8TS-□□□□□F



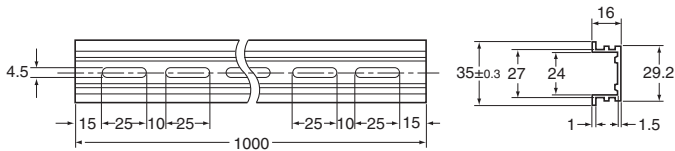
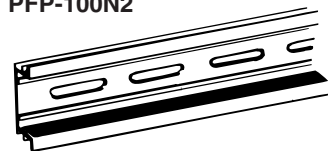
■ Mounting Track (Order Separately)

DIN Track

PFP-100N
PFP-50N

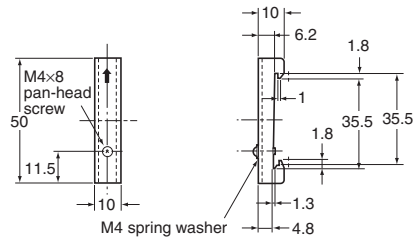
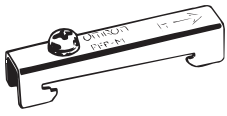


PFP-100N2



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.

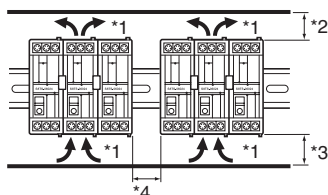
When linking Blocks, wire the input line for 1 Block only. Otherwise, inputs may be shorted internally resulting in damage to the Blocks.

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.

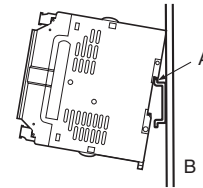
Setting the adjuster to a setting less than 10% may cause the under-voltage detection function to operate.

Bus Line Connectors

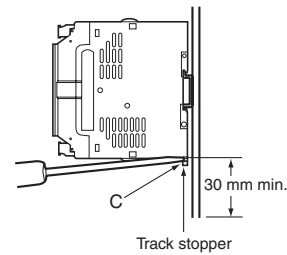
Do not apply sudden shocks (e.g., by dropping) to the Bus Line Connectors. Doing so may result in damage.

DIN Track Mounting

To mount the Block on a DIN track, 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.

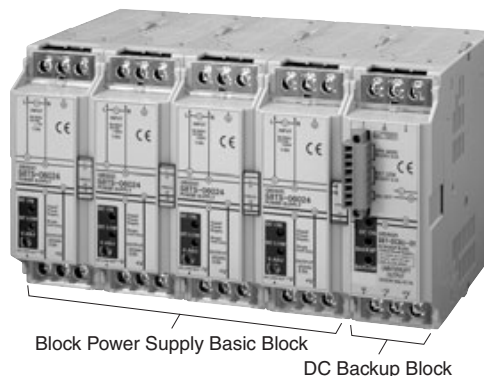
Cat. No. T022-E1-03

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

DC Backup Block for S8TS S8T-DCBU-01

DC Backup Block for S8TS for Preventing 24 VDC Outages due to Instantaneous Power Failures

- Supplies 24 VDC for a fixed period of time even during AC input outages to considerably improve system reliability.
- Block Power Supply Basic Block is connected by the Bus Line Connector.
Simple system configuration
- Alarms are notified by indication on main unit and by alarm signal output.



Ordering Information

DC Backup Block (See Note 1.)

Input voltage	Output voltage	Output current	Model number
24 to 28 VDC	24 V	3.7 A/ 8 A (See note 2.)	S8T-DCBU-01

- Note:**
1. One Bus Line Connector, S8T-BUS03, is included as an accessory.
 2. When specified battery, LC-□122R2□□, is in use: Max. 3.7 A
When specified battery, LC-□123R4□□, is in use: The output current can be selected by the overcurrent protection operating point selector.

Battery Holder

Model number
S82Y-TS01

Basic Block

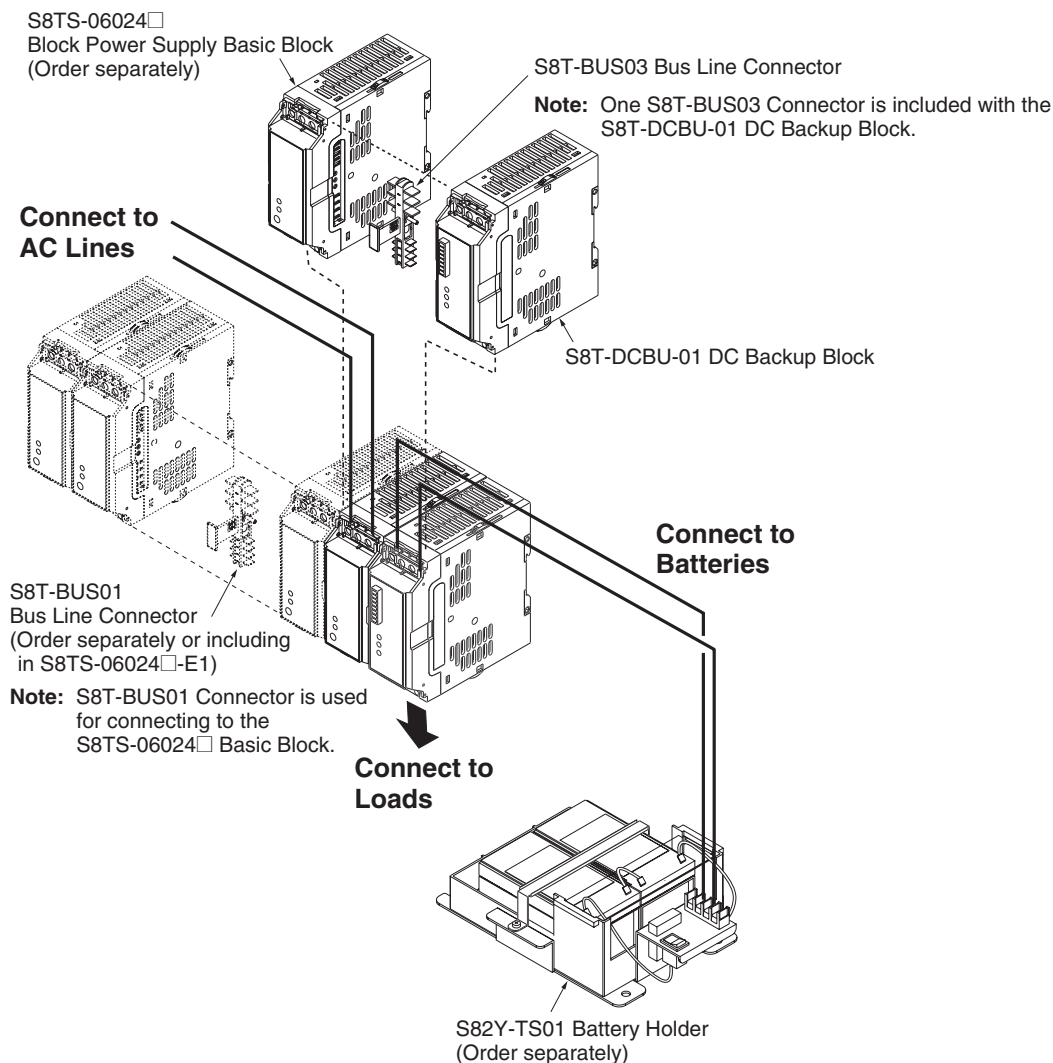
Type		Input voltage	Output voltage/Output current	Model number
Screw terminal type	With Bus Line Connectors	100 to 240 VAC	24 V/ 2.5 A	S8TS-06024-E1
	Without Bus Line Connectors			S8TS-06024
Connector terminal type	With Bus Line Connectors			S8TS-06024F-E1
	Without Bus Line Connectors			S8TS-06024F

- Note:** Use S8T-DCBU-01 together with the Block Power Supply Basic Block(s).
For more information on the Basic Block, refer to the S8TS data sheet (Cat.No. T022-E1).

Battery

See on Page 2 for the battery ordering information.

■ Basic Configuration



Max. No. of Connected S8TS-06024□ Units and Designated Battery

Area where battery is sold		Japan		Europe		Areas other than Japan and Europe	
		LC-P122R2J	LC-P123R4J	LC-R122R2PG	LC-R123R4PG	LC-R122R2P	LC-R123R4P
Overcurrent protection operating point selector	Max. No. of connected S8TS-06024□ units						
5.7 A (typ.)	2 (3 in the case of N+1 redundant operation)	Yes	Yes	Yes	Yes	Yes	Yes
11.7 A (typ.)	4 (5 in the case of N+1 redundant operation)	—	Yes	—	Yes	—	Yes

- Note:**
- The designated battery is made by Matsushita (Panasonic).
 - The designated battery is rated at 12 V. Use two batteries in series.
 - S8T-DCBU-01 shall be connected with S8TS-06024□ when in use.
 - Consult OMRON or Panasonic sales representatives when purchasing batteries.

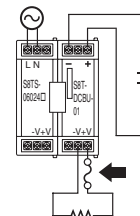
Specifications

■ Ratings/ Characteristics

Item		Model	S8T-DCBU-01	
Input		Voltage (See note 1.)	24 to 28 VDC	
Output (See note 2.)	Normal operation	Voltage	24 VDC (See note 3.)	
		Load variation influence (See note 4.)	6% max.	
	Backup operation	Voltage	21.0 to 27.4 VDC (See note 5.)	
		Min. output current	LC-□122R2□□	0.11 A
			LC-□123R4□□	0.17 A
Backup time (reference value) (See note 6.)	LC-□122R2□□	8 min/ 3.7 A (at 25°C, battery fully charged, start of battery service life)		
	LC-□123R4□□	4 min/ 8.0 A (at 25°C, battery fully charged, start of battery service life)		
Charging	Method		Stable voltage/current charging method	
	Charge voltage (See note 7.)		27.4 V/ 26.2 V (typical)	
	Max. charge current		0.35 A (typical)	
	Overvoltage protection (See note 7.)		Yes (30 V typical)	
Additional functions	Protection functions	Backup stop function (See note 7.)	Yes (18.5 V typical)	
		Overcurrent protection (See note 7.)	Yes (5.7 A/ 11.7 A typical)	
		Battery misconnection protection (See note 7.)	Yes	
	Input function	Backup ON/OFF input (See note 7.)	Yes	
		Output functions	Output indicator	Yes (color: green)
	Battery status indicator (See note 7.)		Yes (color: red)	
	Battery status output (See note 7.)		Yes (relay: 24 VDC, 0.1 A)	
	Backup status indicator		Yes (color: red)	
Operation mode output	Yes (relay: 24 VDC, 0.1 A)			
Other	Ambient operating temperature (See note 4.)		Operating: Refer to the derating curve in <i>Engineering Data</i> . (with no condensation or icing) Storage: -25 to 65°C	
	Ambient humidity		Operating: 25% to 85%; Storage: 25% to 90%	
	Dielectric strength (See note 4. and 8.)		3.0 kVAC for 1 minute (between all S8TS-06024□ AC input terminals, and all S8T-DCBU-01 terminals/ all S8TS-06024□ output terminals; detection current: 20 mA) 2.0 kVAC for 1 minute (between all S8TS-06024□ AC input terminals and GR terminals; detection current: 20 mA) 1.0 kVAC for 1 minute (between all S8T-DCBU-01 terminals/ all S8TS-06024□ output terminals, and between GR terminals; detection current: 20 mA)	
	Insulation resistance (See note 4.)		100 MΩ min. (between all S8T-DCBU-01 terminals and all S8TS-06024□ outputs, and between all S8TS-06024□ AC inputs and GR terminals) at 500 VDC	
	Vibration resistance (See note 4. and 9.)		10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions	
	Shock resistance (See note 4. and 9.)		150 m/s ² , 3 times each in ±X, ±Y, and ±Z directions	
	Electromagnetic interference (See note 4.)		Conforms to FCC Class A, EN50081-2/1993	
	EMS (See note 4.)		Conforms to EN61000-6-2/1999	
	Approved standards		UL: UL508 (Listing, Class 2: Per UL1310) (See note 10.), UL60950, UL1604 (Class I /Division 2) cUL: CSA C22.2 No.14, No.60950, No.213 (Class I /Division 2) EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0806)	
	Size		120 × 120 × 43 mm	
Weight		Approx. 350 g		

- Note:**
1. Refer to *Output Voltage Adjustment for S8TS-06024□* on page 44 for details.
 2. The output is specified at power output terminals.
 3. Specified by performance of S8TS-06024□ Basic Block.
 4. Specified by S8TS-06024□ connection.
 5. Output voltage goes down to 21.0 V (min.) when the backup operation is activated.
 6. Refer to *Backup Time (Reference Value)* on page 51 for details.
 7. Refer to *Functions* on page 46 for details.
 8. Set the detection current to 20 mA × N when S8TS-06024□ Basic Block N Blocks are connected.
 9. Be sure to mount End Plates (PFP-M) on both ends of the Power Supply.
 10. To be compliant with UL508 (Class2: per UL1310), take one of following each measure. Note that the number of S8TS-06024□ to be connected to the S8T-DCBU-01 shall be one.
 - Connect S8T-DCBU-01 to S82Y-TS01 having its fuse replaced with an UL-Listed and DC rated 32 VDC min./ 3 A max. one.
 - Connect an UL-Listed and DC rated 32 VDC min./ 2.5 A max. fuse at the location shown in Figure 1.

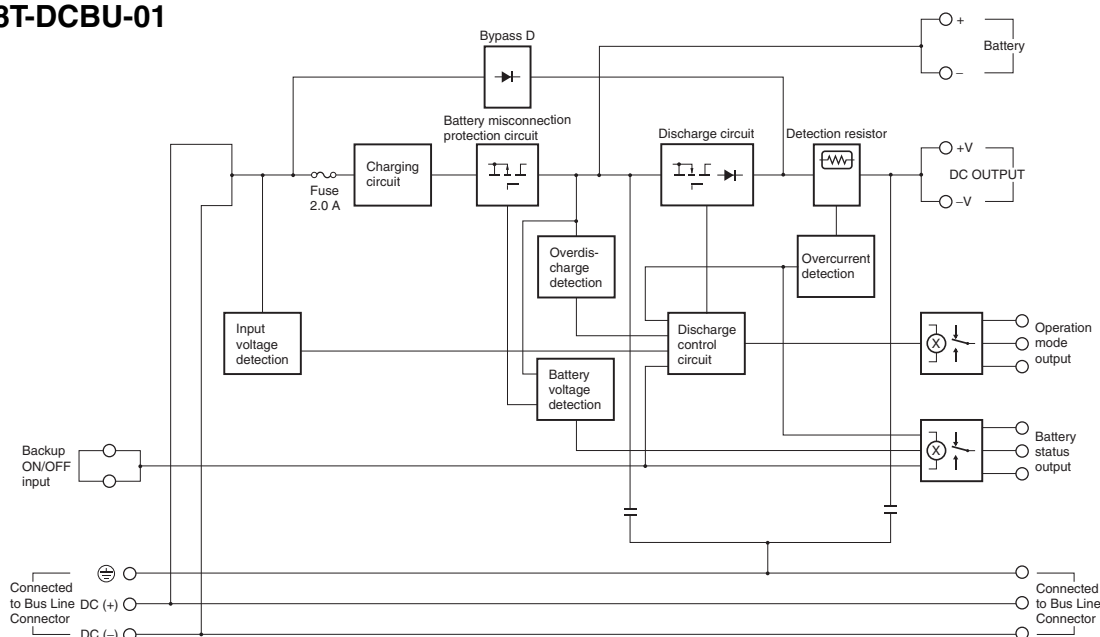
(Figure 1)



Connections

■ Block Diagram

S8T-DCBU-01



Operation

■ How to Use the Unit

Battery Connection

For battery connection, it is recommended that a Battery Holder (S82Y-TS01) be used. If the S82Y-TS01 is not used, insert a switch and a fuse between the battery and the S8T-DCBU-01. For selection and layout of the switch and fuse, refer to *Battery Holder S82Y-TS01* on page 44.

Battery Overdischarge

The battery discharges in the following three conditions (1) to (3). When the battery has overdischarged, the battery service life may be shortened abnormally or backup operation may be disabled due to inability to recharge. To protect the battery against overdischarge, take the appropriate action as described below.

- (1) Discharge due to load of backup operation (See Note 1.)
Use the backup stop function (refer to page 46). Backup operation is automatically stopped when the battery connecting terminal voltage drops down to 18.5 V, which prevents a rapid discharge of the battery.
Leaving the unit in this condition for a long time, even after the backup operation has stopped, may cause the discharge to be hastened due to standby current of the product, thus causing overdischarge. In that case, refer to the item (2).
- (2) Discharge due to standby current of the S8T-DCBU-01 (See Note 1.)
Battery discharge is hastened by standby current consumption that occurs due to circuit structure of S8T-DCBU-01 even if the AC power is turned OFF and the load is not applied. In case of Table 1, disconnect the batteries in order to protect the battery against overdischarge. There are two ways to disconnect the batteries as follows:

- 1) Turn the Battery Holder switch OFF. (See Notes 2 and 4.) Connect the external circuit to prevent failure to turn the switch off. (See Note 8.)
- 2) Open backup ON/OFF input terminals by external signal, and disconnect the batteries by external relay. (See Figure 2 and Notes 2, 4 and 8.)

Table 1. Possibility of Overdischarge due to Standby Current Consumption

		When the battery is not disconnected:	
		Frequent backup operation or insufficient charge may shorten the battery service life.	The battery overdischarges and cannot be recharged, resulting in failure in backup operation. (See Note 3.)
Turn the AC power after assembly OFF. (See Note 7)			Yes
Turn the AC power OFF during maintenance or inspection.			Yes
When the AC power is frequently turned ON and OFF:	Turn the AC power OFF (1 hour/day)	Yes	
	Turn the AC power OFF (16 hours/day)	Yes	
	Turn the AC power OFF for 2 days.	Yes	Yes
	Turn the AC power OFF for about 1 week.		Yes
Storage and transportation			Yes
Power outage for hours			Yes

Note: 1. The battery discharges continuously due to standby current of the S8T-DCBU-01 even when the backup stop function is used or when backup operation is stopped by opening the backup ON/OFF input.

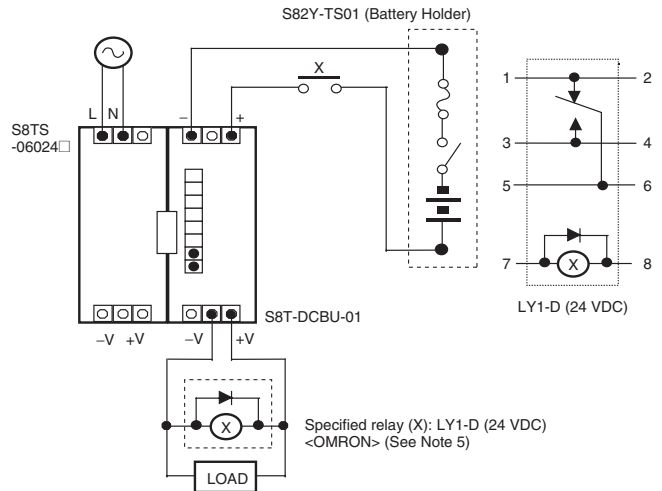
- Turn the Battery Holder switch OFF or the SW shown in Figure 2. Unnecessary backup operation shortens the battery service life for the following two reasons. When turning the AC power OFF, be sure to turn the Battery Holder switch ON or the SW shown in Figure 2.
 - Full charge requires 24 to 28 hours. Activating backup operation before charging fully shortens the battery service life due to insufficient charge.
 - Every time charging and discharging is repeated, the battery service life is shortened.
- When battery connector terminal voltage drops to 15.5 V (typical) or below, S8T-DCBU-01 stops charging due to the erroneous battery connection protection function. When the battery nears end of life (when the battery capacity becomes less than half of the original capacity), if only AC power is turned OFF and the unit is left in this condition for 2 days (under the temperature of 25°C), backup operation may be disabled due to inability to recharge. (Refer to *Protection Against Erroneous Battery Connection* on page 47.)
- Do not use batteries in an area where corrosive gases (silicon gas, sulfide gas, organic gas, chlorine gas) may enter. If the relay ("X" shown in Figure 1 and 2) or switch (Battery Holder, SW shown in Figure 2) is exposed to corrosive gases for an extended period, the contact surface corrodes, causing unstable or loose connection, thus disabling recharge or backup operation.
- The following table shows the ambient temperature and humidity when using LY1-D (24 VDC). LY1-D (24 VDC) has a built-in diode in order to absorb counter-voltage generated by the operation coil. As this causes polarity in the operation coil, be careful when wiring. Refer to the individual catalogs for details.

	Ambient temperature	Ambient humidity
LY1-D (24 VDC)	Output current 4 A or under: -25 to +55°C Output current 4 A or over: -25 to +40°C	5 to 85%

- On the SW shown in Figure 2, voltage and current increase to 15 V when opened and 2 mA when short-circuited. Be careful when selecting the switch.
- The standby current becomes live and discharging is hastened even when AC power is not wired, but the battery is left wired.
- Should the operator forget to turn off the Battery Holder switch in Figure 1 or the SW in Figure 2, the backup operation continues until the battery connecting terminal voltage drops down to 18.5 V (typical), then the battery is disconnected by the relay (X). If the battery is left in this condition for a long time exceeding the period of time shown in the tables below, the overdischarge is hastened due to self-discharge, thus disabling backup operation due to inability to recharge.

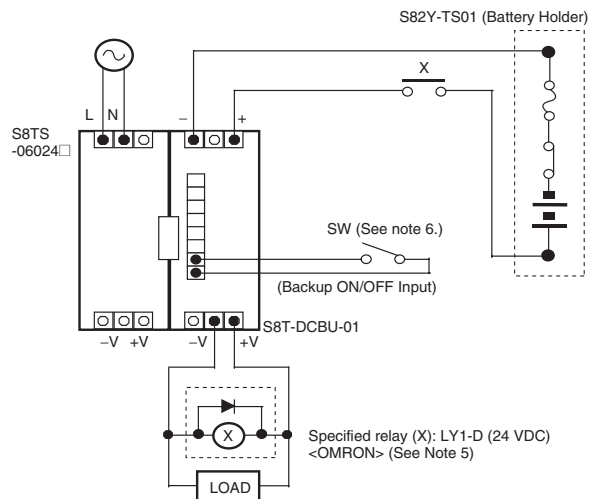
Battery	Ambient temperature	Load current	Length of months that disables recharge	
			Battery service life early stage	Battery service life ending stage
LC-□122 R2□□	20 °C	0.11 A	1.0 month	0.5 months
		2.2 A	2.0 months	1.0 month
	40 °C	0.11 A	0.5 months	0.25 months
		2.2 A	1.0 month	0.5 months
LC-□123 R4□□	20 °C	0.17 A	1.0 month	0.5 months
		4.8 A	3.0 months	1.5 months
	40 °C	0.17 A	0.5 months	0.25 months
		4.8 A	3.0 months	1.5 months

Figure 1. Overcharge protection circuit when operator forgets to turn Battery Holder switch OFF



- When forgetting to turn Battery Holder switch OFF:
- Start backup operation after turning OFF AC power.
 - When the battery connecting terminal voltage drops down to 18.5 V (typical), the backup operation stops, opening the relay point and disconnecting the battery from the body.

Figure 2. Overcharge protection circuit using external signal (Backup ON/OFF input)



- Open the backup ON/OFF input terminals by external signal (switch) (Backup becomes impossible.)
- When AC power is turned OFF, 24 VDC drops, opening the relay point and disconnecting the battery from the DC Backup Block body.

(3) Self-discharge of the battery

The battery self-discharges even when it is disconnected from the S8T-DCBU-01. When transporting or storing the unit for long hours, charge the battery at the intervals specified below to prevent overdischarge.

Ambient temperature	Charging intervals
Under 20 °C	9 months
20 to 30 °C	6 months
30 to 40 °C	3 months

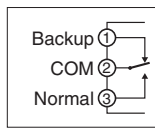
Backup Function

(Backup status indication, Operation mode output)
S8T-DCBU-01 detects output voltage drop of S8TS-06024□ to switch to backup operation.

Indicator Operation mode output relay



LED lit (DC ON: Green)
LED lit (BACKUP: Red)



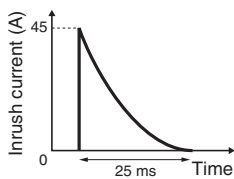
Relay (OPN MODE)
(1)-(2): ON

Backup operation continues for about 7 seconds even after the output voltage of S8TS-06024□ is restored.

	Backup status	LED (BACKUP: Red)	Relay (OPN MODE)
Power failure	Continuous backup operation	Lit	Backup (1)-(2): ON
Failure of one unit of S8TS-06024□	During operation of one unit of S8TS-06024□		
	During operation of multiple units of S8TS-06024□ *	Repetition of switching between Normal operation and Backup operation at an interval of about 7 seconds	Blink at an interval of about 7 seconds
Upon activation of overcurrent protection function of S8TS-06024□ *	Repetition of switching between Normal operation and Backup operation at an interval of about 7 seconds		Repetition of switching between Normal ((3)-(2): ON) and Backup ((1)-(2): ON)

* If this state occurs, a probable cause is an S8TS-06024□ overload or it is out of order. Immediately eliminate the cause of the trouble.

- Note:**
- If switching between backup operation and Normal operation is repeated, the output voltage changes accordingly.
 - The contact capacity of the relay is 24 VDC 0.1A.
 - Do not use the battery upon a steep load fluctuation or at a peak load exceeding the rated current. The output voltage of S8TS-06024□ may drop to switch to backup operation, and shorten the battery service life.
 - The maximum inrush current specified below (on assumption with a 56000 μF capacitive load) flows when backup operation starts.



Battery charge status: Fully charged
Ambient temperature: 40°C
Input capacitor of connected equipment: 56,000 μF
Load power: 192 W

Output Voltage Adjustment for S8TS-06024□

The DC Backup Block detects output voltage drop of connected S8TS-06024□ to switch to backup operation.

Do not set the output voltage of S8TS-06024□ to lower than the factory shipment setting because, even though the output voltage of S8TS-06024□ is adjustable with Output voltage adjustor. Otherwise, it may operate in the backup operation mode.

Wiring Length Between S8T-DCBU-01 and Battery

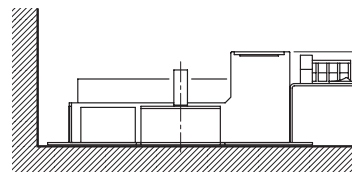
Connect S8T-DCBU-01 and the battery using a cable having a wire diameter specified in *Recommended Wire Diameter* (page 55) within a wiring length of 1.5 m.

Because the battery voltage is monitored at the battery connecting terminal, a large wiring impedance increases the voltage drop from wiring, reducing the backup time.

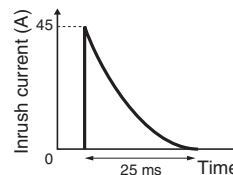
Battery Holder S82Y-TS01

We recommend using the S82Y-TS01 Battery Holder for connecting and installing the battery. Take the following points into consideration when using the S82Y-TS01:

- Contact between leaking battery fluid and metal parts having an electric potential may cause smoke or fire. To prevent this, the Battery Holder uses a resin battery tray. Set up the Battery Holder in the direction shown below.



- The inrush current shown below flows when backup operation is switched to. The peak value and time of this inrush current vary according to the capacity of the input capacitor of the connected equipment, battery charge status, battery wiring length, and ambient temperature. The switch and fuse of the S82Y-TS01 are selected taking this inrush current into consideration. When replacing the fuse, use only the specified fuse. (Littelfuse, 257015 (15 A))



Battery charge status: Fully charged
Ambient temperature: 40°C
Input capacitor of connected equipment: 56,000 μF
Load power: 192 W

- In the event that the battery generates inflammable gases, place the switch and fuse away from the convection path of the inflammable gas to prevent the switch or fuse from causing ignition and explosion.
- Keeping the S8T-DCBU-01 connected to the battery with AC power OFF may cause the battery to overdischarge due to standby current of the S8T-DCBU-01, which may considerably shorten the service life of the battery and may disable recharging. To prevent this, turn the switch OFF. (Refer to *Battery Over-discharge* on page 42.)

Charging Circuit

Charging Time (Reference Values)

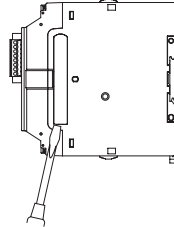
Battery used	100% charged	80% charged
LC-□122R2□□	24 to 48 hours	5 hours
LC-□123R4□□		8 hours

Note: The battery takes the time specified above to be charged. If power failure occurs at a time shorter than the necessary charging time (power failure right after the setup, or repeated failure in a short period of hours), backup operation may not continue for the necessary time.

Mounting and Removing the Bus Line Connector

Pay attention to the following points to maintain electrical characteristics.

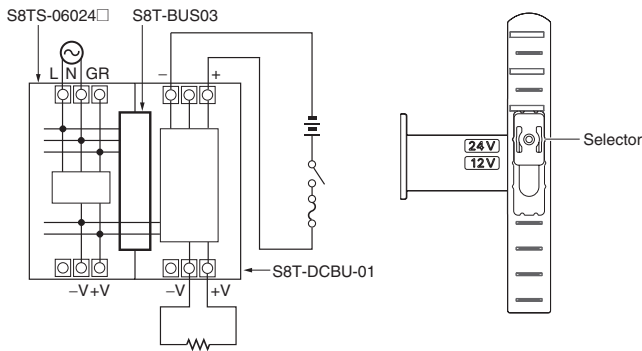
- Do not insert/remove the Connectors more than 20 times.
- Do not touch the Connector terminals.
- To remove the Connectors, insert a flat-bladed screwdriver alternately at both ends.



S8T-BUS03

Use S8T-BUS03, which only DC lines are connected with. (AC line not connected).

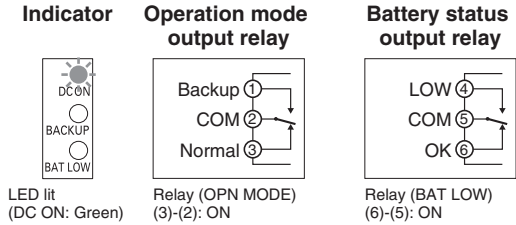
S8T-BUS03 is equipped with a selector for the prevention of erroneous connection of a different output voltage specification of the power supply unit. Slide the selector in the 24 V position.



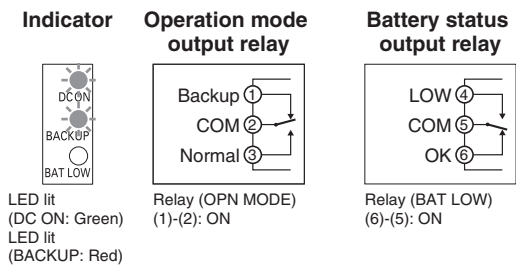
Operation Check

After connecting S8TS-06024 and S8T-DCBU-01, it is recommended to check the DC Backup Block if it is correctly operating in the following procedure.

1. Turn ON the Battery Holder.
2. Turn ON the AC power to the S8TS-06024.
3. Wait for 10 sec. or more then check if the DC Backup Block is in Status 1.



4. Turn OFF the AC power of the S8TS-06024.
5. Confirm that Backup operation is correctly performed in Status 2.



6. Turn ON the AC power of the S8TS-06024.

- Note:**
1. Perform operation checks after arranging a state where no fault occurs even if the connected devices are turned OFF in the midway.
 2. The operation mode may not be changed to Backup, if AC power is turned OFF within 10 sec. at Step 3.
 3. When turning the AC power OFF or storing or transporting the unit after operation checks, follow the instructions described in *Battery Overdischarge* on page 42.

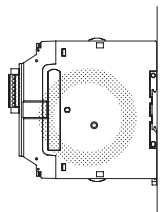
Mounting

Mounting Direction

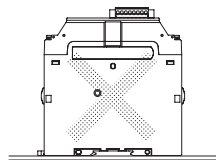
Standard mounting	Yes
Back down mounting	No
Other mounting	No

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

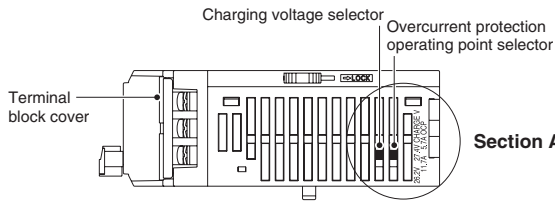
Standard mounting



Back down mounting



■ Functions



Charging Voltage Selector

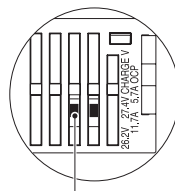
Select either 27.4 V or 26.2 V at the charging voltage selector to select the charging voltage.

Because the battery manufacturer recommends 27.4 V as charging voltage, it is recommended to charge at 27.4 V.

In this case, 27.4 VDC, which is the charging voltage of the batteries, may output depending on the state of connected load when the operation changes to Backup.

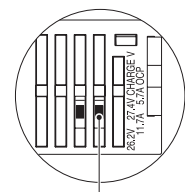
Note: If the battery is charged at 26.2 V, the battery capacity decreases each time the battery is charged, and the backup time gradually decreases.

Enlarged View of Section A



Charging voltage selector

Enlarged View of Section A



Overcurrent protection operating point selector

(Reference value)

	Capacity reduction in each charge-and-discharge cycle
At 25°C	Reduction by 10%
At 0°C	Reduction by 20%

Overvoltage Protection Circuit

If the charge voltage is about 30 V or above, the charge voltage is cut off to prevent the battery from being overcharged.

How to Reset Overvoltage Protection

Reset Overvoltage protection with following steps after arranging a state where no fault occurs even if the connected devices are turned off in the midway.

1. Turn OFF the Battery Holder switch.
2. Turn OFF the AC power of the S8TS-06024□.
3. Leave the power supply OFF for 1 minute or more.
4. Turn ON the Battery Holder switch.
5. Turn ON the AC power of the S8TS-06024□ again.

- Note:**
1. Remove the cause before turning on the AC power again.
 2. As an AC input OFF status is the same as a power failure, the S8T-DCBU-01 will perform backup operation. Sometimes charging cannot be performed for the required backup time as the battery is not sufficiently charged. For this reason, first make sure that backup operation is not needed before turning the Battery Holder switch and then the AC input OFF.
 3. The off time necessary for restoration assumes connection of five units of S8TS-06024□, without a load, and fully charged batteries.

Overcurrent Protection Operating Point Selector

5.7 A (typ.) or 11.7 A (typ.) can be selected with the selector as an overcurrent protection operating point during backup operation. Select 5.7 A (typ.) for one or two units of S8TS-06024□ (or three units during N+1 redundancy operation), or select 11.7 A (typ.) for three or four units (or five units during N+1 redundancy operation). The shipment setting is 5.7 A (typ.).

Overcurrent Protection Function

During Normal Operation

An overcurrent is notified in the following way.

- LED (BAT LOW: Red) lights up.
- Relay (BAT LOW) is in the LOW mode ((4)-(5): ON).

If power failure occurs in this state, an overcurrent protection function is activated to fail to backup.

During Backup Operation

The overcurrent protection operating point can be selected from either 5.7 A (typ.) or 11.7 A (typ.) using the selector. The output is cut off when overcurrent protection is activated.

Note: Continuation of operation in the overcurrent status may cause deterioration or breakage of internal elements.

Backup Stop Function

When the battery connecting terminal voltage drops down to 18.5 V, backup operation is automatically stopped to protect the battery against overdischarge due to load current.

- Note:**
1. Battery discharge is continued by standby current consumption of the S8T-DCBU-01 even when backup operation is stopped. Do not leave the unit in this condition for a long time. (Refer to *Battery Overdischarge* on page 42.)
 2. Remaining battery capacity is zero when the battery voltage is 18.5 V (typical).

Backup ON/OFF Input Function

If the backup ON/OFF input terminals are short-circuited, backup is enabled, while if the terminals are open, backup is disabled. The terminal is non-voltage input type and the short and open circuits are specified below.

Short	Impedance with 1 kΩ or below Flowing current at 0 Ω: About 2 mA Residual voltage: 1 V or below
Open	Impedance: 400 kΩ or more

With the shipment setting, a short bar is installed to short-circuit across the backup ON/OFF input terminals.

When the backup ON/OFF input terminals are open, the following signs inform that backup is disabled.

- LED (BAT LOT: Red) is lit.
- Relay (BAT LOW) is in the LOW mode ((4)-(5): ON).

Note: Battery discharge is continued by standby current consumption of the S8T-DCBU-01 even when backup operation is stopped. Do not leave the unit in this condition for a long time. (Refer to *Battery Overdischarge* on page 42.)

Protection Against Erroneous Battery Connection

When the DC Backup Block is turned on, the charging circuit is separated if battery connection terminal voltage become below about 15.5 V. This function protects the battery and the main body upon erroneous connection of the batteries (with reverse polarity or with only one 12 V battery).

Activation of the erroneous battery connection function is notified in the following way.

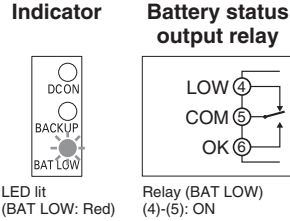
- LED (BAT LOW: Red) lights up.
- Relay (BAT LOW) is in the LOW mode ((4)-(5): ON).

Note: 1. When the battery is disconnected while the AC power is ON after the battery is connected in a normal way (Battery Holder switch OFF, Battery Holder fuse blown, battery connection wires off), the indication of battery status or output will not respond.

2. Do not replace batteries when the AC power is on. The erroneous battery connection protection function will not be activated even if the unit is connected with the polarity reversed, but the S8T-DCBU-01 will be damaged, and the Battery Holder fuse will be blown.

Battery Status Indication and Battery Status Output

A battery charging/discharging fault (1. through 4. described below) is notified in the following way.



If power failure occurs in this state, backup operation does not start or the backup time becomes shorter. Remove the cause of the fault immediately.

1. About 22.5 V or lower battery connecting terminal voltage (BAT LOW will be released when the voltage goes up to 24.5 V or over).
2. Activation of erroneous battery connection protection function.
3. Open battery ON/OFF input terminals.
4. Overcurrent status during Normal operation.

- Note:** 1. Even if BAT LOW is released, it doesn't mean that the battery charging is finished.
2. Relay contact capacity is 24 VDC and 0.1A.

Battery Replacement

The lead battery deteriorates.

Replace the battery while referring to the following replacement period as a reference.

- Note:** 1. Battery deterioration accelerates when its service life limit draws near.
2. The battery replacement timing assumes the battery has reached half its original capacity.
 3. The life varies according to the storage and operating environment, output wattage, and the frequency of backup operation.
 4. Fire may be caused in worst case, if batteries are continuously used beyond its replace timing. Replace batteries periodically to avoid the worst case.
 5. Do not replace batteries when the AC power is on. The erroneous battery connection protection function will not be activated even if the unit is connected with the polarity reversed, but the S8T-DCBU-01 will be damaged, and the Battery Holder fuse will be blown.

1. Replacement Guideline

Replace the battery using the following table as a guideline:

Battery	Ambient temperature	Life of battery	Approximate replacement interval
LC-R122R2□□	20 °C	2 to 3 years	2 years
LC-R123R4□□	30 °C	1 to 1.5 years	1 year
	40 °C	0.5 to 0.75 years	0.5 years
LC-P122R2□□	20 °C	4 to 6 years	4 years
LC-P123R4□□	30 °C	2 to 3 years	2 years
	40 °C	1 to 2 years	1 year

Note: The conditions in the table above is estimated as: charged at 27.4 V, discharged with 8 A (for LC-□123R4□□), 3.7 A (LC-□122R2□□), backup operation once a month bases.

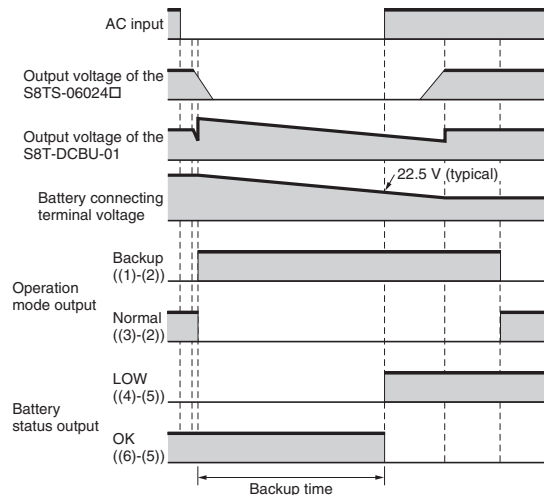
2. Measuring Backup Time

The backup time can be measured by the procedure below. When the battery is new, first measure the initial backup time value.

Replace the battery if backup operation is not performed for the required backup time during periodic maintenance or the backup time has fallen below the half or less of initial value.

- Note:** 1. Make sure that at least 48 hours have elapsed since the previous backup operation, and that the battery is correctly connected, and then measure the backup time.
2. Measure the backup time after making sure that no problems will occur as a result of stopping power supply.

- (1) Turn the AC power line OFF, and backup the S8T-DCBU-01.
- (2) Measure the time that the battery status output relay turns to LOW ((4)-(5): ON) after the operation mode output relay is backed up ((1)-(2): ON). (This is the backup time.)
- (3) When the battery status output relay turns LOW ((4)-(5): ON), turn the AC power line ON.



Periodic Inspection of the Battery

We recommend periodically inspecting the battery as follows:

- Check the battery connecting terminal voltage. (In a 27.4 V series connection, make sure that each battery is charged to 13.7 V.)

- Check battery wiring and connections. (Check the batteries and S8T-DCBU-01 connections for loose screws.)

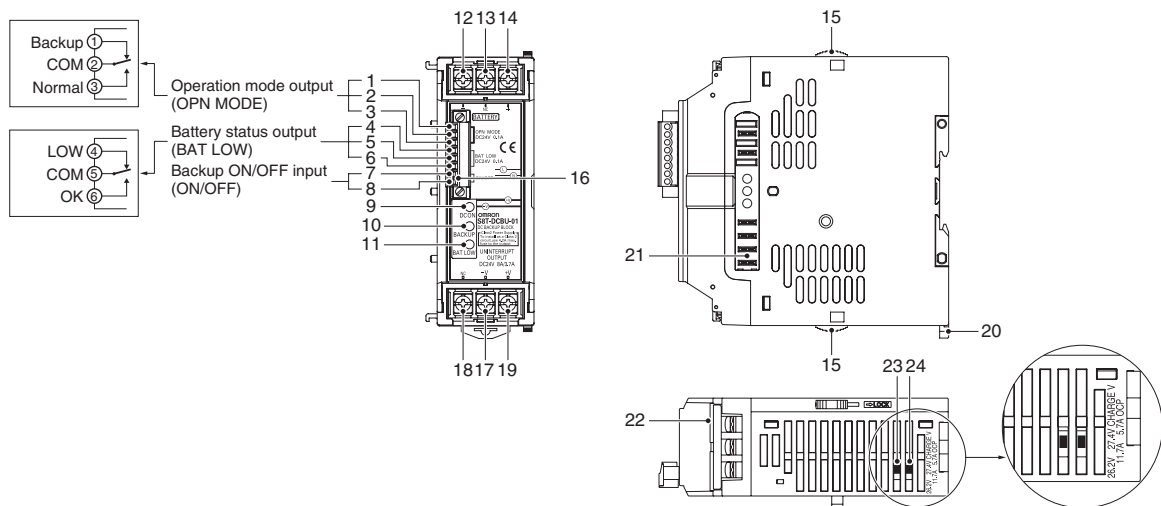
- Make sure that backup operation is performed normally in a simulated power failure state.

Note: Check the backup operation after making sure that no problems will occur as a result of stopping power supply.

Installation

DC Backup Block

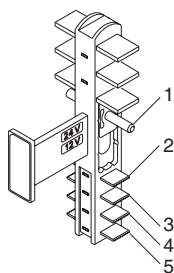
S8T-DCBU-01



- | | | |
|---|--|--|
| (1) Backup: Operation Mode Output Relay | (10) Backup Status Indicator (BUCKUP: Red) | (19) DC Output Terminal (+V) |
| (2) COM: Operation Mode Output Relay | (11) Battery Status Indicator (BAT LOW: Red) | (20) Rail Stopper |
| (3) Normal: Operation Mode Output Relay | (12) Battery Connecting Terminal (-) | (21) Connecting part of Bus Line Connector |
| (4) LOW: Battery Status Output Relay | (13) NC | (22) Terminal Block Cover |
| (5) COM: Battery Status Output Relay | (14) Battery Connecting Terminal (+) | (23) Charging Voltage Selector |
| (6) OK: Battery Status Output Relay | (15) Slider | (24) Overcurrent Protection Operating Point Selector |
| (7) ON/OFF: Backup ON/OFF Input | (16) Short Bar | |
| (8) GND: Backup ON/OFF Input | (17) DC Output Terminal (-V) | |
| (9) Output Indicator (DC ON: Green) | (18) NC | |

Bus Line Connector

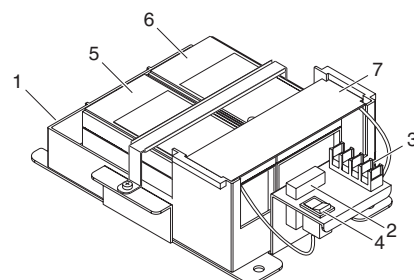
S8T-BUS03



- (1) Selector
- (2) Ground Terminal
- (3) NC
- (4) DC Output Terminal (+)
- (5) DC Output Terminal (-)

Battery Holder

S82Y-TS01



- (1) Battery Tray
- (2) Fuse
- (3) Terminal Block
- (4) Switch
- (5) Battery A (Order separately)
- (6) Battery B (Order separately)
- (7) Protection Cover

Engineering Data

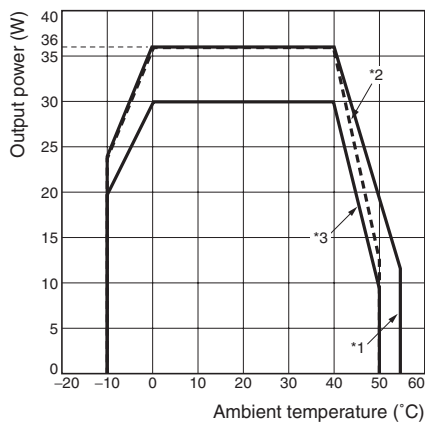
Engineering Data

Derating Curve

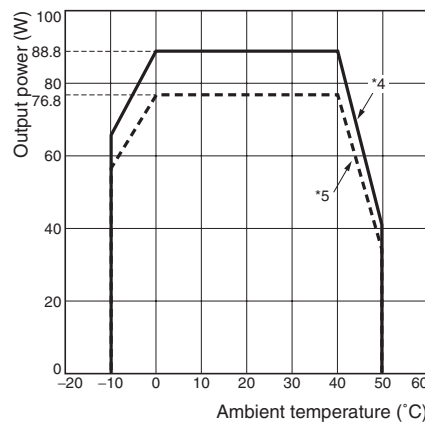
Number of S8TS-06024□ units	S8TS-06024□ rated input	Derating curve	Rated output power
1	200 to 240 VAC	*1	36 W (1.5 A)
	100 to 120 VAC	*2	
1 (+1)	100 to 120 VAC/200 to 240 VAC	*3	30 W (1.25 A)
2		*4	88.8 W (3.7 A)
2 (+1)		*5	76.8 W (3.2 A)
3		*6	146.4 W (6.1 A)
3 (+1)		*7	128.4 W (5.35 A)
4		*8	192 W (8 A)
4 (+1)		*9	168 W (7 A)

- Note:**
1. Add one more S8TS-06024□ Basic Block if a redundant system is used.
 2. If natural air circulation is limited, use the forced air cooling to prevent overheating.
 3. The peripheral temperature is specified at the place 50 mm downward from the main body of the DC Backup Block.
 4. The operating temperature range of the battery is 0 to 40°C; it is different from that of S8T-DCBU-01. And the ambient temperature of battery is specified with the temperature at the battery surface.
 5. The amount of output wattage at multi-connected S8TS-06024□ become smaller than the simple sum of each wattage, since S8T-DCBU-01 consumes energy from S8TS-06024□.

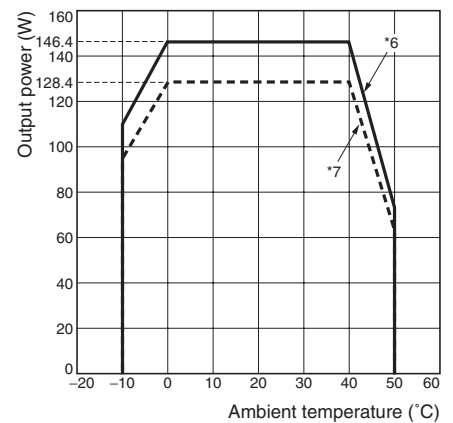
S8T-DCBU-01



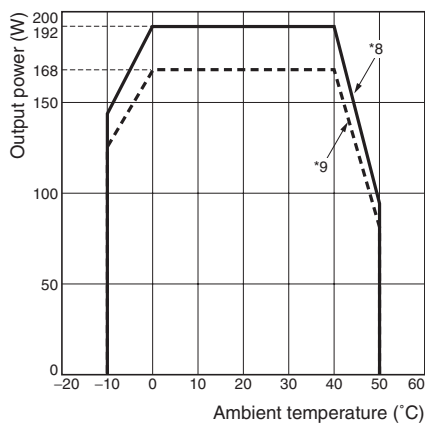
S8T-DCBU-01



S8T-DCBU-01

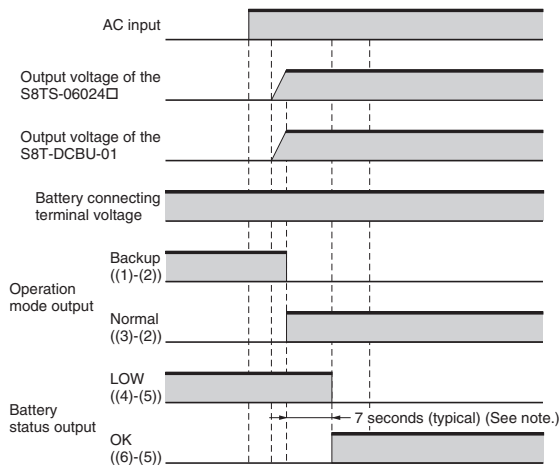


S8T-DCBU-01



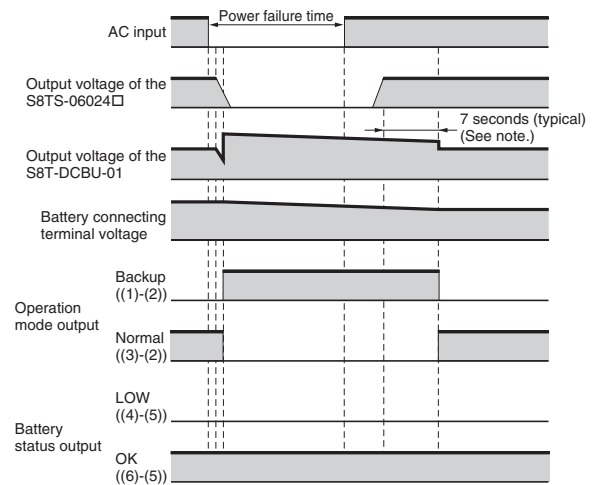
Time Charts

Startup



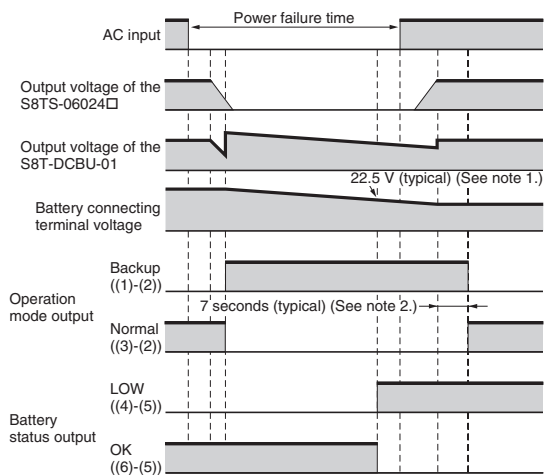
Note: Backup operation is not possible during the period (7 seconds (typical)) that the battery status output relay is LOW after the S8T-DCBU-01 is started up.

Power Failure (When the Battery Connecting Terminal Voltage does not Reach the BAT LOW Voltage)



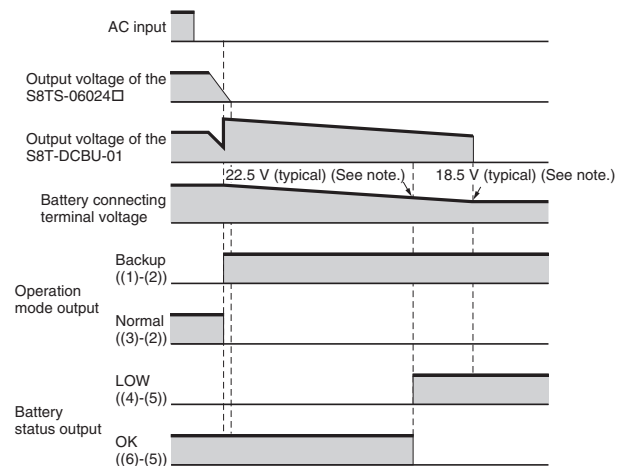
Note: Backup operation is continued for seven seconds after the power is restored from a power failure.

Power Failure (When the Battery Connecting Terminal Voltage Reaches BAT LOW Voltage)



- Note: 1.** When the battery connecting terminal voltage falls below 22.5 V (typical), the status of the battery status output relay changes to LOW.
Note: 2. After the power failure is recovered, the backup operation continues for seven seconds (typical).

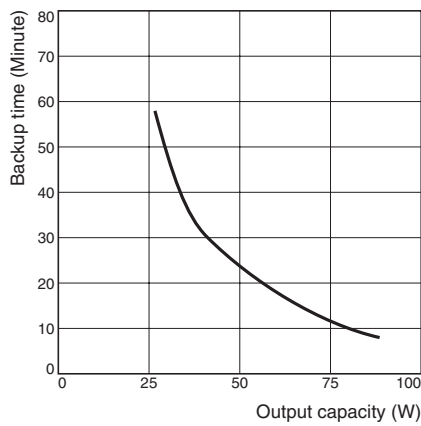
Power Failure (When the Battery Connecting Terminal Voltage Reaches the Backup Stop Voltage)



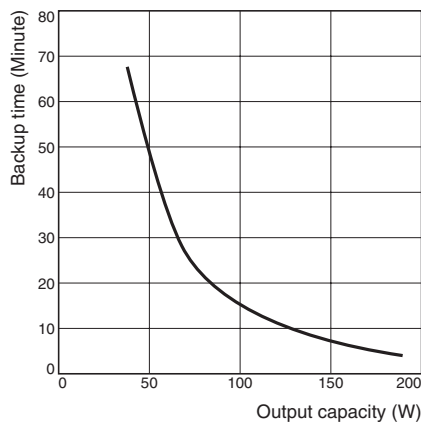
Note: When the battery connecting terminal voltage falls below 22.5 V (typical), the status of the battery status output relay changes to LOW, and when the battery connecting terminal voltage falls below 18.5 V (typical), backup operation is stopped. If the backup operation is left stopped for a long time, the battery discharge is continued due to standby current consumption of S8T-DCBU-01, which may shorten the battery service life or disable the backup due to inability to recharge. To prevent this, follow the instructions described in *Battery Overdischarge* on page 42.

Backup Time (Reference Value)

Backup Time when LC-□12R2□□ is Used



Backup Time when LC-□123R4□□ is Used



Note: 1. Backup time conditions

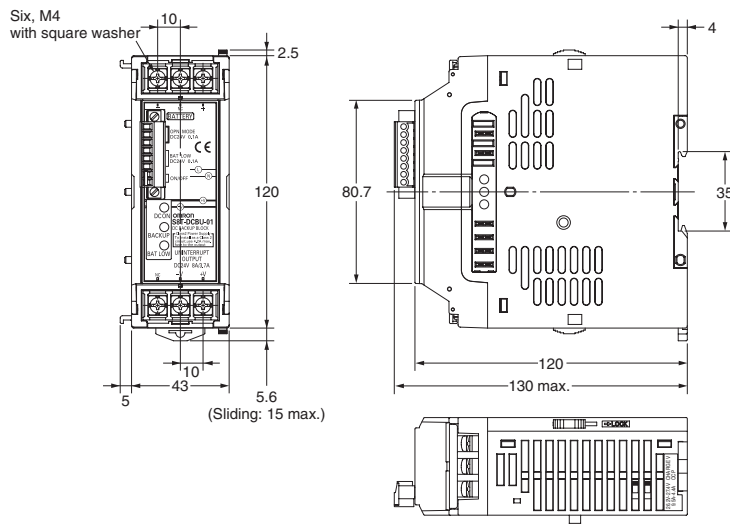
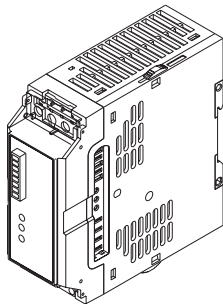
- Backup time: the duration of time from starting the backup until the output voltage reaches 21.0 V.
 - Ambient temperature: 25°C
 - Battery: New product fully charged to 27.4 V
 - Length of wire between S8T-DCBU-01 and battery: 1.5 m
- 2.** The backup time changes depending on the capacity of connected equipment, ambient temperature, and battery service life.

Dimensions

Note: All units are in millimeters unless otherwise indicated.

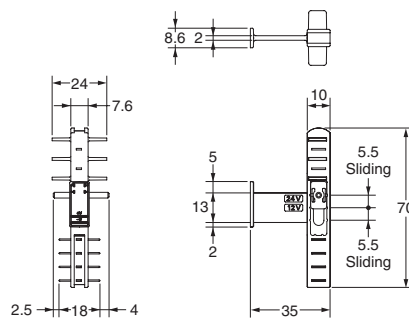
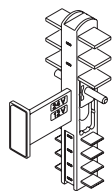
DC Backup Block

S8T-DCBU-01



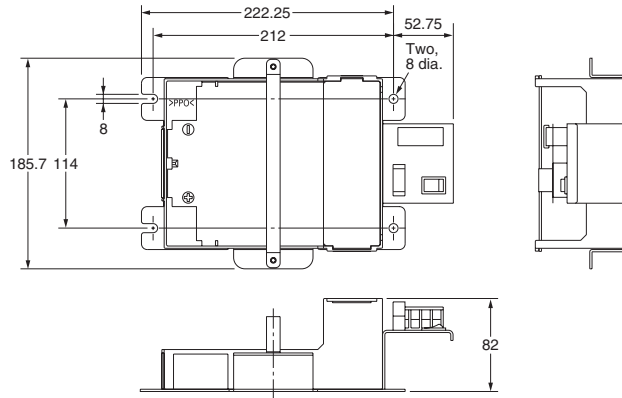
Bus Line Connector

S8T-BUS03



Battery Holder

S82Y-TS01

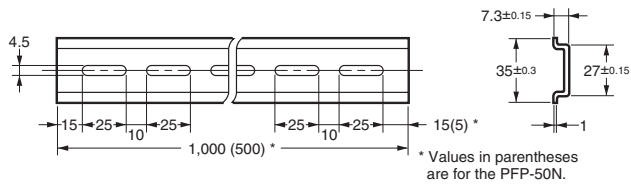
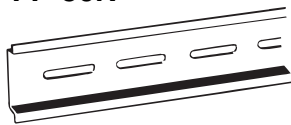


■ DIN Track

Note: All units are in millimeters unless otherwise indicated.

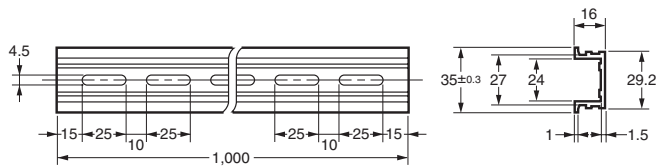
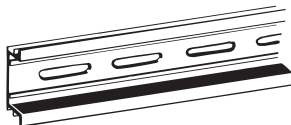
Mounting Track (Material: Aluminum)

PFP-100N
PFP-50N



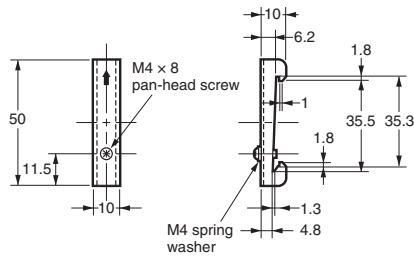
Mounting Track (Material: Aluminum)

PFP-100N2



End Plate

PFP-M



Warranties, 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 IT 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 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 which apply to the combination of the product in the customer's application or use of the product.

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 PRODUCT 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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Precautions

⚠ WARNING

[Usage]

Do not use the battery where there is a possibility that it may cause loss of life or injury, such as areas where there is medical or other critical equipment.

⚠ Caution

[Usage]

The battery is designed for a short hour backup in the application where AC power is constantly sent. When the AC power is turned OFF or there are several hours of power failure, follow the instructions described in *Battery Overdischarge* on page 42. Battery service life may be shortened abnormally, or backup may be disabled due to the inability to recharge.

[Battery Overdischarge]

To protect the battery against overdischarge, follow the instructions described in *Battery Overdischarge* on page 42. When the battery has overdischarged, the battery service life may be shortened abnormally or backup operation may be disabled due to inability to recharge.

[Installation and Environment]

Do not use the battery in a tight area or near an object that generates sparks, such as contactors, relays, or static charge. The battery may generate flammable gases when it is charged, so that fire or explosion may be caused.

Tighten the terminal screws with torque 1.08 N·m and tighten the connector screw and threaded flange with torque 0.20 N·m. Loose screws may cause fire.

The tightening torque for terminal screws on the Battery Holders is 0.74 N·m. Loose screws may result in fire.

Do not remove any connector cover unless using Bus line connectors. Electric shock may be caused.

When connecting the Basic Block and DC Backup Block, lock the slider and rail stopper. If they are locked insufficiently, linkage may be disconnected due to vibration, causing electric shock.

Do not connect the load or capacitor between S8T-DCBU-01 and battery. This may shorten the battery service life or disable the backup operation due to malfunction of the overcurrent protection function when the backup operation is changed over.

Do not use batteries other than the designated ones. If a battery other than the designated ones is used, smoke and fire may be caused.

Do not apply resin including a migrational plasticizer on the battery. Cracks will generate in the battery to cause leakage of electrolyte.

When using metallic tools to install the battery to the Battery Holder, use one insulated with vinyl tape or the like. A short circuit may cause heat or spark, possibly causing a broken battery, fire or explosion.

Connect the battery correctly. Wrong connection may cause smoke or fire.

Install and transport the Battery Holder in the specified direction. If the installation and transportation is not done as specified, battery fluid may leak, or the battery may not be protected from leakage, which may cause smoke or fire.

Do not operate the battery in an area exceeding 40°C. The battery may deteriorate quickly and cause fire.
(Operating temperature range of a battery: 0 to 40°C)

Do not use the battery in an area where there are corrosive gases. If it is left in this condition for a long time, the contact surface of the switch or relay may corrode and cause unstable or loose contact, disabling the backup operation due to the inability to recharge. If corrosive gas enters into the battery, fire may result in the worst case.

Do not use new and old, different types, and different residual capacities of batteries mixed. Smoke and fire may be caused.

Do not use the DC Backup Block for the applications in which connected load causes frequent inrush current.

See "Additional Precautions According to UL1604" for UL1604 conformance.

[Operation]

Follow the precautions of a battery when using. A battery could be dangerous if it is used incorrectly.

Do not touch the product during power-on, and immediately after power-off. Hot surfaces may cause heat injury.

Do not add or separate the DC Backup Block during power-on. Electric shock may be caused.

To stop the unit in case of an emergency, turn the AC power OFF and disconnect the battery. If only the AC power is turned OFF, the device that is powered by the battery does not stop. This may cause damage to the device or injury to persons.

Replace the battery immediately if it is fully drained. If the fully drained battery is kept in use, fire may be caused.

If odor, abnormal noise, smoke or liquid is issued from the battery, turn off the switch of the Battery Holder. Continuation of operation in this state may cause fire.

Keep away from electrolyte leaking from the battery. Lost sight or burns may be caused. Flush electrolyte entering eyes or contacting the skin with a large volume of clean water and get medical attention.

Do not use the Battery Holder in locations subject to shocks or vibrations. Shocks or vibrations may cause battery performance to deteriorate.

[Maintenance]

Do not disassemble the product or touch internal parts during power-on. Electric shock may be caused.

When performing maintenance, turn the AC power OFF before disconnecting the battery (Refer to *Battery Overdischarge* on page 42). If only the AC power is turned OFF, the device that is powered by the battery does not stop.

Be careful during installation of the battery or Battery Holder or replacement of the battery to avoid dropping the battery. A dropping battery may cause injuries and burns caused by leaking electrolyte.

Do not install or replace the battery in the presence of flammable gases. Sparks generated when the battery is connected may cause explosion or fire.

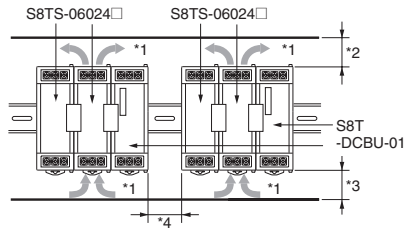
Do not disassemble or remodel the battery. Diluted sulfuric acid may leak, possibly causing loss of sight or burns.

Do not short-circuit the battery using a metallic matter. Electric shock, fire or burns may be caused.

Observe a self-imposed control, laws and regulations for disposal or collection (recycle) of a battery. Explosion may be caused if a battery is thrown in fire.

Mounting

To improve the long-term reliability of devices, give due consideration to heat dissipation when mounting. With the S8T-DCBU-01, heat is dissipated by natural convection. Mount Blocks in a way that allows convection in the atmosphere around them.

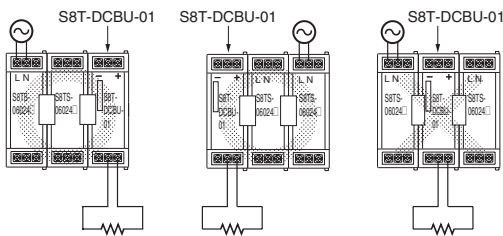


- *1. Convection of air
- *2. 75 mm min.
- *3. 75 mm min.
- *4. 10 mm min.

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

Before turning the Power Supply ON, be sure to remove sheets that were used as covers during mounting, and make sure that heat release is not obstructed.

Connect the S8T-DCBU-01 to the right or left end of S8TS-06024 Basic Blocks.



Installation/ Wiring

Before installation, make sure that the charging voltage selector and the overcurrent protection operating point selector are properly set up.

Ensure that input and output terminals are wired correctly.

Close the terminal cover to avoid short circuit of terminals with a foreign object.

Use the following material to wire to load and to the batteries for preventing wiring material from smoke or fire caused by the abnormal load.

Do not press down the terminal block or connector terminal at more than 100 N force when tightening the terminal screws.

Be sure to remove the sheets covering the product for machining before power-on.

Recommended Wire Diameter

Overcurrent protection operating point selector	Number of connected S8TS-06024	Recommended wire diameter
5.7 A (typ.)	1, 2	AWG 14 to 18 (cross-sectional area: 0.823 to 2.081 mm ²)
	3	AWG 14 to 16 (cross-sectional area: 1.309 to 2.081 mm ²)
11.7 A (typ.)	3, 4, 5	AWG 14 (cross-sectional area: 2.081 mm 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. 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.

Installing/ Storage Environment

- Store the product with ambient temperatures -25 to $+65^{\circ}\text{C}$, and relative humidity 25 to 90 %.
- Since the internal components could be deteriorated or broken under the high temperature and high load (outside the derating curve), do not use the DC Backup Block.
- Use the product with relative humidity 25 to 85 %.
- Avoid places where the product is subjected to direct sunlight.
- Avoid penetration of metal chips when processing mounting holes.
- Avoid places where the product is subjected to penetration of liquid, foreign substance or corrosive gas.
- Avoid places subjected to shock or vibration. A device such as a conductor may be a vibration source. Set the DC Backup Block as far as possible from possible sources of shock or vibration. Additionally, install the end plate (PFP-M) to both ends of the power supply.
- If the DC Backup Block is used in an area with excessive electronic noise, be sure to separate the DC Backup Block as far as possible from the noise sources.

When Storing the battery for an extended period of time, observe the following two precautions. If not observed, the life of battery could be extremely short.

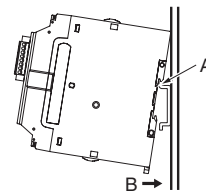
- Turn the Battery Holder switch OFF. Discharge will be continued by the standby current consumption of S8T-DCBU-01.
- Repeat charging in the period designated by the manufacture of the battery. The battery self-discharges even during storage.

Handling of Bus Line Connector

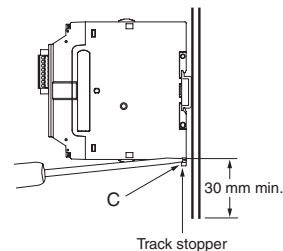
Do not drop or give strong impact on the Bus Line Connector.

DIN Track Mounting

To mount the Block on a DIN track, 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.



■ Troubleshooting

This page lists the errors that may occur when the S8T-DCBU-01 is used, along with their probable causes and remedies. Check the relevant item.

When	Probable cause	Description	Remedies	
Installation	S8T-DCBU-01 cannot be connected.	The Bus Line Connector is provided with a selector for preventing misconnection of 12 V and 5 V specification S8TS units. For this reason, connection is not successful if different specification units are installed.	Set the selector on the Bus Line Connector (provided) to 24 V. Refer to <i>S8T-BUS03</i> on page 45 for details.	
When checking the performances Refer to <i>Operation Check</i> on page 45 for details.	The S8T-DCBU-01 output indicator does not light in operation check procedure, step 2.	The S8T-DCBU-01 operates by the output of the S8TS-06024□. A probable cause is that the Bus Line Connector is not connected as the input voltage is connected by the Bus Line Connector (provided).	Connect the S8T-DCBU-01 to S8TS-06024□ using the Bus Line Connector (provided). Refer to <i>Basic Configuration</i> on page 40 for details.	
	The connected S8TS-06024□ does not operate in operation check procedure, step 2.	A probable cause is that the S8T-DCBU-01 is connected between S8TS-06024□ Basic Blocks.	The S8T-BUS03 Bus Line Connector for connecting the S8T-DCBU-01 is not connected to the AC power line. Connect the S8T-DCBU-01 to the left or right end of S8TS-06024□ Basic Blocks.	
	The battery status indicator is lit even 10 seconds or more after the power is turned ON in operation check procedure, step 3.		A probable cause is that the battery was connected with the + and – polarities reversed.	Connect the battery correctly. Refer to <i>Protection Against Erroneous Battery Connection</i> on page 47 for details.
			A probable cause is that the battery voltage falls below to 22.5 V. (The battery may have self-discharged or discharged due to standby current of the S8T-DCBU-01.)	Check the battery connecting terminal voltage. If it is lower than 18.5 V, replace the battery. Be sure to follow the instructions described in <i>Battery Overdischarge</i> on page 42 from now on.
			A probable cause is that the backup ON/OFF input is open.	Short the backup ON/OFF input. (Before shipment, the backup ON/OFF input is shorted.) Refer to <i>Backup ON/OFF Input Function</i> on page 46 for details.
			A probable cause is that the overcurrent protection function of the connected S8TS-06024□ is active.	As energy is consumed by S8T-DCBU-01, the total output capacity of the number of connected S8TS-06024□s cannot be obtained. Connect one more S8TS-06024□ Basic Block. Refer to the <i>Derating Curve</i> on page 49 for details.
			A probable cause is that the overcurrent protection function selector switch on the S8T-DCBU-01 is set low.	When three or more S8TS-06024□ Basic Blocks are connected, set the overcurrent protection function selector switch to 11.7 A (typical). (The default setting is 5.7 A (typical).) Refer to <i>Overcurrent Protection Operating Point Selector</i> on page 46 for details.
		A probable cause is that the output voltage adjustment trimmer of the connected S8TS-06024□ is set lower than the factory set voltage.	The S8T-DCBU-01 detects drops in the output voltage of the S8TS-06024□ and switches over to backup operation. Adjust the output voltage adjustment trimmer on the S8TS-06024□ so that the output in a no-load state is 24.5 V or more. Refer to <i>Output Voltage Adjustment for S8TS-06024□</i> on page 44 for details.	
The backup operation is not performed in operation check procedure, step 5.	A probable cause is that inrush current during backup operation caused the fuse on the battery to blow.	Select a fuse taking the inrush current when backup operation is switched to into consideration. The recommended S82Y-TS01 Battery Holder is selected taking this inrush current into consideration. Refer to <i>Battery Holder S82Y-TS01</i> on page 44 for details.		

When	Probable cause	Description	Remedies
When S8T-DCBU-01 is used	The backup state is not returned to even after the power is restored from a power failure.	A probable cause is that a protection function on the S8TS-06024□ was activated to stop S8TS-06024□ operation.	Cancel the protection functions on the S8TS-06024□. (Turn OFF the power of S8TS-06024□ Basic Block, and after at least one minute turn ON the input voltage again.)
	Output was cut during backup operation.	A probable cause is that the battery voltage falls due to discharge and the backup stop function is activated.	If a remedy is required during backup operation, allow backup to finish until the battery status indicator light.
		A probable cause is that an overcurrent state is reached due to load fluctuations during backup operation.	Provide sufficient margin for the load capacity when using the S8T-DCBU-01.
	Backup operation and regular operation are alternately repeated.	A probable cause is that one of the S8TS-06024□s is out of order when two or more S8TS-06024□s are connected.	Replace the out-of-order S8TS-06024□. Refer to <i>Backup Function</i> on page 44 for details.
		A probable cause is that the S8TS-06024□ is in an overcurrent state due to load fluctuations during regular operation.	Provide sufficient margin for the load capacity when using the S8T-DCBU-01.
The battery status indicator is lit nevertheless it is charged over 24 hours.	A probable cause is that the battery may have discharged due to self-discharged or standby current of the S8T-DCBU-01 while the AC power is OFF.	Replace the battery. Be sure to follow the instructions described in <i>Battery Overdischarge</i> on page 42 from now on.	
When inspecting batteries	Backup time is too short.	A probable cause is that backup operation has been performed frequently (AC power OFF during nighttime or holidays).	Replace the battery. Be sure to follow the instructions described in <i>Battery Overdischarge</i> on page 42 from now on.
		A probable cause is that the battery has reached the end of its service life.	We recommend periodically replacing the battery. Refer to <i>Battery Replacement</i> on page 47 for details.
		A probable cause is that the AC power is OFF for an extended period of time with the battery connected.	Replace the battery. Be sure to follow the instructions described in <i>Battery Overdischarge</i> on page 42 from now on.
		A probable cause is that battery characteristics caused the backup time to shorten in low temperatures.	Check the backup time in the operating environment before use.
	The battery voltage is extremely low.	A probable cause is that the AC power is OFF for an extended period of time with the battery connected.	Replace the battery. Be sure to follow the instructions described in <i>Battery Overdischarge</i> on page 42 from now on.
	The voltages of the two batteries used in series are considerably different.	A probable cause is a battery abnormality.	Replace both batteries.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

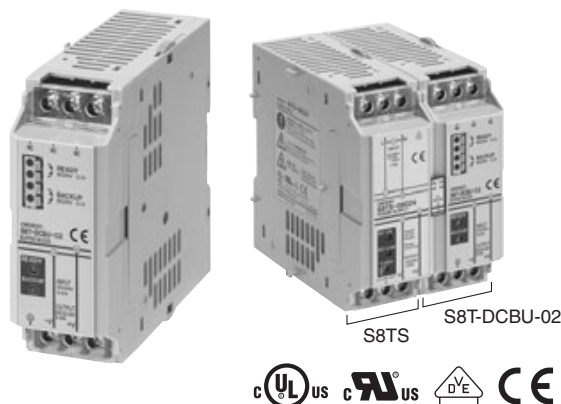
Cat. No. T027-E1-02

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

Buffer Block S8T-DCBU-02

Prevents Equipment Stoppage, Data Loss, and Other Problems Resulting from Momentary Power Failures

- Provides a backup time of 500 ms at an output current of 2.5 A.
- Can be wired to the 24-V output from the S8VS, S82J, S82K, and S8PS Power Supplies.
- Connects to an S8TS Power Supply via an S8T-BUS03 Bus Line Connector.
- Parallel connections to up to four Blocks can be used to increase the backup time and current capacities.
- Complies with SEMI F47-0200 standard.



Ordering Information

■ Buffer Block

Input voltage	Output voltage (during backup operation)	Output current	Model number
24 VDC (24 to 28 VDC)	22.5 V	2.5 A	S8T-DCBU-02

■ Options (Order Separately)

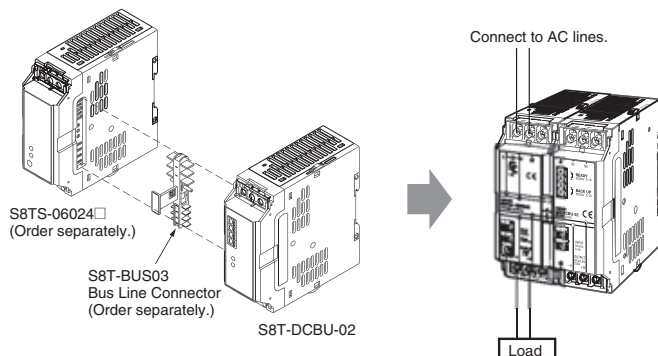
Bus Line Connector (Connects to Buffer Block)

Type	Number of Connectors	Model number
DC bus line	1 Connector	S8T-BUS03
	10 Connectors (See note.)	S8T-BUS13

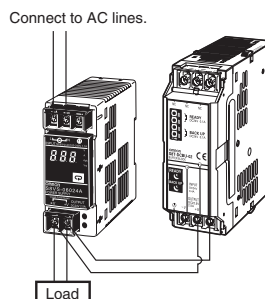
Note: One package contains 10 S8T-BUS03 Connectors.

Basic Configuration

Connection using Bus Line Connector



Connection via Wiring



Specifications

■ Ratings/Characteristics

Item	Model	S8T-DCBU-02		
Input	Voltage	24 to 28 VDC		
	Current	Charging	0.4 A	
		Standby	0.18 A	
Output (See note 1.)	Backup operation	Output voltage	For 24 V: 22.5 V typ., 22.0 V min. For 28 V: 26.4 V typ., 25.8 V min.	
		Output current	2.5 A	
		Backup time (See note 2.)	Time required until the voltage drops from the fully charged level down to 21.6 VDC 1,000 ms min. (for an output current of 1.2 A) 500 ms min. (for an output current of 2.5 A)	
Additional functions	Output functions (See note 3.)	READY indicator	Yes (color: green)	
		READY output	Yes (relay: 24 VDC, 0.1 A max.)	
		Backup indicator	Yes (color: red)	
		Backup output	Yes (relay: 24 VDC, 0.1 A max.)	
	Overcurrent protection	Reverse-L dropping, automatic recovery, overcurrent detection point: 5.8 to 6.8 A		
	Overvoltage protection	Yes		
	Parallel operation	Possible (4 Blocks max.)		
Series operation	Not possible			
Other	Ambient operating temperature	Refer to the derating curve in <i>Engineering Data</i> . (with no condensation or icing)		
	Storage temperature	-25 to 65°C		
	Ambient humidity	Operating: 25% to 85%; Storage: 25% to 90%		
	Dielectric strength (See note 4.)	1.0 kVAC for 1 minute (between all DC connection terminals and GR terminals; Detection current: 20 mA) 500 VAC for 1 minute (between all DC connection terminals/GR terminals and all signal output terminals; detection current: 20 mA)		
	Insulation resistance	100 MΩ min. (between all DC connection terminals and GR terminals) at 500 VDC		
	Vibration resistance (See notes 5 and 6.)	10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions		
	Shock resistance (See notes 5 and 6.)	150 m/s ² , 3 times each in ±X, ±Y, and ±Z directions		
	EMI	Radiated Emissions	Based on EN55011 Class B.	
	EMS	Conforms to EN61000-6-2		
	Approved standards	UL: UL508 (Listing, Class 2: Per UL1310) (See note 7.), UL60950, UL1604 (Class I/Division 2) cUL: CSA C22.2 No.14, No.60950, No.213 (Class I/Division 2) EN/VDE: EN50178 (=VDE0160), EN60950 (VDE0806)		
	SEMI standard	SEMI F47-0200		
	Weight	450 g max.		

- Note:**
- The output characteristics are specified at the power output terminals.
 - Refer to *Backup Time* on page 68 for details.
 - Refer to *Functions* on page 65 for details.
 - If the number of S8T-DCBU-02 Buffer Blocks to be connected is "N," set the detection current to 20 mA × N.
 - Specified by S8TS-06024□ connection.
 - Be sure to mount an End Plate (PFP-M: Order separately) on each end of the Buffer Block. Refer to *DIN Tracks* on page 73.
 - To comply with UL508 (Class 2: Per UL1310), connect one S8TS-06024□ to one S8T-DCBU-02 Buffer Block.

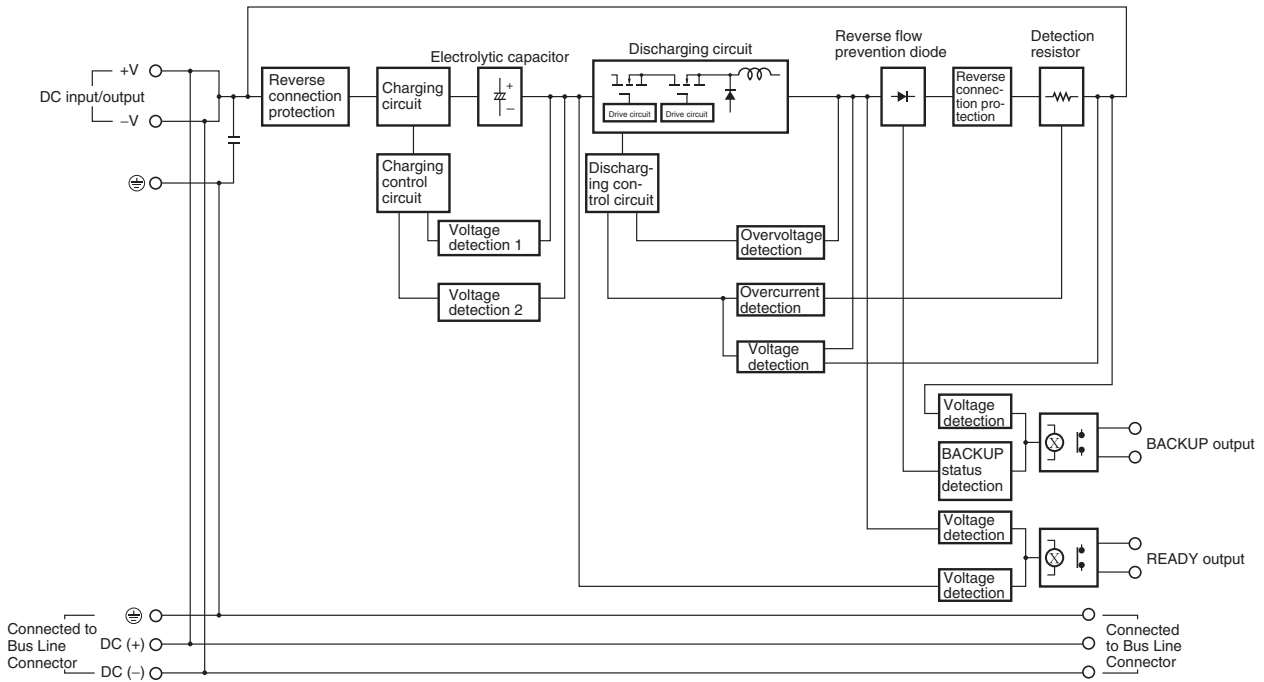
■ Reference Value

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	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 Diagram

S8T-DCBU-02



Operation

Application

Connectable Power Supplies

The following Power Supplies (SELV Power Supplies) can be connected. When connected to the following Power Supplies, the Buffer Block will function properly against a momentary power failure of at least 300 ms. (See note 1.)

S8TS Series: S8TS-06024□

S8VS Series: S8VS-06024□, S8VS-09024□□, S8VS-12024□□, S8VS-18024□□, and S8VS-24024□□

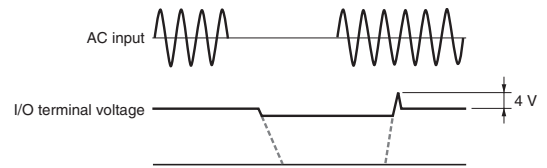
S82K Series: S82K-03024, S82K-05024, S82K-□09024, S82K-□10024, and S82K-□24024□

S82J Series: S82J-02524□□, S82J-05024□□, S82J-10024□□ (See note 2.), S82J-15024□□, S82J-30024□, and S82J-60024□

S8PS Series: S8PS-05024□□ (See note 2.), S8PS-10024□□ (See note 2.), S8PS-15024□□, and S8PS-30024□□

Note: 1. The backup current must be less than 5 A (parallel operation connection is required if the backup current exceeds 2.5 A) and the Buffer Block must be fully charged. If three or more S8T-DCBU-02 Buffer Block are used in parallel operation and the backup current exceeds 5 A, the momentary power failure time that can be compensated for will be reduced.

- When connected to the S82J-10024□□, S8PS-05024□□, or S8PS-10024□□ Power Supply, the output voltage may increase by approximately 4 V for approximately 10 to 50 ms after recovery from the momentary power failure. If any adverse effect is foreseen, connect a diode as shown below based on the guidelines given below.

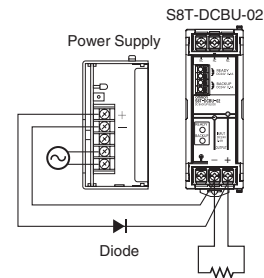


Guidelines for Selecting Diode

Type: Schottky barrier diode

Withstanding voltage (V_{RRM}): At least twice the rated output voltage

Forward current (I_F): At least twice the rated output current



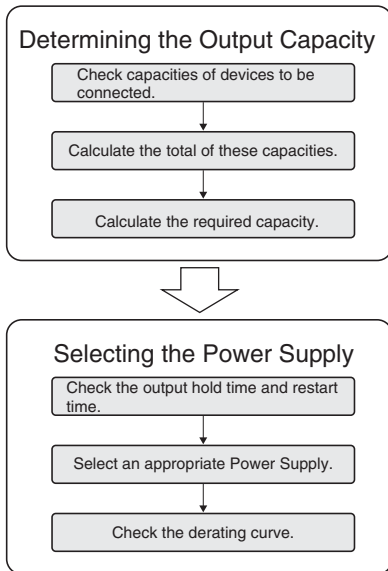
Power Supply To Be Connected

The power consumption of the S8T-DCBU-02 is approximately 10 W, so make sure that the output capacity of the power supply is sufficient.

If the S8T-DCBU-02 is connected to a previously installed power supply, the voltage may drop due to the power supply's overcurrent protection, or backup operations may not be possible.

Note: Connect a power supply within the specified derating range, considering the power consumption of the S8T-DCBU-02.

Selecting the Power Supply



Determining the Output Capacity

1. Checking Capacities of Devices To Be Connected

Check the capacities (W) of the devices to be connected.

2. Calculating the Total Capacity (Including That of the S8T-DCBU-02 Buffer Block)

The S8T-DCBU-02 Buffer Block will consume the following power. Add this to the above capacities (W) to obtain the total capacity.

V_{in} = 24 V: 9.6 W max. (during charging)
 V_{in} = 28 V: 11.2 W max. (during charging)

Calculation of the Total Capacity

$$\text{Total capacity (W)} = \text{Capacities of devices (W)} + \text{Power consumption (W) of the S8T-DCBU-02}$$

3. Calculating the Required Output Capacity

Determine the rate of allowance and apply this allowance rate to the total capacity calculated above to obtain the output capacity required by the Power Supply. Be sure to provide a sufficient allowance rate.

Calculation of the Total Power Supply Capacity

$$\text{Required output capacity (W) of the Power Supply} > \text{Total capacity (W)} \div \text{Allowance factor}$$

Example: Output voltage: 24 V
 Capacities of devices: 36 W (output current: 1.5 A)
 Allowance factor: 0.8
 Required output capacity of the Power Supply > (36 W + 9.6 W) ÷ 0.8 = 57 W
 Therefore, an S8TS-06024□ Power Supply, S8VS-06024□ Power Supply, or a Power Supply with a larger capacity is required.

Selecting the Power Supply

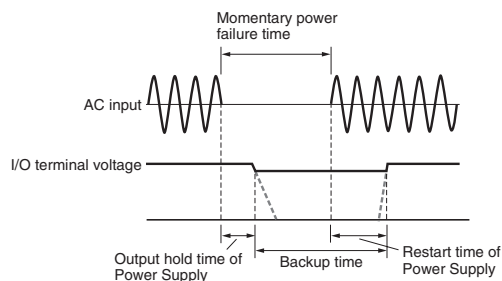
1. Checking the Output Hold Time and Restart Time of the Power Supply

The relation between the momentary power failure time and the backup time required to compensate the failure is shown in the following illustration. As shown by the illustration, the backup time required from the S8T-DCBU-02 Buffer Block depends on the connected Power Supply even for the same momentary power failure time.

Calculation of the Required Backup Time

$$\text{Required backup time} > \text{Momentary power failure time} + \text{Restart time of Power Supply} - \text{Output hold time of Power Supply}$$

Relation between Momentary Power Failure and Backup Time



The output hold time and restart time of each Power Supply are shown in *Power Supply Output Hold Times (Reference Values)* on page 70 and *Power Supply Restart Times (Reference Values)* on page 71.

Example: S8T-DCBU-02: 1 Unit
 Connected power supply: S8TS-06024□ Power Supply
 Load current: 1 A
 AC current input voltage: 200 VAC
 Momentary power failure time: 300 ms
 Required backup time > 300 ms + 270 ms - 100 ms = 470 ms
 Refer to the graphs under *Backup Time* on page 68 to check whether the backup time is sufficient.

2. Selecting the Power Supply

After obtaining the output capacity required for the Power Supply and checking its output hold time and restart time as described above, select an appropriate Power Supply from the list under *Connectable Power Supplies* on page 61.

3. Checking the Derating Curve

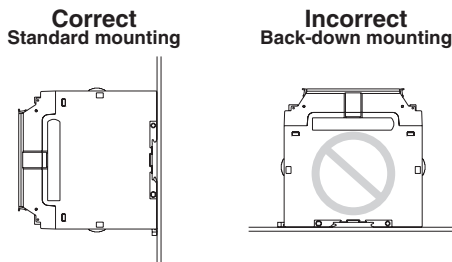
Confirm that the total output capacity calculated in step 2, *Calculating the Total Capacity*, under *Determining the Output Capacity* is within the derating curve of the Power Supply. If the capacity exceeds the derating curve, increase the Power Supply capacity or use forced air cooling to reduce the ambient operating temperature.

Mounting

Mounting Direction

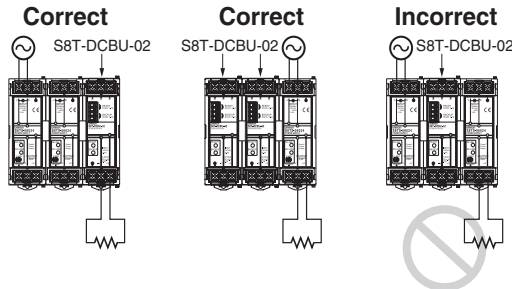
Standard mounting	Yes
Back-down mounting	No
Other mounting	No

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



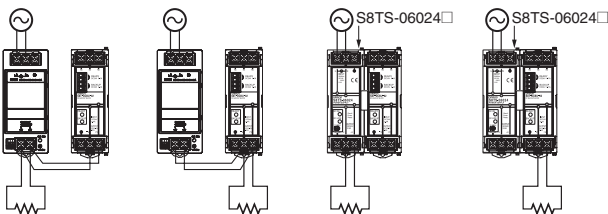
Connecting to the S8TS-06024□

When connecting one or more S8T-DCBU-02 Blocks to the S8TS-06024□ using Bus Line Connectors, connect them to either the left or right end of the Blocks. Heat dissipation will be interfered with if the S8T-DCBU-02 Blocks are not connected to the end.



Wiring Connections

A load can be connected to either the power supply side or the S8T-DCBU-02 side.



Note: Use the largest wire size possible and keep the wiring distance as short as possible. If the voltage drop caused by the wiring material is too large, the backup operation may not be sufficient.

Input Voltage

Input voltage range: 24 to 28 VDC

Confirm that an input voltage of at least 24 V is being supplied to the S8T-DCBU-02 input terminals.

Output Voltage

The output voltage for the backup operation is automatically adjusted internally by detecting the input voltage. The backup operation is started when the input voltage drops 2 V.

Note: The output voltage during the backup operation is a maximum of 2 V lower than the voltage input at an input voltage of 24 V.

Serial Connection

Two Blocks cannot be connected in series to increase the output voltage to 48 V or to create positive and negative outputs.

Parallel Operation Connection

The output current and backup time for the backup operation can be increased by connecting Blocks in parallel.

Standard number of Blocks for parallel operation: 2
Maximum number of Blocks for parallel operation: 4

The backup time will be greatly reduced if three or more Blocks are connected in parallel and the output current for the backup operation exceeds 5 A. Refer to *Backup Time* on page 68 for details on the backup time during parallel operation.

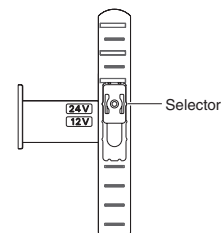
Note: Although the number of Blocks that can be connected when using the S8TS-06024□ is five when calculated from the current capacity of the Bus Line Connector, only a maximum of four S8T-DCBU-02 can actually be connected in parallel.

Using the Bus Line Connector

When connecting to the S8TS-06024□, always use the S8T-BUS03 Bus Line Connector. This Connector connects only the DC lines. It does not connect AC lines.

S8T-BUS03 Bus Line Connector

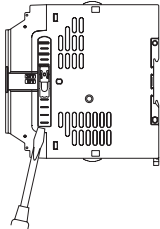
The S8T-BUS03 Bus Line Connector is equipped with a selector to prevent incorrect connection to a power supply unit with a different output voltage specification. Slide the selector to the 24 V position.



Inserting and Removing the Bus Line Connector

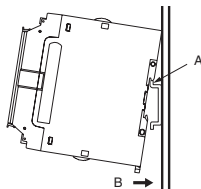
Pay attention to the following points to maintain electric characteristics.

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

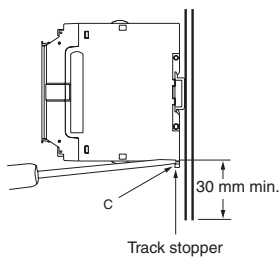


Mounting to DIN Track

To mount the Block to DIN Track, hook portion (A) of the Block onto the Track and press the Block in direction (B).



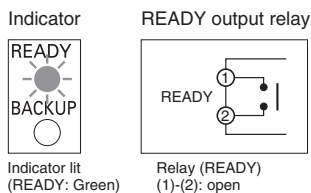
To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.



Checking Operation

After connecting the Blocks, check the Buffer Block using the following procedure to confirm that it operates correctly for momentary power failures on the AC input. Use this procedure for maintenance as well.

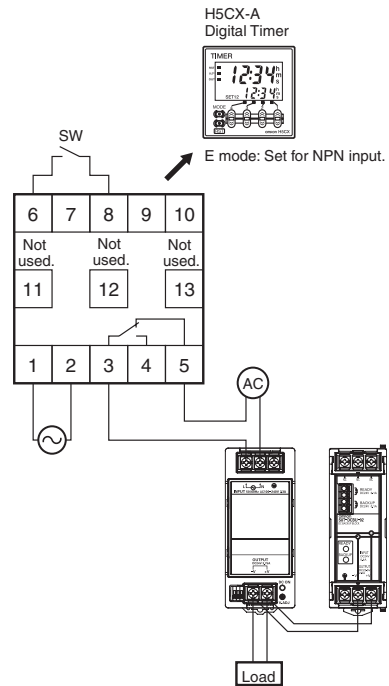
1. Turn ON the AC power supply that has been connected.
2. Check the READY indicator on the S8T-DCBU-02 to confirm that it is lit.



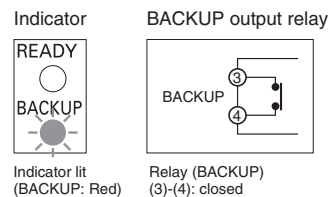
Note: Up to 60 seconds is required to charge the internal capacitor before the indicator lights.

3. Use a timer and create a momentary power failure on the AC input of the expected length of time. Considering variations in characteristics, using 140% or more of the power failure time is recommended.

Operation Check and Periodic Inspection



4. Check to confirm that the expected backup operation was performed. The operation of the BACKUP indicator and BACKUP output should be as shown below during the backup operation. Check these as well.

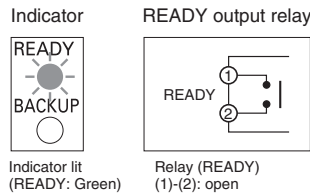


Note: Check the backup operation under conditions that are safe and will cause no problems if the backup operation fails.

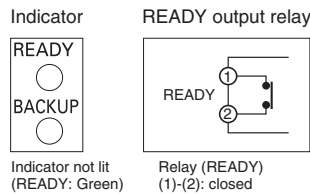
■ Functions

READY Operation

The READY indicator and READY output will function as shown below after the internal capacitor is completely charged and the Block is ready to perform the backup operation. Up to 60 seconds is required for the capacitor to charge completely.



The following status will occur if there is an error in the charge voltage of the internal capacitor or the output voltage of the S8T-DCBU-02.



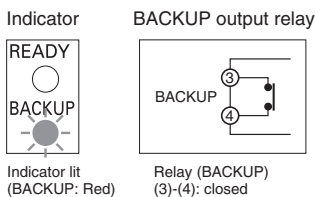
The backup operation will not be sufficient or will fail under the above status. If this status occurs, immediately remove the cause of the error, such as the following causes.

1. The connected DC voltage is 23 V or less.
2. The terminals have been connected in reverse or wiring is otherwise not correct.
3. The overvoltage protection circuit has operated.
4. The overcurrent protection circuit of the connected power supply has operated.

Note: The contact capacity of the output relay is 0.1 A at 24 VDC.

Backup Operation

The S8T-DCBU-02 will switch to the backup operation if a voltage drop is detected on the connected power supply.

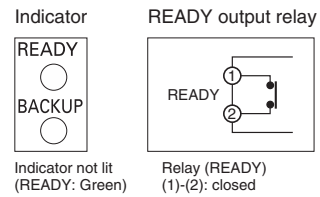


When the backup operation functions, the energy in the internal capacitor will be discharged to the load. When the voltage of the power supply then recovers, the S8T-DCBU-02 will start charging the capacitor. Up to 60 seconds is required to charge the capacitor completely. The backup operation may therefore not function for the required period if the backup operation starts while the capacitor is being charged.

The following are examples in which the backup operation may not be sufficient.

1. The backup operation starts within 60 seconds after turning ON the power supply.
2. The backup operation is started consecutively within 60 seconds of the previous backup operation.
3. A rapid change in the load or other factor causes the DC voltage to drop, resulting in the backup operation, and then the backup operation occurs again within 60 seconds.

The READY indicator and READY output will function as shown below when the internal capacitor is being charged.



- Note:**
1. The contact capacity of the output relay is 0.1 A at 24 VDC.
 2. The backup operation may be repeatedly performed if the connected power supply is overloaded. Remove the cause of the overload immediately.
 3. The backup operation does not detect drops in the AC input.

Overcurrent Protection

The overcurrent protection circuit will operate at an overcurrent detection point of 5.8 to 6.8 A to automatically reduce the output voltage and protect equipment against shorts and overcurrents. Normal operation will be restored automatically when the overcurrent status is eliminated.

Note: Continuing operation in an overcurrent status may result in deterioration of or damage to internal parts.

Overvoltage Protection

If a voltage that is higher than the specified input voltage range is input or the output voltage exceeds the specified voltage, the overvoltage protection circuit will operate at between 31 and 36 V to shut OFF the output voltage and protect the load from damage due to overvoltages.

To restore operation, turn OFF the input power supply for 1 minute or longer and then turn it back ON.

- Note:**
1. Remove the cause of the overvoltage before turn the input power supply back ON.
 2. The backup operation will not be performed when the overvoltage circuit operates to shut OFF the output.

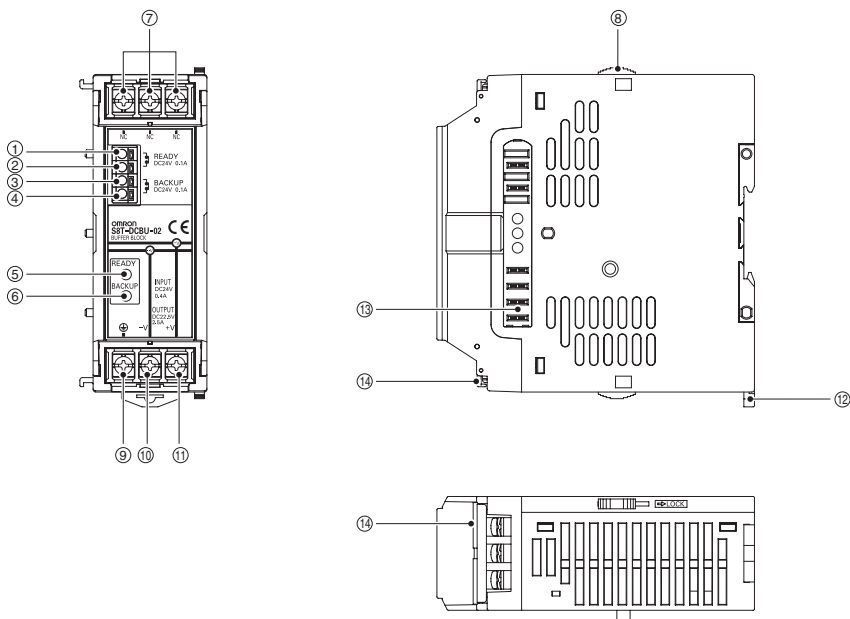
Reverse Connection Protection

The S8T-DCBU-02 will be protected even if the positive and negative I/O terminals are connected in reverse.

Nomenclature

Buffer Block

S8T-DCBU-02

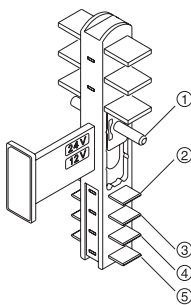


- ①, ②: READY Output: NC contact
- ③, ④: BACKUP Output: NC contact
- ⑤: READY Indicator (READY: Green)
- ⑥: BACKUP Indicator (BACKUP: Red)
- ⑦: NC
- ⑧: Slider

- ⑨: Protective Earth Terminal
- ⑩: I/O Terminal (-V)
- ⑪: I/O Terminal (+V)
- ⑫: Rail Stopper
- ⑬: Connecting part of Bus Line Connector
- ⑭: Terminal Block Cover

Bus Line Connector

S8T-BUS-03

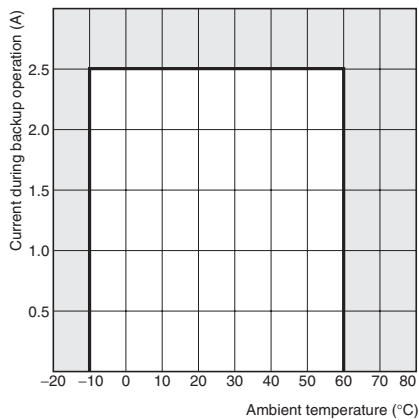


- ①: Selector
- ②: Ground Terminal
- ③: NC
- ④: DC Terminal (+V)
- ⑤: Bus Line DC Terminal (-V)

Engineering Data

Characteristics

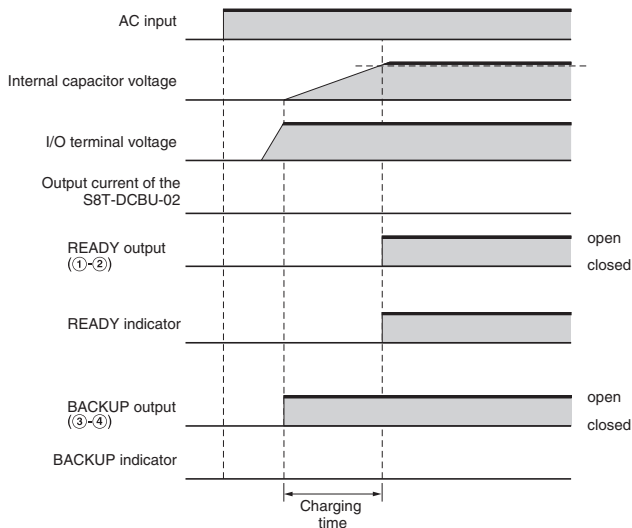
Derating Curve



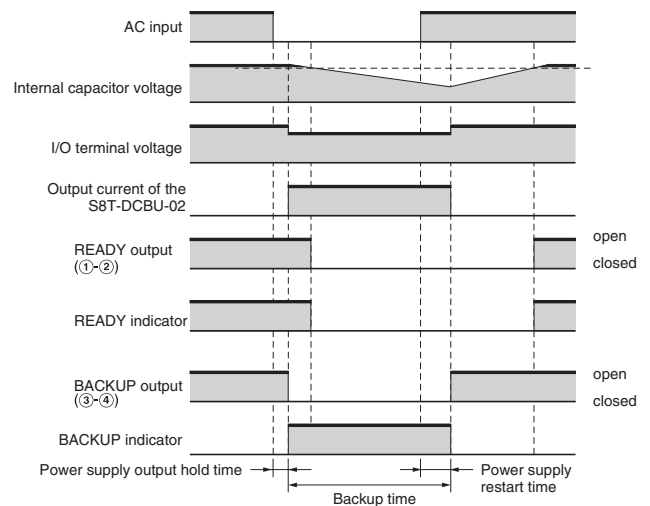
- Note:**
1. If natural air circulation is limited, use the forced air cooling to prevent overheating.
 2. The ambient temperature is measured at a point 50 mm below the Buffer Block.
 3. Check the derating curve for each power supply to be connected. Refer to *Connections to the S8TS (Reference Values)* on page 69 for details on the derating curves when connecting the Buffer Block to the S8TS-06024□ Power Supply.

Time Charts

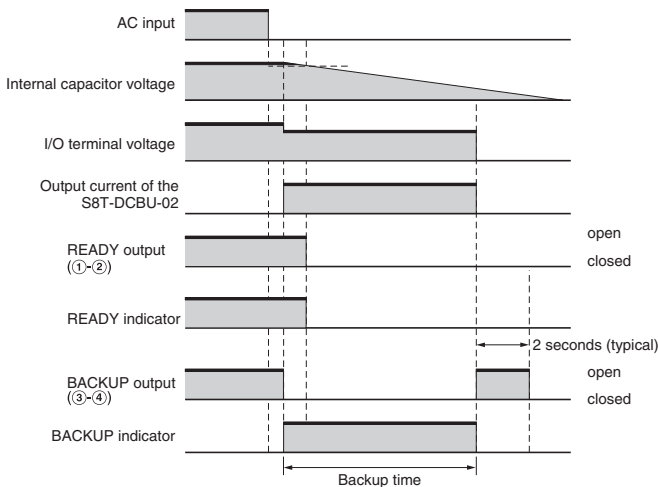
Startup



Momentary Power Failure or Voltage Drop

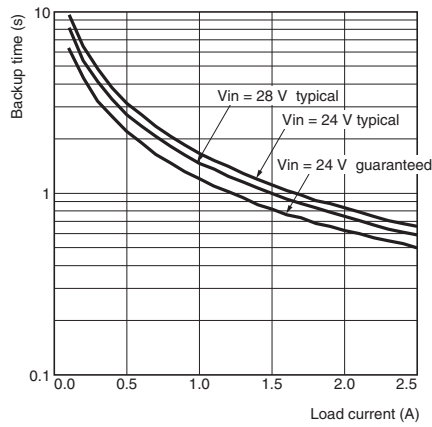


Power Supply Interrupted or Stopped

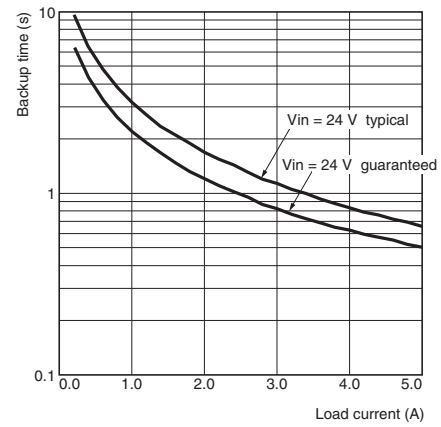


■ Backup Time

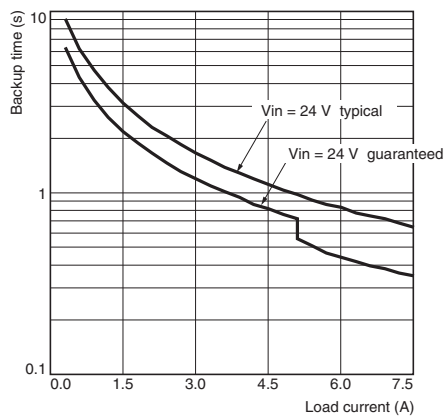
Single Operation



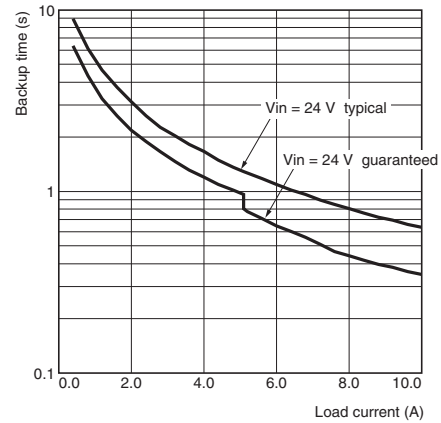
Parallel Operation with 2 Blocks



Parallel Operation with 3 Blocks



Parallel Operation with 4 Blocks



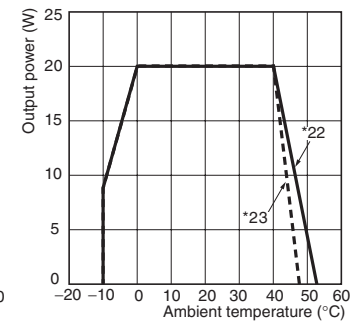
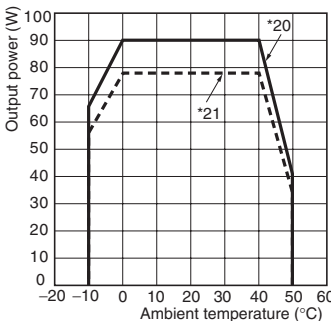
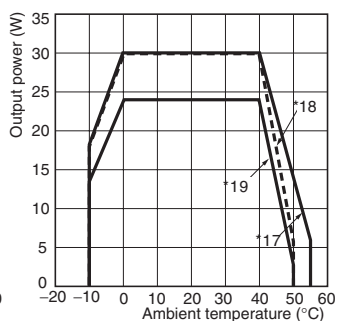
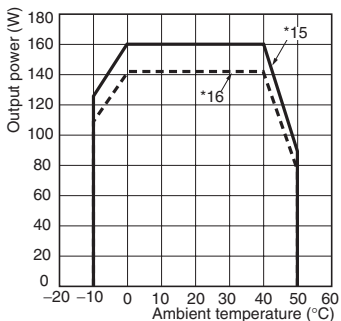
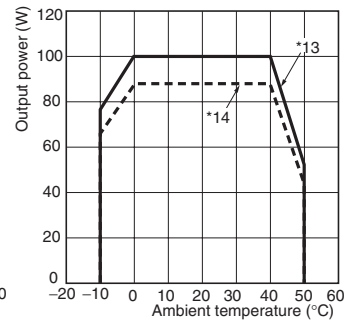
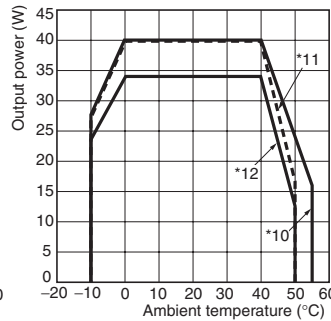
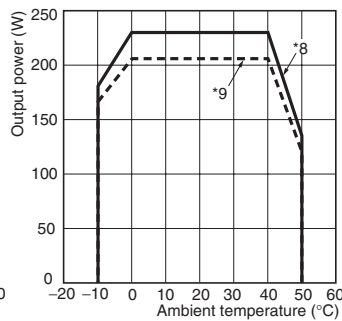
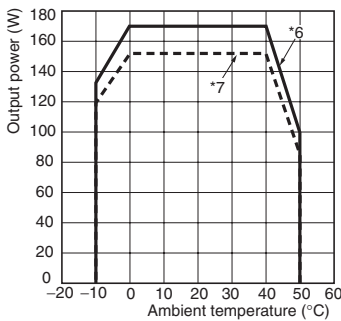
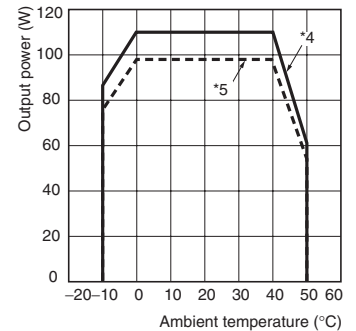
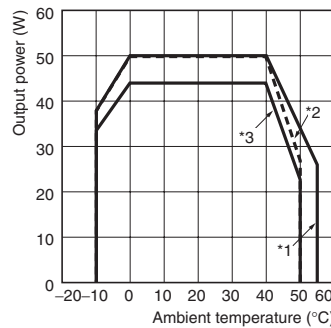
- Note:**
1. The backup time may be reduced if a fixed power load (such as a DC-DC converter) is connected.
 2. If the input voltage increases, the output voltage for the backup operation will also increase, reducing the backup time due to the higher power consumption of the load.

■ Connections to the S8TS (Reference Values)

Derating Curves of the S8TS-06024□ When Connecting to the S8TS-06024□

Number of S8TS-06024□ Blocks	S8TS-06024□ rated input	Number of S8T-DCBU-02 Blocks	Derating curve	Rated output power	
1	200 to 240 VAC	1	*1	50 W	
	100 to 120 VAC	1	*2	50 W	
1 (+1)	100 to 120/200 to 240 VAC	1	*3	44 W	
2		1	*4	110 W	
2 (+1)		1	*5	98 W	
3		1	*6	170 W	
3 (+1)		1	*7	152 W	
4		1	*8	230 W	
4 (+1)		1	*9	206 W	
1		200 to 240 VAC	2	*10	40 W
		100 to 120 VAC	2	*11	40 W
1 (+1)	100 to 120/200 to 240 VAC	2	*12	34 W	
2		2	*13	100 W	
2 (+1)		2	*14	88 W	
3		2	*15	160 W	
3 (+1)		2	*16	142 W	
1		200 to 240 VAC	3	*17	30 W
		100 to 120 VAC	3	*18	30 W
1 (+1)		100 to 120/200 to 240 VAC	3	*19	24 W
2			3	*20	90 W
2 (+1)	3		*21	78 W	
1	200 to 240 VAC		4	*22	20 W
	100 to 120 VAC		4	*23	20 W

- Note:**
- "(+1)" indicates the addition of one more S8TS-06024□ Basic Block if a redundant system is used.
 - If natural air circulation is limited, use forced air cooling to prevent overheating.
 - The ambient temperature is specified at a place 50 mm below the Product.
 - The energy consumption of the S8T-DCBU-02 (approximately 10 W per Block) from the S8TS-06024□ reduces the total output capacity when more than one S8TS-06024□ Block is connected.
 - The rated output current of the S8T-DCBU-02 is 2.5 A per Block regardless of the number of S8TS-06024□ Blocks that are connected.



■ Power Supply Output Hold Times (Reference Values)

The rated currents are given for load currents.

Series	Model number	Load current (A)	Output hold time (ms)		
			100 VAC	200 VAC	
S8TS	06024□	0.5	163	167	
		1	98	100	
		1.5	70	70	
		2.1	56	58	
S8VS	06024□	0.5	158	664	
		1	88	382	
		1.5	57	266	
		2.1	36	194	
	09024□□	1	118	508	
		2	58	274	
		2.95	34	176	
	12024□□	1	262	262	
		2	148	148	
		3	102	102	
		4.2	72	72	
	18024□□	2	225	230	
		4	107	120	
		6	71	75	
		6.3	65	70	
	24024□□	2.5	170	170	
		5	68	72	
		7.5	52	56	
		8.4	40	44	
	S82K	03024	0.25	192	792
			0.5	120	515
			0.75	82	375
			0.9	66	315
		05024	0.5	118	505
1			66	295	
1.5			41	200	
1.7			35	178	
09024/ 10024		1	130	130	
		2	67	73	
		3	41	46	
		3.4	34	39	
P09024/ P10024		1	140	124	
		2	75	68	
		3	46	41	
		3.4	41	36	
24024□		2.5	164	170	
		5	81	86	
		7.5	50	56	
		8.4	42	48	
P24024□		2.5	185	192	
		5	93	105	
		7.5	60	67	
		8.4	51	58	

Series	Model number	Load current (A)	Output hold time (ms)	
			100 VAC	200 VAC
S82J	02524□□	0.2	170	700
		0.4	105	470
		0.6	74	345
		0.7	62	300
	05024□□	0.5	117	524
		1	65	300
		1.5	44	210
		1.7	38	185
	10024□□	1	133	600
		2	71	325
		3	46	210
		3.7	37	173
	15024□□	1.5	133	144
		3	66	73
		4.5	42	50
		5.3	34	40
	30024□	2.5	190	200
		5	100	105
		7.5	68	70
		10	48	50
	60024□	2.5	353	365
		5	193	203
		7.5	130	138
		10	98	104
S8PS	05024□□	0.5	145	167
		1	98	100
		1.5	74	79
		1.7	72	75
	10024□□	1	160	160
		2	100	100
		3	70	70
		3.7	52	52
	15024□□	1.5	260	300
		3	128	130
		4.5	73	75
		5.3	50	52
	30024□□	2.5	440	440
		5	220	220
		7.5	131	132
		10	80	80

■ Power Supply Restart Times (Reference Values)

Series	Model number	Restart time (ms)					
		Momentary power failure time: 300 ms		Momentary power failure time: 500 ms		Momentary power failure time: 1,000 ms	
		100 VAC	200 VAC	100 VAC	200 VAC	100 VAC	200 VAC
S8TS	06024□	320	270	320	270	345	290
S8VS	06024□	220	5	280	95	380	155
	09024□□	220	5	286	100	390	157
	12024□□	360	248	400	288	432	322
	18024□□	230	198	247	216	263	235
	24024□□	5	5	5	5	15	5
S82K	03024	14	6	14	6	14	6
	05024	16	8	16	8	16	8
	09024/10024	5	5	60	52	65	60
	P09024/P10024	68	54	68	54	70	56
	24024□	86	52	86	52	86	52
	P24024	14	5	350	126	396	150
S82J	02524□□	11	10	11	10	12	11
	05024□□	188	72	200	82	224	100
	10024□□	175	4	198	82	218	98
	15024□□	210	76	216	76	218	76
	30024□	117	70	117	70	117	70
	60024□	158	86	158	86	158	86
S8PS	05024□□	196	172	208	174	292	224
	10024□□	225	180	233	187	287	217
	15024□□	225	184	240	198	337	252
	30024□□	325	304	330	325	340	335

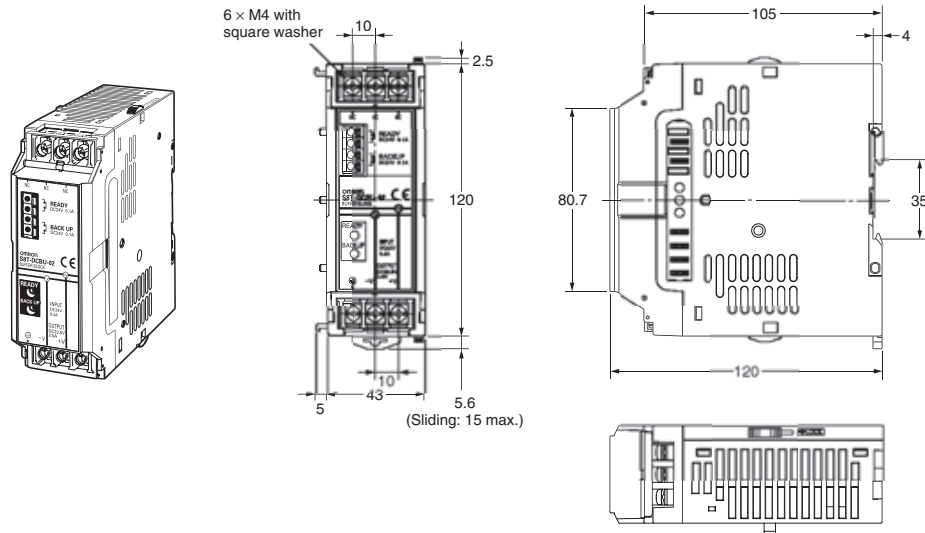
Dimensions

Note: All units are in millimeters unless otherwise indicated.

■ Buffer Block

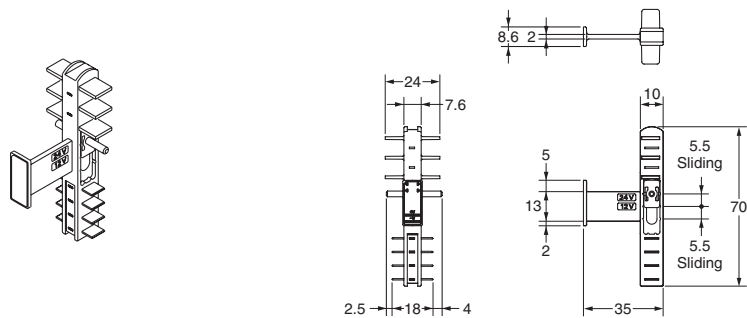
Buffer Block

S8T-DCBU-02



Bus Line Connector

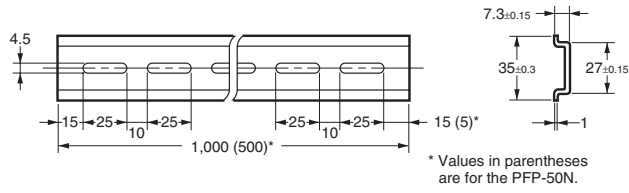
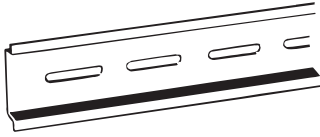
S8T-BUS03



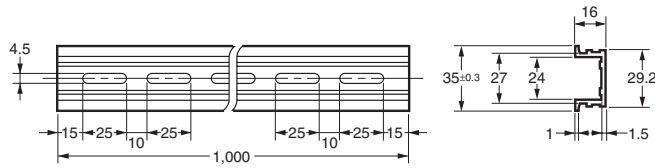
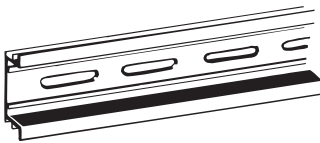
■ DIN Tracks

Mounting Tracks (Material: Aluminum)

PFP-100N
PFP-50N

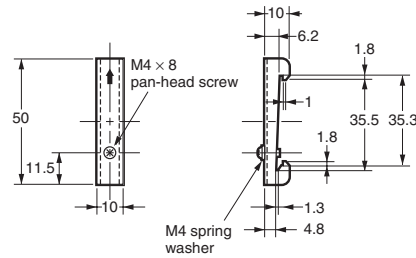


PFP-100N2



End Plate

PFP-M



Safety Precautions

CAUTION

Installation and Environment

Minor fires may occasionally occur or wires may become detached causing the backup operation to fail if screws are not tightened properly. Tighten terminal screws to a torque of 1.08 N·m so that they do not become loose.



Minor electric shock may occasionally occur. Do not remove the connector cover unless connecting the Bus Line Connector.



Minor electric shock may occasionally occur and the backup operation will fail if the connector becomes disconnected. Be sure to lock the slider and track stopper securely when connecting the Basic Block and the S8T-DCBU-02 to prevent the connector from being disconnected due to vibration.



Internal parts may occasionally deteriorate or be damaged and the backup operation may not be sufficient. Do not use the S8T-DCBU-02 for applications that subject the load to frequent inrush currents or overload currents.



The S8T-DCBU-02 may occasionally be damaged. Do not allow any clippings or cuttings to enter the S8T-DCBU-02 during mounting.



Operation

Minor burns may occasionally occur. Do not touch the S8T-DCBU-02 while power is being supplied or immediately after power is turned OFF.



Minor electric shock may occasionally occur. Do not add or remove the S8T-DCBU-02 while power is being supplied.



Maintenance

Minor electric shock may occasionally occur. Do not disassemble the S8T-DCBU-02 or touch the interior of the S8T-DCBU-02.



Precautions for Safe Use

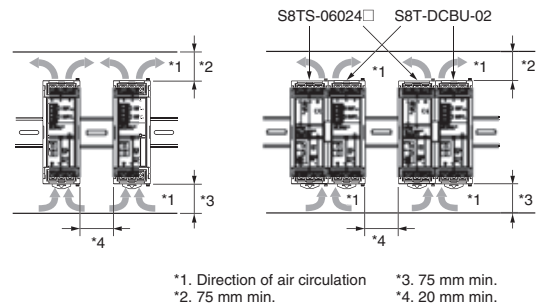
Observe the following precautions to ensure safety when using the S8T-DCBU-02.

Setting and Selecting Power Supply to be Connected

- Do not connect a power supply other than the ones specified below.
Specified Power Supply: S8TS Series, S8VS Series (SELV Power Supply) S82K Series, S82J Series, S8PS Series. Only power supplies with an output voltage of 24 V and an output capacity of 25 W or more can be connected.
- When selecting the power supply to be connected, take both the operation current and power of S8T-DCBU-02 into consideration, allowing sufficient margin.

Mounting

- The internal parts may occasionally deteriorate or be broken due to adverse heat radiation. Operate the S8T-DCBU-02 only under the specified conditions.
- Ensure sufficient heat dissipation when installing the Product to increase its long-term reliability.
- Install the Product so that a natural airflow occurs around it.



Installation/Wiring

- Minor electric shock or malfunction may possibly occur. Connect the ground wire completely.
- Minor fires may possibly occur. Check the terminals to be sure they are wired correctly.
- Do not apply a force greater than 100 N to the terminal block when tightening the terminals.
- Close the terminal cover to help prevent short-circuiting terminals with foreign objects.
- Be sure to remove the sheets covering the S8T-DCBU-02 before turning ON the power supply and confirm that nothing is interfering with heat dissipation.
- Use the wiring material specified in the following table to protect wires from smoking and burning due to load abnormalities. Also, the backup operation may not be sufficient due to voltage drop if thin wiring materials are used.

I/O Terminals

Load current	Number of connected S8T-DCBU-02	Recommended wire diameter
Up to 2.5 A	1	AWG 14 to 20 (cross-sectional area: 0.517 to 2.081 mm ²)
Up to 5.0 A	2	AWG 14 to 18 (cross-sectional area: 0.823 to 2.081 mm ²)
Up to 7.5 A	3	AWG 14 to 16 (cross-sectional area: 1.309 to 2.081 mm ²)
Up to 10 A	4	AWG 14 (cross-sectional area: 2.081 mm ²)

Signal output terminals: AWG 14 to 22 (Cross-sectional area: 0.326 to 1.309 mm²)
(Wire stripping length: 11 mm)

Installation Environment

- Do not install the S8T-DCBU-02 in places subjected to shock or vibration. A device such as a contact breaker may be a vibration source. Install the S8T-DCBU-02 as far as possible from possible sources of shock or vibration. Additionally, install a PFP-M End Plate on each end of the Product.
- If the S8T-DCBU-02 is used in an area with excessive high-frequency noise, be sure to separate the S8T-DCBU-02 as far as possible from the noise sources.

Ambient Operating Environment and Storage Environment

- Store the S8T-DCBU-02 at an ambient temperature of –25 to +65°C, and a relative humidity of 25% to 90%.
- The internal parts may occasionally deteriorate or be broken. Do not use the S8T-DCBU-02 outside the derating range (i.e., under conditions indicated by the shaded area (■) in the derating curve diagram on page 67.)
- Use the S8T-DCBU-02 at a relative humidity of 25% to 85%.
- Do not use the S8T-DCBU-02 where it would be subjected to direct sunlight.
- Do not use the S8T-DCBU-02 where it would be subjected to penetration of liquid, foreign substance, or corrosive gas.

Precautions in Using

- After connecting the devices to the S8T-DCBU-02, check whether sufficient backup is performed correctly by operating the S8T-DCBU-02.
- Check the load current using the actual system in advance to confirm that there is sufficient leeway in the backup time.
- Check to confirm that the READY indicator and the output function correctly. The backup operation may not be sufficient if the READY indicator and output do not function correctly.
- The S8T-DCBU-02 will perform the backup operation not only for instantaneous power interruptions or voltage drops, but also when the power supply is OFF. The backup time is particularly long for light loads. Check the devices connected to the S8T-DCBU-02 to be sure it has stopped operation correctly.

Periodic Inspection and Periodic Replacement

The S8T-DCBU-02 contains built-in electrolytic capacitors, which have a limited life. Perform periodic inspection and replacement. The performance of the electrolytic capacitor will deteriorate as the total operating time increases, eventually leading to insufficient performance. Refer to the following guidelines for periodic replacement.

Ambient temperature	Guideline of replacement	
	With space between the Units	Connected to S8TS
30°C max.	15 years	15 years
40°C	12 years	8.5 years
50°C	6 years	5.5 years (See note.)
60°C	3 years	---

Note: The load ratio of the S8TS is limited to 60% due to the derating curve.

Charging Batteries

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

Handling the Bus Line Connector

- Do not drop the Bus Line Connector or subject it to strong shock.
- Do not connect and disconnect the Bus Line Connector more than 20 times. Also, do not touch the terminals on the Bus Line Connector. Connection failure may cause deterioration of electric performance.

Troubleshooting

The following table lists the errors that may occur when the S8T-DCBU-02 is used, along with their probable causes and remedies. Check the relevant items.

When	Cause	Description	Remedies
During installation	The S8TS-06024□ and S8T-DCBU-02 cannot be connected.	The Bus Line Connector is provided with a selector to prevent misconnection of 12-V and 5-V S8TS Blocks. Connection will not be possible if the selector is set for the wrong type of Block.	Set the selector on the Bus Line Connector to 24 V. Refer to <i>S8T-BUS03 Bus Line Connector</i> on page 63.
When checking operation (Refer to <i>Checking Operation</i> on page 64.)	The S8TS-06024□ connected in step 2 of the operation checking procedure does not operate.	The AC line is not connected by the S8T-BUS03 Bus Line Connector when the S8TS-06024□ is connected. The S8T-DCBU-02 may be connected between two S8TS-06024□ Blocks.	Connect the S8T-DCBU-02 to the right or left end of the connected Blocks. Refer to <i>Mounting</i> on page 63.
	The READY indicator on the S8T-DCBU-02 does not light in step 2 of the operation checking procedure when connected to the S8TS.	Power is supplied via the S8T-BUS03 Bus Line Connector when the S8T-DCBU-02 and S8TS are connected. The Bus Line Connector may not be connected.	Connect the S8T-DCBU-02 and S8TS-06024□ using an S8T-BUS03 Bus Line Connector. Refer to <i>Basic Configuration</i> on page 59.
		A Bus Line Connector that does not connect the DC line (such as the S8T-BUS02) may be connected.	Connect the S8T-DCBU-02 and S8TS-06024□ using an S8T-BUS03 Bus Line Connector. Refer to <i>Basic Configuration</i> on page 59.
	The READY indicator on the S8T-DCBU-02 does not light in step 2 of the operation checking procedure.	Up to 60 seconds is required to completely charge the internal capacitor after the power supply has been turned ON. The READY indicator will not turn ON immediately after the power supply is turned ON.	Check that the READY indicator lights after 60 seconds has passed since turning ON the power supply. Refer to <i>READY Operation</i> on page 65.
		The positive and negative I/O terminals on the S8T-DCBU-02 may be connected in reverse or the power supply may be connected to an incorrect terminal (e.g., an NC terminal).	Check the wiring to be sure it is correct. The internal circuits of the S8T-DCBU-02 will be protected even if the positive and negative terminals are reversed. Refer to <i>Reverse Connection Protection</i> on page 65.
		The voltage input to the S8T-DCBU-02 may be 23 V or less.	Check the I/O terminals on the S8T-DCBU-02 and adjust the voltage output by the power supply so that it is 24 V or higher. Refer to <i>Input Voltage</i> on page 63.
		Overcurrent protection on the connected power supply may have operated and the voltage may have dropped to below 23 V.	The S8T-DCBU-02 consumes 0.4 A, so the rated current of the connected power supply cannot be delivered completely to the load. Increase the capacity of the connected power supply. Refer to <i>Selecting the Power Supply</i> on page 62.
	The backup operation is not performed for the expected backup time in step 4 of the operation checking procedure.	The restart time of the connected power supply after recovery from momentary power failures may be too long.	The momentary power failure time differs from the backup time required to compensate for it. Change to a power supply with a shorter restart time or connect S8T-DCBU-02 Blocks in parallel to increase the backup time. Refer to <i>Selecting the Power Supply</i> on page 62.
		The voltage during the backup operation may be high, increasing the power consumption during the backup operation.	The output voltage during the backup operation is automatically adjusted based on detecting the voltage input to the S8T-DCBU-02. Connect S8T-DCBU-02 Blocks in parallel to increase the backup time. Refer to <i>Parallel Operation Connection</i> on page 63.
		The output current during the backup operation may be higher than expected.	Connect S8T-DCBU-02 Blocks in parallel to increase the backup time. Refer to <i>Parallel Operation Connection</i> on page 63.
The voltage output for the backup operation is low in step 4 of the operation checking procedure.	Overcurrent protection on the connected power supply may have operated and the voltage input to the S8T-DCBU-02 may have dropped to below 24 V.	The S8T-DCBU-02 consumes 0.4 A, so the rated current of the connected power supply cannot be delivered completely to the load. Increase the capacity of the connected power supply. Refer to <i>Selecting the Power Supply</i> on page 62.	
	The wiring to the load is too long or too thin, causing excessive voltage drop.	Use the thickest wire and shortest distance possible. The output voltage during backup will be up to 2 V lower than the input voltage. Refer to <i>Wiring Connections</i> on page 63.	

When	Cause	Description	Remedies
When checking operation (Refer to <i>Checking Operation</i> on page 64.)	The voltage output for the backup operation is low in step 4 of the operation checking procedure.	Overcurrent protection may have operated on the S8T-DCBU-02.	Allow for leeway for the load capacity in the application or increase the output current during the backup operation by connecting S8T-DCBU-02 Blocks in parallel. Refer to <i>Parallel Operation Connection</i> on page 63.
When checking operation (Refer to <i>Checking Operation</i> on page 64.)	The BACKUP indicator does not light in step 4 of the operation checking procedure.	The output hold time of the connected power supply may be sufficient to handle the momentary power failure.	Use a timer to increase the power failure of the AC input from the connected power supply and confirm that the BACKUP indicator lights. Refer to <i>Selecting the Power Supply</i> on page 62.
		The voltage output from the S8T-DCBU-02 during the backup operation may be lower because overcurrent protection has operated in the S8T-DCBU-02.	Allow for leeway for the load capacity in the application or increase the output current during the backup operation by connecting S8T-DCBU-02 Blocks in parallel. Refer to <i>Parallel Operation Connection</i> on page 63.
During actual operation	The READY indicator is not lit and the READY output is OFF.	The voltage input to the S8T-DCBU-02 may be 23 V or less.	Check the voltage at the I/O terminals of the S8T-DCBU-02 and adjust the voltage output by the power supply so that it is 24 V or higher. Refer to <i>Input Voltage</i> on page 63.
		A voltage of approximately 31 V or higher may be input to the I/O terminals of the S8T-DCBU-02, causing the overvoltage protection circuit to operate.	Clear the overvoltage protection (turn OFF the input power supply for 1 minute or longer and then turn it back ON). Refer to <i>Overvoltage Protection</i> on page 65.
	The backup time has become shorter.	It's possible that momentary power failures are occurring consecutively.	The backup time is measured when the built-in electrolytic capacitors are fully charged. If momentary power failures occur within one minute of each other, the charge will not be complete and the backup time will be shorter. Refer to <i>Backup Operation</i> on page 65.
		It's possible that the characteristics of the built-in electrolytic capacitors have deteriorated.	Electrolytic capacitors are built into the Block and these capacitors have a limited life. When an electrolytic capacitor exceeds its useful life, its capacity will decrease and other characteristics will deteriorate. This will cause the backup time to be shorter. Refer to <i>Operation Check and Periodic Inspection</i> on page 64 and to <i>Periodic Inspection and Periodic Replacement</i> on page 75.
	There is chattering on the READY output.	The input voltage of the S8T-DCBU-02 may be very close to 23 V.	Check the voltage at the I/O terminals of the S8T-DCBU-02 and adjust the voltage output by the power supply so that it is 24 V or higher. Refer to <i>Input Voltage</i> on page 63.
	The output voltage is not restored even after the power supply is restored following a momentary power failure.	Protection on the connected power supply may have operated, stopping the operation of the power supply.	Clear the protection function of the connected power supply.
	The backup operation is performed repeatedly.		If more than one S8TS-06024□ Block is connected, one of the Blocks may be faulty.
An overcurrent status caused by load fluctuation may exist in the power supply.			Allow for leeway for the load capacity in the application or increase the capacity of the connected power supply. Refer to <i>Backup Operation</i> on page 65.

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.

Switch Mode Power Supply S8VS

Monitor Functions for Replacement Timing and Total Run Time in a Compact Size.

- 180-W Models added to the series.
- Compact size (40 (W) × 95 (H) mm) (60-W Models)
- Large 3-digit, 7-segment LED shows status (voltage, current etc.) of power supply.
- Approved standards: UL508/60950, CSA C22.2 No.14/60950, EN50178 (=VDE0160), EN60950 (=VDE0806)
- Lead-free solder in 180-W Models. (60-W, 90-W, 120-W, and 240-W Models will be converted to lead-free solder in October 2003.)



Model Number Structure

Model Number Legend

S8VS-

1 2 3

1. Power Ratings

- 060: 60 W
- 090: 90 W
- 120: 120 W
- 180: 180 W
- 240: 240 W

2. Output voltage

- 24: 24 V

3. Configuration

- None: Standard Power Supply
- 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	Type	Alarm output (transistor)	Output voltage	Output current	Model number
60 W	Standard	---	24 V	2.5 A	S8VS-06024
	With maintenance forecast monitor	---			S8VS-06024A
	With total run time monitor				S8VS-06024B
90 W	Standard			---	3.75 A
	With maintenance forecast monitor	Sinking		S8VS-09024A	
		Sourcing		S8VS-09024AP	
	With total run time monitor	Sinking		S8VS-09024B	
		Sourcing		S8VS-09024BP	
	120 W	Standard		---	
With maintenance forecast monitor		Sinking	S8VS-12024A		
		Sourcing	S8VS-12024AP		
With total run time monitor		Sinking	S8VS-12024B		
		Sourcing	S8VS-12024BP		
180 W		Standard	---	7.5 A	S8VS-18024
	With maintenance forecast monitor	Sinking	S8VS-18024A		
		Sourcing	S8VS-18024AP		
	With total run time monitor	Sinking	S8VS-18024B		
		Sourcing	S8VS-18024BP		
	240 W	Standard	---		10 A
With maintenance forecast monitor		Sinking	S8VS-24024A		
		Sourcing	S8VS-24024AP		
With total run time monitor		Sinking	S8VS-24024B		
		Sourcing	S8VS-24024BP		

Options (Order Separately)

Name	Model number
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 (See note.)	S82Y-VS10F

Note: Two Front Mounting Brackets are required for 240-W Models.

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.			80% min.			
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			2.3 A		
		200 V input	1.0 A			1.4 A		
	Power factor	---						
	Limits for harmonic current emissions	Based on EN61000-3-2			Conforms to EN61000-3-2			
	Leakage current	100 V input	0.5 mA max.					
		200 V input	1.0 mA max.					
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)						
Output	Voltage adjustment range (See note 2.)	-10% to 15% (with V.ADJ)						
	Ripple	2.0% (p-p) max. (at rated input/output voltage)						
	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)						
	Hold time (See note 1.)	20 ms min. (at rated input/output voltage)						
Additional functions	Overload protection (See note 1.)	105% to 160% of rated load current, inverted L 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 (with external diode)						
Other	Ambient temperature	Operating: Refer to the derating curve in <i>Engineering Data</i> . (with no icing or condensation) Storage: -25 to 65°C						
	Ambient humidity	Operating: 25% to 85%; Storage: 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 GR terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and GR 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/ GR 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	150 m/s ² , 3 times each in ±X, ±Y, and ±Z directions						
	Output indicator	Yes (color: green)						
	EMI	Conducted Emissions	Conforms to EN50081-2 and based on FCC Class A					
		Radiated Emissions	Conforms to EN50081-2:		Emission Enclosure:	EN55011 class A		
					Emission AC main:	EN55011 class A		
			Conforms to EN50081-1:		Emission Enclosure:	EN55011 class B (See note 9.)		
				Emission AC main:	EN55011 class B (See note 9.)			
EMS	Conforms to EN61000-6-2							
Approved standards	UL: UL508 (Listing; Class 2; Per UL1310), UL60950 cUL: CSA C22.2 No.14, No.60950 (Class 2) EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0806)			UL: UL508 (Listing), UL60950 cUL: CSA C22.2 No.14, No.60950 EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0806)				
Weight	330 g max.			490 g max.				

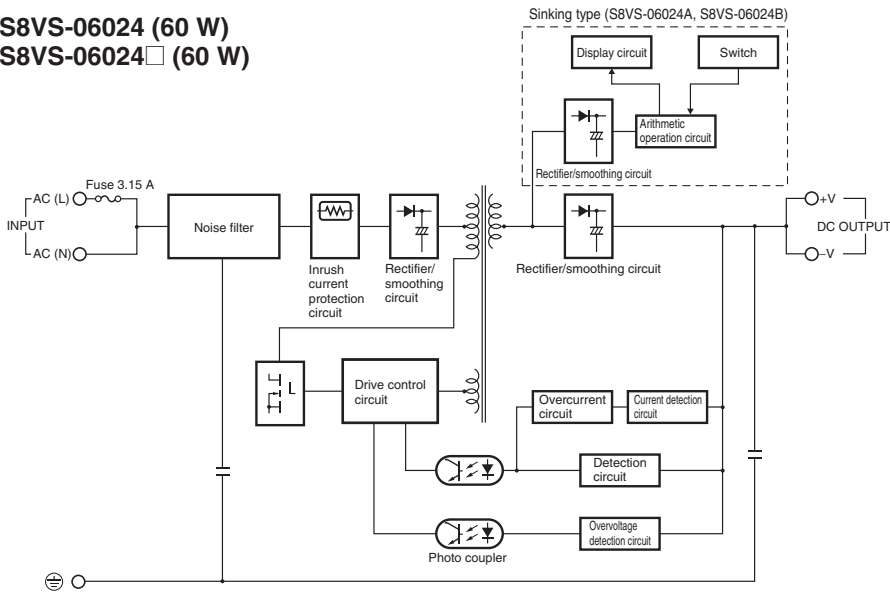
- Note:**
1. Refer to the *Engineering Data* section on page 90 for details.
 2. If the V.ADJ adjuster is turned, the voltage will increase by more than +15% of the voltage adjustment range (more than +10% for 240-W Models).
 3. To reset the protection, turn OFF the power supply for three minutes or 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. Select from sinking or sourcing outputs.
 9. To ensure the emission enclosure rating, a ferrite ring core should be used in all cabling (TDK HF60T, HF70RH or equivalent model).

Item	Power ratings Type	120 W			180 W			240 W			
		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.									
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			2.9 A			3.8 A		
		200 V input	1.1 A			1.6 A			2.0 A		
	Power factor		0.95 min.								
	Limits for harmonic current emissions		Conforms to EN61000-3-2								
	Leakage current	100 V input	0.5 mA max.								
		200 V input	1.0 mA max.								
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)									
Output	Voltage adjustment range (See note 2.)		-10% to 15% (with V.ADJ)					±10% (with V.ADJ)			
	Ripple		2.0% (p-p) max. (at rated input/output voltage)								
	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)								
	Hold time (See note 1.)		20 ms min. (at rated input/output voltage)								
	Additional functions	Overload protection (See note 1.)		105% to 160% of rated load current, inverted L drop, intermittent, automatic reset						105% to 160% of rated load current, inverted L 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.)	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.)	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.)	No	Yes (selectable) (See note 7.)		
Maintenance forecast monitor indication (See note 4.)		No	Yes (selectable)	No	No	Yes (selectable)	No	No	Yes (selectable)		
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.)		
Total run time monitor indication (See note 4.)		No	Yes (selectable)	No	No	Yes (selectable)	No	No	Yes (selectable)		
Total run time 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.)		
Undervoltage alarm indication (See note 4.)		No	Yes (selectable)	No	No	Yes (selectable)	No	No	Yes (selectable)		
Undervoltage alarm output terminals		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.)		
Parallel operation		No									
Series operation		Yes (with external diode)									
Other	Ambient temperature		Operating: Refer to the derating curve in <i>Engineering Data</i> . (with no icing or condensation) Storage: -25 to 65°C								
	Ambient humidity		Operating: 25% to 85%; Storage: 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 GR terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and GR 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/ GR 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		150 m/s ² , 3 times each in ±X, ±Y, and ±Z directions								
	Output indicator		Yes (color: green)								
	EMI	Conducted Emissions	Conforms to EN50081-2 and based on FCC Class A								
		Radiated Emissions	Conforms to EN50081-2:		Emission Enclosure: EN55011 class A Emission AC main: EN55011 class A		Conforms to EN50081-1:				Emission Enclosure: EN55011 class B (See note 9.) Emission AC main: EN55011 class B (See note 9.)
	EMS		Conforms to EN61000-6-2								
	Approved standards		UL: UL508 (Listing), UL60950 cUL: CSA C22.2 No.14, No.60950 EN/VDE: EN50178 (=VDE0160), EN60950 (=VDE0806)								
	Weight		550 g max.			850 g max.			1,150 g max.		

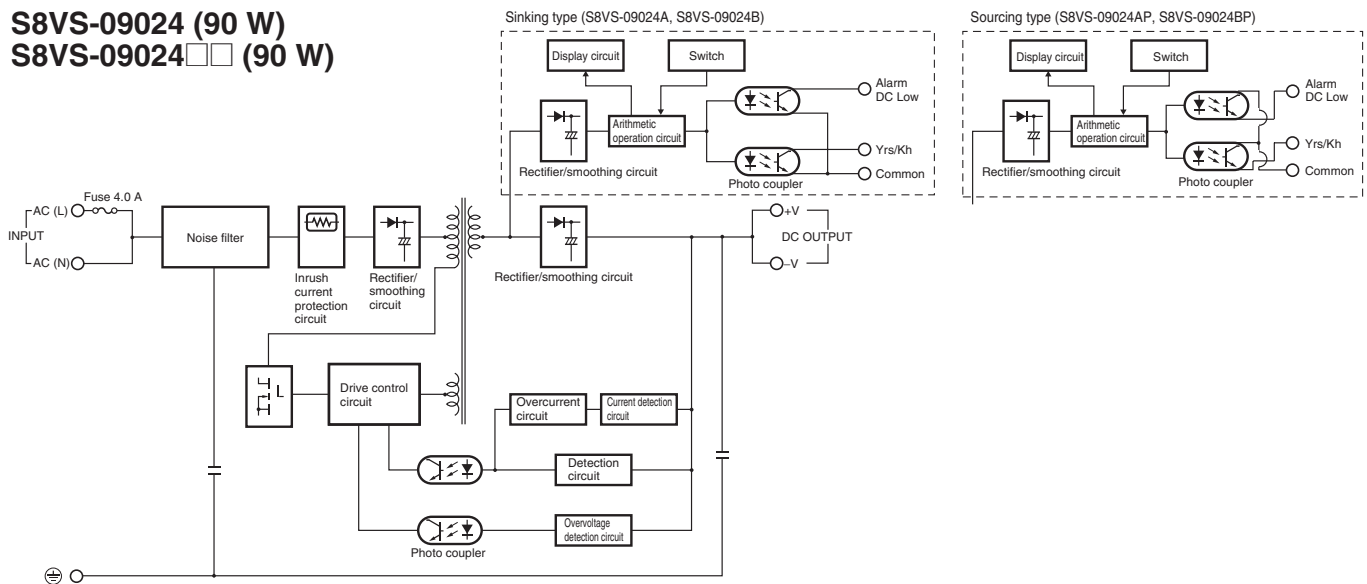
Connections

■ Block Diagram

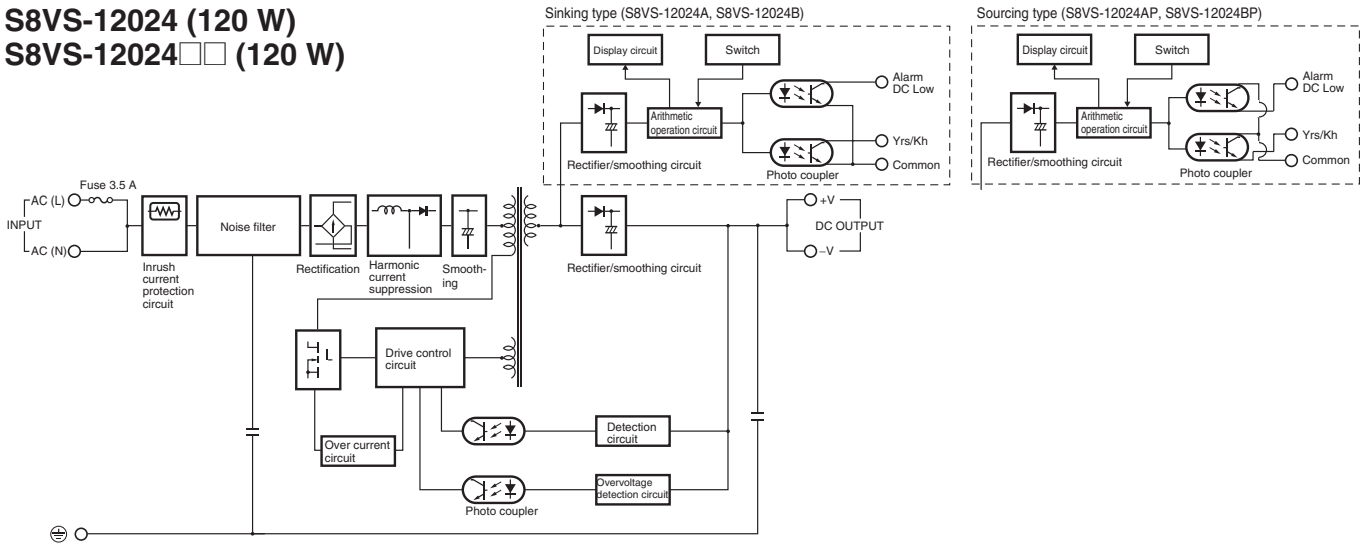
S8VS-06024 (60 W)
S8VS-06024□ (60 W)



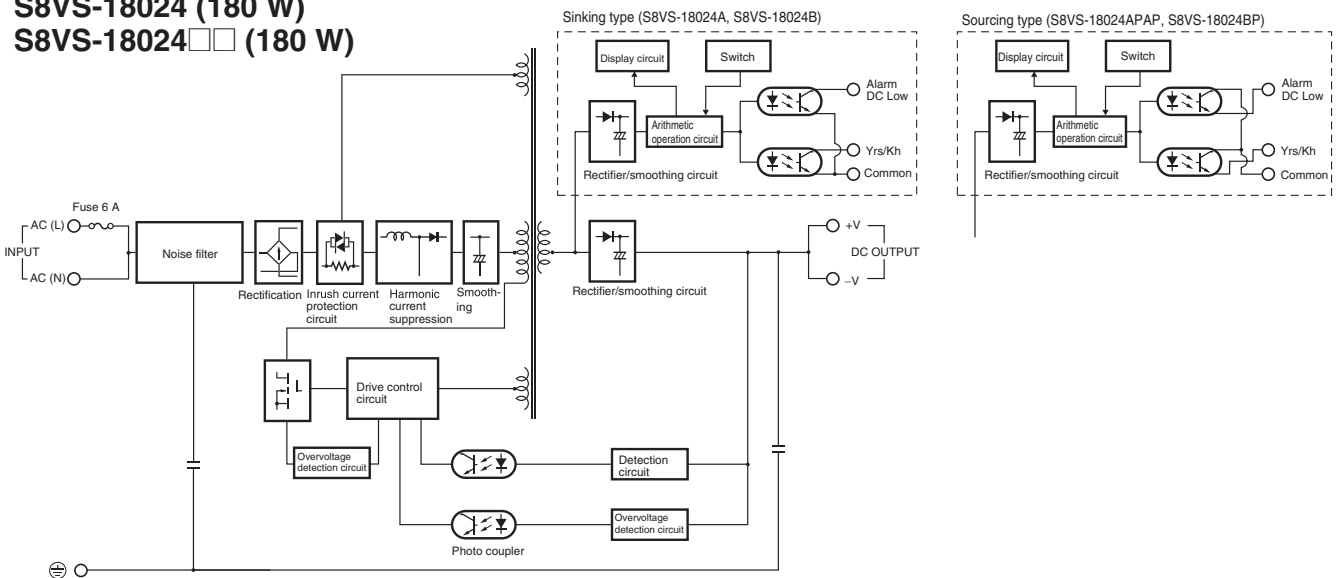
S8VS-09024 (90 W)
S8VS-09024□□ (90 W)



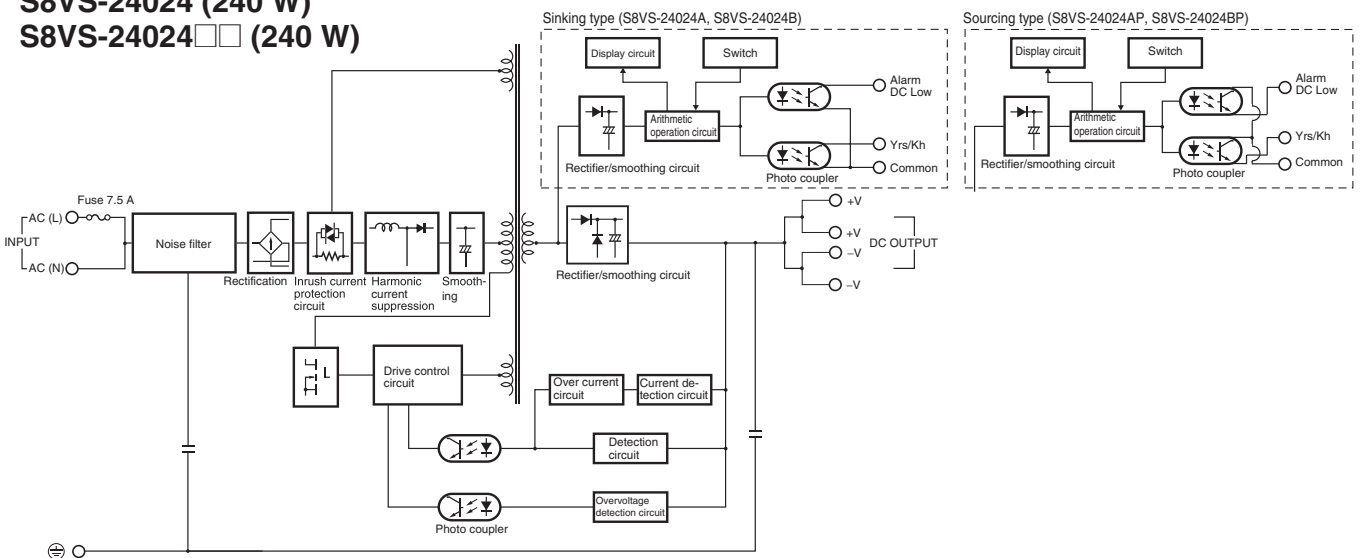
S8VS-12024 (120 W)
S8VS-12024□□ (120 W)



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



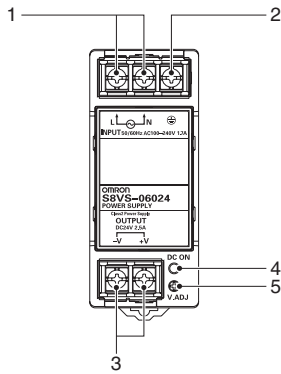
S8VS-24024 (240 W)
S8VS-24024□□ (240 W)



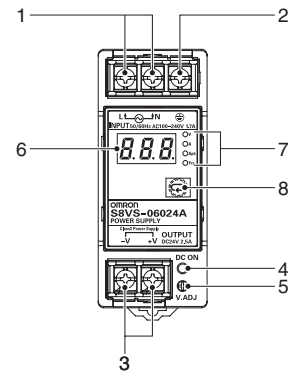
■ Installation

60-W Models

S8VS-06024



S8VS-06024□

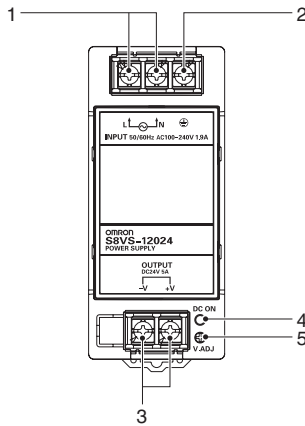


Note: The S8VS-06024A is shown above.

90-W/120-W Models

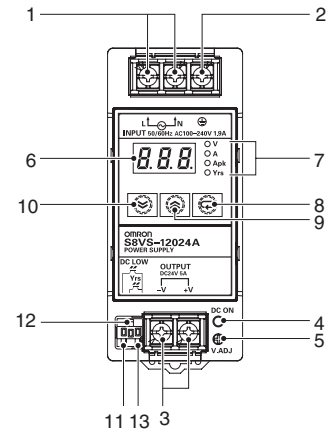
S8VS-09024

S8VS-12024



S8VS-09024□□

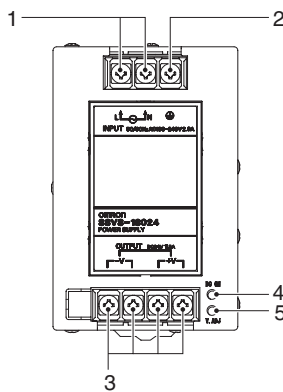
S8VS-12024□□



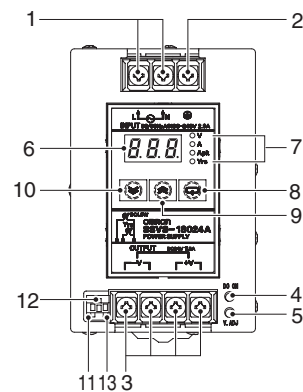
Note: The S8VS-12024A is shown above.

180-W Models

S8VS-18024



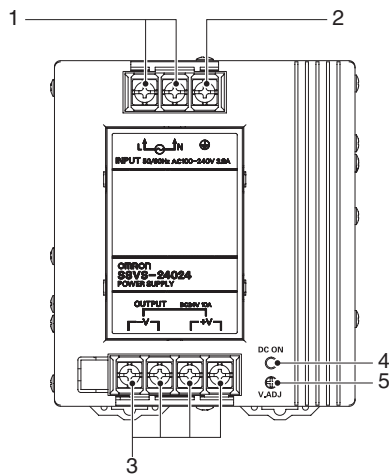
S8VS-18024□□



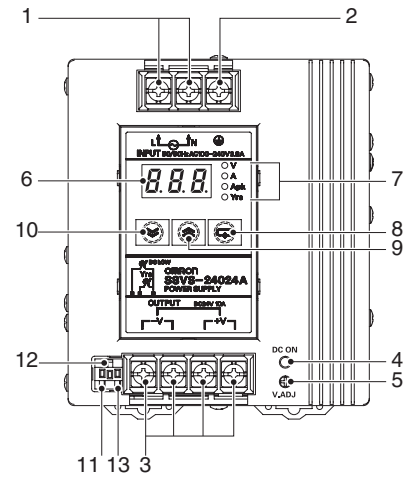
Note: The S8VS-18024A is shown above.

240-W Models

S8VS-24024



S8VS-24024□□



Note: The S8VS-24024A is shown above.

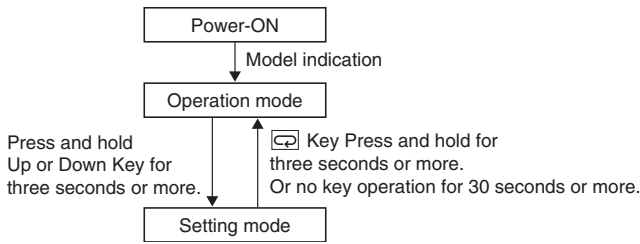
No.	Name	Function
1	AC Input terminals (L), (N)	Connect the input lines to these terminals. (See note 1.)
2	Ground terminals (GR)	Connect the ground line to this terminal.
3	DC Output terminals (-V), (+V)	Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)	Lights while a direct current (DC) output is ON.
5	Output voltage adjuster (V.ADJ)	Use to adjust the voltage.
6	Main display (See note 2.)	Indicates the measurement or set value.
7	Operation indicator (See note 2.)	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-0□024A)
Kh Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS-0□024B)		

No.	Name	Function
8	Mode Key (See note 2.)	Use the Mode Key to change the indicated parameter or reset the peak hold current value.
9	Up Key (See note 3.)	Use the Up Key to change to the setting mode or to increase the set value.
10	Down Key (See note 3.)	Use the Down Key to change to the setting mode or to decrease the set value.
11	Alarm output terminal (DC LOW) (See note 3.)	Outputs when a drop in the output voltage is detected. (at voltage drop: transistor OFF)
12	Maintenance forecast monitor terminal (Yrs) (S8VS-□□□24A/-□□□24AP)	Outputs when the maintenance forecast has reached the set value. (transistor OFF)
	Total run time monitor output terminal (Kh) (S8VS-□□□24B/-□□□24BP) (See note 3.)	
13	Common terminal for alarm output (See note 3.)	Terminal (emitter) shared for alarm outputs (11) and (12).

- Note: 1. The fuse is located on the (L) side.
 2. S8VS-□□□24□□ only.
 3. S8VS-□□□24□□ only (excluding S8VS-06024□).
 4. Both sinking and sourcing outputs are available.

Engineering Data (S8VS-□□□24□□ Only)

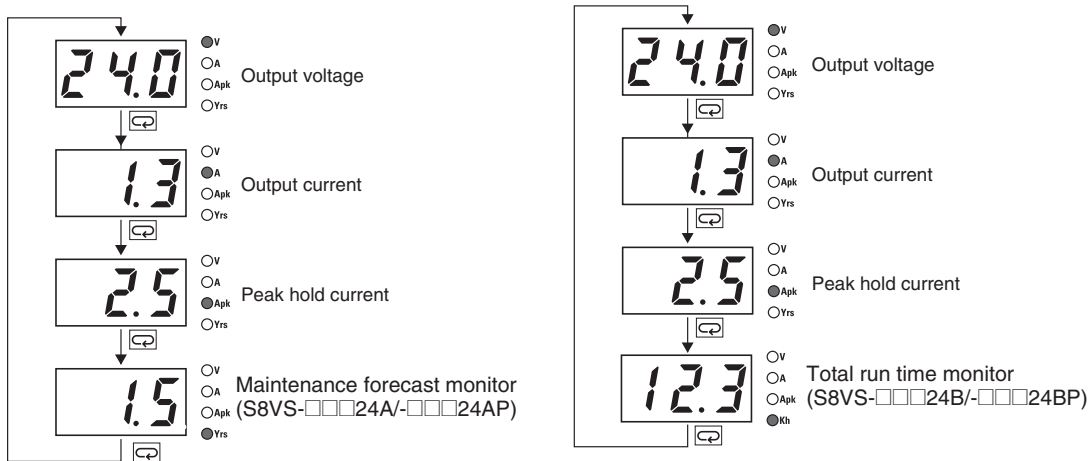
Mode Change



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

Operation Mode

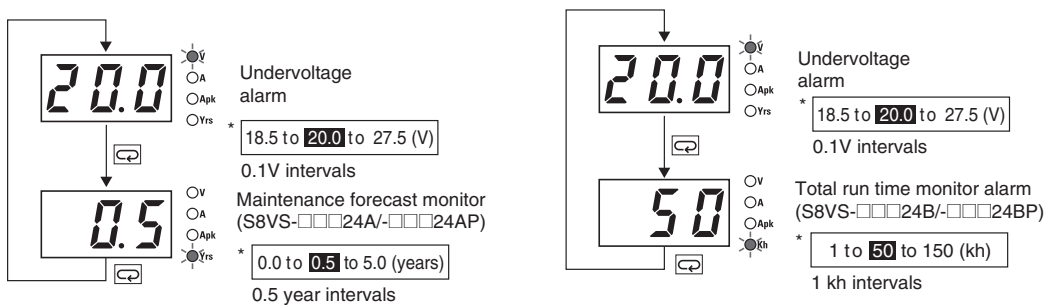
Various states of the power supply unit are indicated.



Note: The output voltage will be displayed when the power supply is first turned ON after it is received from the factory. Thereafter, the output voltage will be indicated in the same display when shutting down.

Setting Mode (Except for S8VS-06024□)

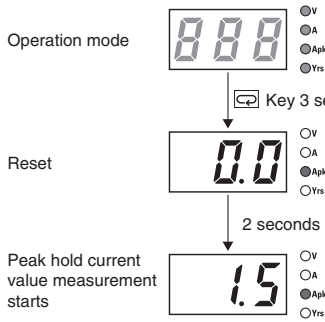
Set various parameters of the power supply unit.



* The reverse video indicates the shipment setting.

- 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

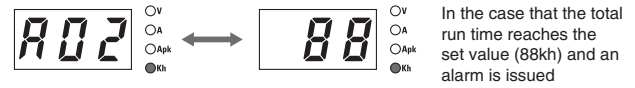


Note: The peak hold current value is not reset in the setting mode.

■ Total Run Time Monitor Indication and Alarm Output (S8VS-□□□24B/-□□□24BP)

The cumulative running hours of the power supply unit are monitored as total run time. When the total run time reaches the predetermined alarm set value, an alarm (A02) and the total run time monitor are indicated alternately with an output issued from the transistor ((12) Kh) to an external device. (The output is turned OFF when the total run time reaches the alarm set value; with no continuity across (12) and (13).)

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



Note: 1. The total run time cannot be reset. To reset the alarm, increase the alarm set value beyond the value indicated as total run time.

Ex.) If a customer decided to change the load at 5,000 hours, when they turn ON the unit again, the timing will start at 5,000 hours and on.

2. The alarm function (setting, indication, and output) is not provided for S8VS-06024B.

■ Self-Diagnostics Function

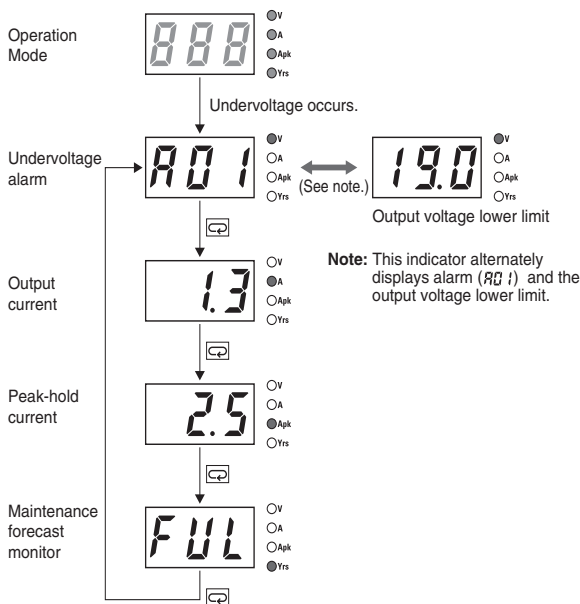
(6) Main display	Description	Output state	Restoration method	Setting after restoration
- - -	Noise detected in voltage or current	No change	Automatic restoration	No change
Hot	Overheated	(12) OFF	Automatic restoration	No change
E01	Undervoltage alarm set value memory error	(11) OFF	Press and hold the (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) OFF		
E03	Other memory error	(11) (12) 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.

- Operation out of the derating curve area, ventilation error, and incorrect mounting direction are probable as a cause of “Hot” error.
- If the “Hot” error state continues for about three hours, the maintenance forecast monitor function (S8VS-□□□24A, S8VS-□□□24AP) becomes invalid. The indication for maintenance forecast monitor remains as “Hot” even after the overheat condition is removed, and the Yrs output (12) remains OFF (with no continuity across (12) and (13)).
Replace the power supply if this condition occurs even if the output is correct, as internal parts may be deteriorated.
- The “Hot” error detection function is only for the S8VS-□□□24A/-□□□24AP.

■ Undervoltage Alarm Indication

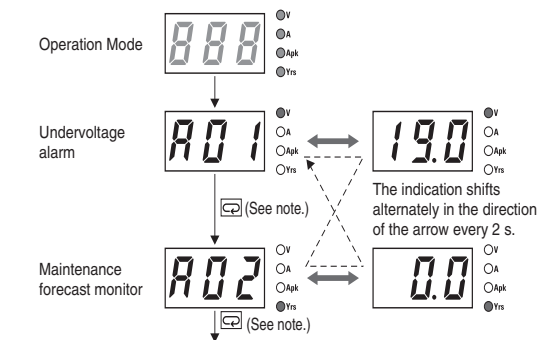
This indicator lights when the output voltage is insufficient.



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

■ Multiple Alarms

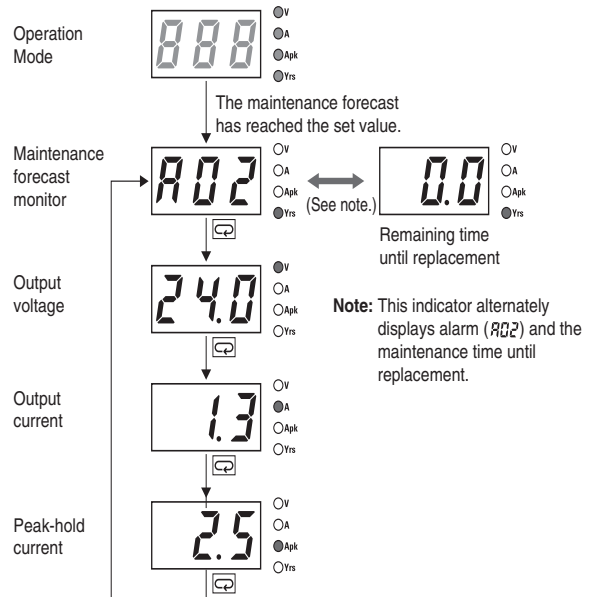
When two or more different alarms occur at the same time



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

■ Maintenance Forecast

Displays when the maintenance forecast has reached the set value.



■ Indication and Output

When the product is purchased, "FUL" will be indicated. As electrolytic capacitors deteriorate, indication changes to "HLF". (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 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/09024AP, S8VS-12024A/12024AP, S8VS-18024A/18024AP, S8VS-24024A/24024AP:

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.

While the alarm (A02) and value are indicated alternately, an output is given to an external device from a transistor ((12) Yrs) to notify of the replacement timing. (The output is turned OFF after the replacement timing is reached; with no continuity across (12) and the alarm common output terminal.)



Note: 1. The remaining time to maintenance is based on continuous operation, not including the time when the power supply is turned OFF, and so may take longer to reach than the actual time indicated.

2. Until the power supply has been turned for about one month in total, indication is fixed at "FUL" to estimate the extent of deterioration, while the output remains turned ON (with continuity across (12) and (13)).

Maintenance Forecast Monitor Function

The power supply unit 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.

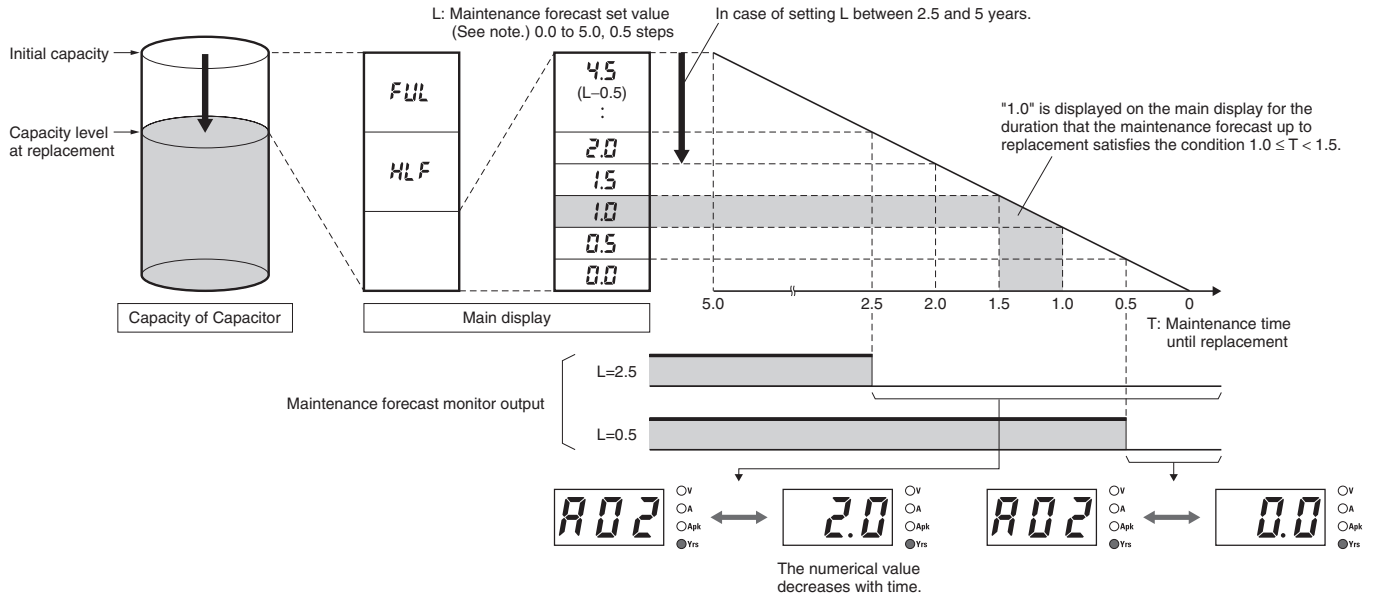
Due to this deterioration of the characteristics of the electrolytic capacitor, the power supply unit decreases its performance as time passes.

The maintenance forecast monitor function shows an approximate period left for maintenance of the power supply unit 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 unit.

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-□□□24A/□□□24AP Models (except the S8VS-06024A).

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/□□□24AP 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 at least once every 15 years 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/09024AP, S8VS-12024A/12024AP, S8VS-18024A/18024AP, and S8VS-24024A/24024AP 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.

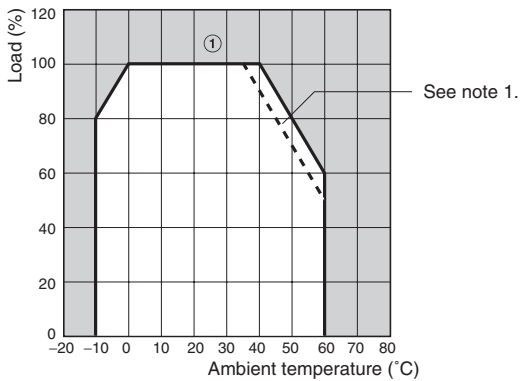
Reference Value

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	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.

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.

Engineering Data

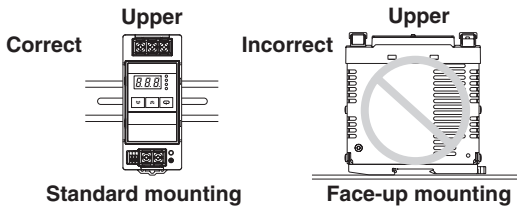
Derating Curve



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),

Installation

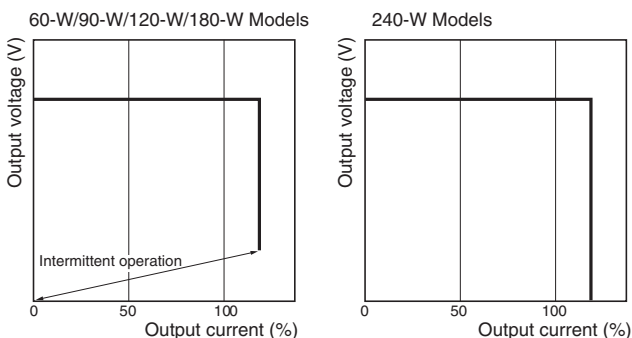


Note: 1. Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. It may also result in failure of the maintenance forecast monitor function. Use the standard mounting method only.

2. 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, 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.



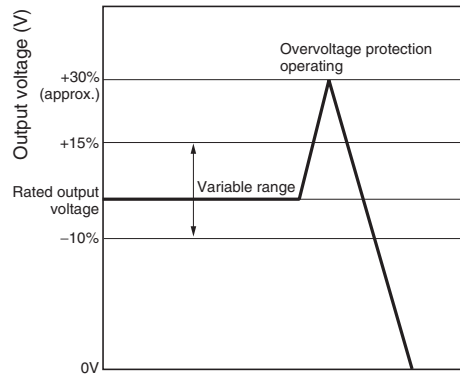
The values shown in the above diagrams are for reference only.

Note: 1. Internal parts may occasionally deteriorate or be damaged if a short-circuited or overcurrent state continues during operation. Do not allow operation to continue for more than 20 seconds under these conditions.

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

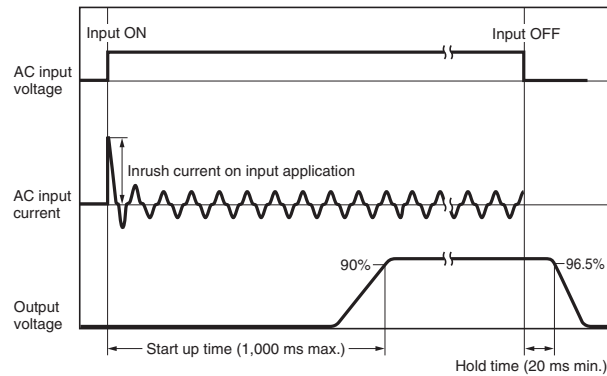
The Power Supply is provided with an overvoltage protection function that protects the load and the Power Supply from possible damage by overvoltage. When an excessive voltage that is approximately 130% of the rated voltage or more is output, the output voltage is shut OFF. Reset the Power Supply by turning it OFF for at least three minutes and then turning it back ON again.



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

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

Inrush Current, Start Up Time, Hold Time



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

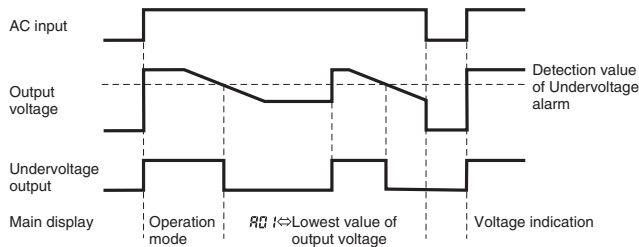
When output voltage drop is detected, an alarm (AL) and lowest output voltage value are indicated alternately. The preset value of detection voltage can be changed in the setting mode.
(From 18.5 to 27.5 V (18.5 to 26.3 V for the S8VS-24024□□), in 0.1-V steps. The value is fixed at 20 V for the S8VS-06024□.)

Further, an output ((11) DC LOW) to an external device is given from the transistor to notify of the error (excluding S8VS-06024□).

Example: Output Voltage Dropping to Below the Preset Value for the S8VS-09024□□, Resulting in an Alarm



- 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 unit. To check the voltage accurately, measure the voltage at the load end.
 5. The undervoltage alarm function may also operate when an interruption in AC input is not restored within 20 ms.

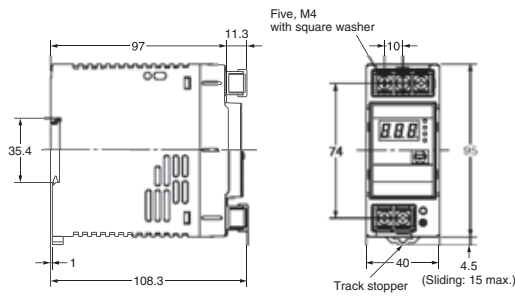
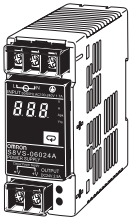


Note: Operation begins after about three seconds since the AC power is supplied.

Dimensions

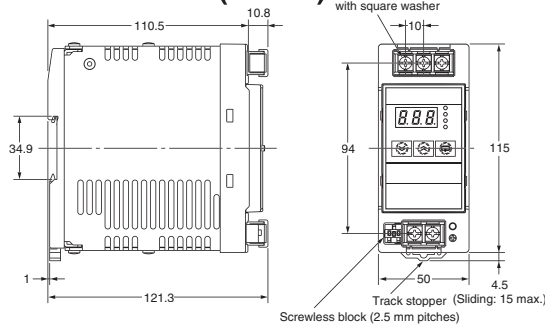
Note: All units are in millimeters unless otherwise indicated.

S8VS-06024 (60 W) S8VS-06024□ (60 W)



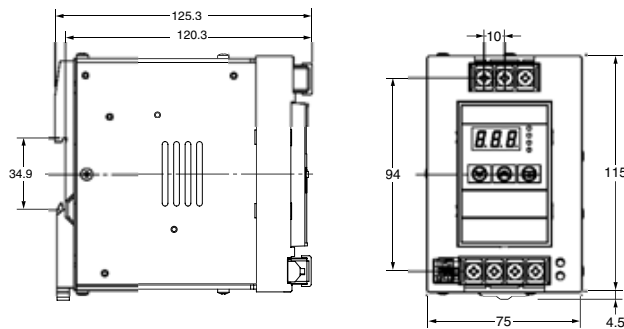
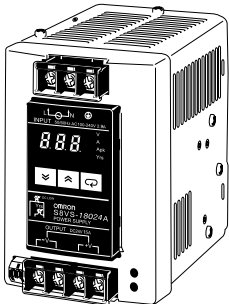
Note: The illustration is the S8VS-06024A Model.

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



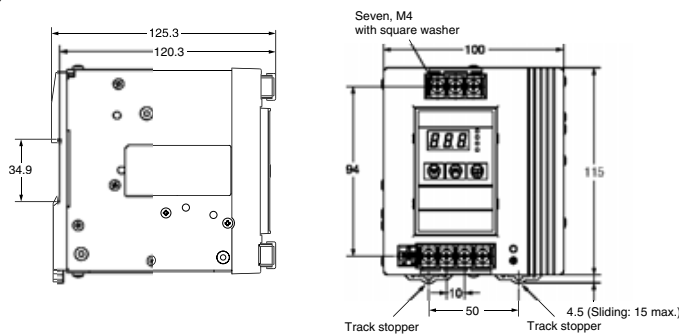
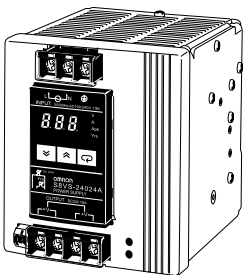
Note: The illustration is the S8VS-12024A Model.

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



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

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



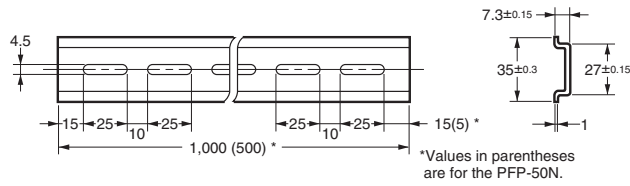
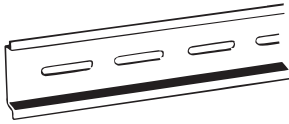
Note: The illustration is the S8VS-24024A Model.

■ DIN Track (Order Separately)

Note: All units are in millimeters unless otherwise indicated.

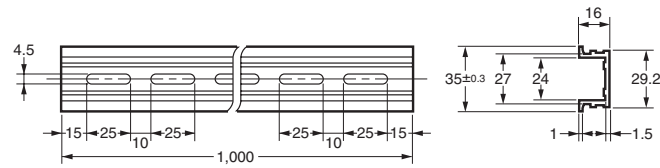
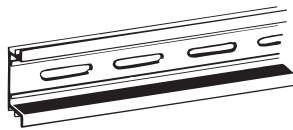
Mounting Track (Material: Aluminum)

PFP-100N
PFP-50N



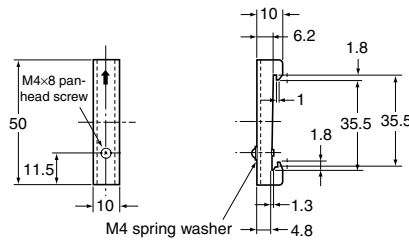
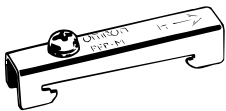
Mounting Track (Material: Aluminum)

PFP-100N2



End Plate

PFP-M



■ Mounting Brackets

Type	Side-mounting Bracket (For 60-, 90-, 120-W types)	Side-mounting Bracket (For 180-W type)	Side-mounting Bracket (For 240-W type)	Front-mounting Bracket
Model	S82Y-VS10S	S82Y-VS15S	S82Y-VS20S	S82Y-VS10F
Dimensions	<p>Dimensions: 35, 64, 80, 55±0.1, 13, 4.5 dia.±0.1, t = 2.0</p>	<p>Dimensions: 47.5, 89, 80, 55±0.1, 78, 4.5 dia.±0.1, 60±0.1, t = 2.0</p>	<p>Dimensions: 60, 114, 80, 55±0.1, 78, 4.5 dia.±0.1, 60±0.1, 13, t = 2.0</p>	<p>Dimensions: 41, 41, 35, 25, 7.3, 10, 4.5 dia.±0.1, 35±0.1, 40, 50</p>
Appearance	<p>Left-side mounting Right-side mounting</p>	<p>Left-side mounting</p> <p>*Right-side mounting also possible.</p>	<p>Left-side mounting</p> <p>*Right-side mounting also possible.</p>	<p>(For 60-, 90-, 120-, 180-W types) (For 240-W type)</p> <p>*Use two S82Y-VS10F brackets for the 240-W type.</p>

Safety Precautions

CAUTION

Minor electric shock may occasionally occur. Do not disassemble the product or touch internal parts.



Minor burns may occasionally occur. Do not touch the product during power-ON and immediately after power-OFF.



A minor fire may occasionally occur. Tighten the terminal screws to a torque of 1.08 N·m so that they do not become loose.



Minor electric shock may occasionally occur during operation. Install the terminal cover.



The product may occasionally be damaged. Do not allow metal cuttings to enter the product during mounting work.



Precautions for Safe Use

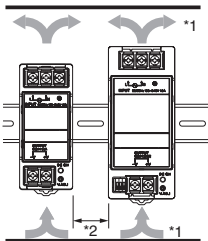
Mounting

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.

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 remaining service life notice function. Use the standard mounting method only.

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.

Wiring

Minor electric shock may possibly occur. Ground the product (GR) 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.

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

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.

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 90% or less.

Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading ① in the graph on page 90), 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/-□□□24AP Models Only

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

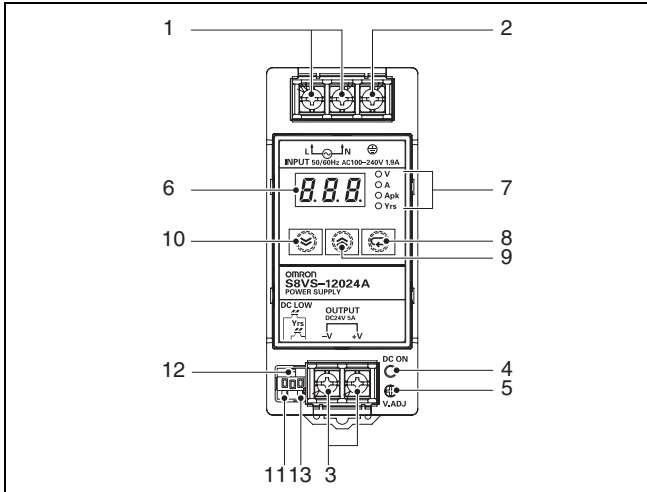
- When storing for more than three months, store within an ambient temperature range of -25 to +30°C and the humidity range of 25% to 70%.

**Periodic Check (S8VS-□□□24A/
-□□□24B/-□□□24AP/-□□□24BP,
Except for S8VS-06024A/-06024B)**

It may take from several years to several tens of years under general operating conditions for the power supply to output the maintenance forecast monitor alarm (S8VS-□□□24A/-□□□24AP). The total run time monitor (S8VS-□□□24B/-□□□24BP) 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 across (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 "R02."
An inactive output ((12)Yrs/kh) (no continuity across (12) and (13)) in the "R02" 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. Do not allow operation to continue for more than 20 seconds under these conditions.

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□□)**

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

Transistor output: Sinking (NPN) for S8VS-□□□24A Models
Sourcing (PNP) for S8VS-□□□24AP Models

30 VDC max., 50 mA max.

ON residual 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 through 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

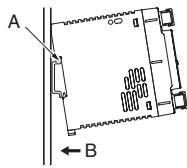
The output voltage adjuster (V.ADJ) may possibly be damaged if it is turned with unnecessary force. Do not turn the adjuster with excessive force.

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

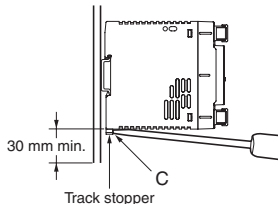
After changing the setting of the adjuster, make sure that the output capacity and output current do not exceed the rated output capacity and rated output current.

DIN Track Mounting

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



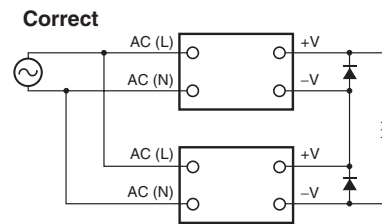
To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.



Series Operation

Two power supplies can be connected in series.

The (\pm) 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.

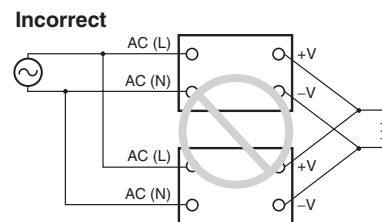
Select a diode having the following ratings.

Type	Schottky Barrier diode
Dielectric strength (VRRM)	Twice the rated output voltage or above
Forward current (IF)	Twice the rated output current or above

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

Parallel Operation

The product is not designed for parallel operation.



In Case There Is No Output Voltage

The possible cause for no output voltage may be the presence of an overload or overvoltage condition, or may be due to the functioning of a latching protective device. The latching protection may operate if a large amount of surge voltage such as a lightning surge occurs while turning ON the power supply.

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

- Check the Overload Protected Status:
Check whether the load is in overload status or is short-circuited. Remove wires to load when checking.
- Attempt to clear the overvoltage or latching 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.

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. T026-E1-03

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

Switch Mode Power Supply S8PS

The Most Compact DIN-track-mounting Switch mode Power Supplies Ever with Capacities Up to 600 W

- Power range from 50 W up to 600 W.
- Open-frame and covered types available.
- Easily mounted to DIN track with provided Mounting Brackets.
- Models with Front-mounting Bracket available.
- Conforms to EMC standards: EN50081-1, EN50082-2, and EN61000-3-2.
- Maintenance-free up to 300 W due to natural ventilation.
- Protection-ON alarm indicator shows valuable protection functions in action (300-/600-W models).
- AC universal input: 100 to 240 VAC
- Approved by UL/CSA standards, EN60950 (IEC950), and VDE0160.
- Six-language instruction manual provided.
- Life expectancy of 10 years min.
- Finger protection terminal block meets VDE0106/P100. (Covered type)



Model Number Structure

Model Number Legend

S8PS-□□□□□□□□
1 2 3

1. Power Ratings

- 050: 50 W
- 100: 100 W
- 150: 150 W
- 300: 300 W
- 600: 600 W

2. Output Voltage

- 05: 5 V
- 12: 12 V
- 24: 24 V

3. Configuration

- C: Covered type with Front-mounting Bracket
- D: Open-frame type with DIN Track Mounting Bracket
- CD: Covered type with DIN Track Mounting Bracket
- None: Open-frame type with Front-mounting Bracket

Ordering Information

List of Models

Configuration	Input voltage	Power ratings	Output voltage	Output current	Front-mounting Bracket	DIN Track Mounting Bracket	
Covered type	100 to 240 VAC	50 W	5 V	10 A	S8PS-05005C	S8PS-05005CD	
			12 V	4.2 A	S8PS-05012C	S8PS-05012CD	
			24 V	2.1 A	S8PS-05024C	S8PS-05024CD	
		100 W	24 V	4.5 A	S8PS-10024C	S8PS-10024CD	
			150 W	24 V	6.5 A	S8PS-15024C	S8PS-15024CD
				300 W	24 V	14 A	S8PS-30024C
600 W	24 V	27 A	S8PS-60024C	---			
Open-frame type	100 to 240 VAC	50 W	5 V	10 A	S8PS-05005	S8PS-05005D	
			12 V	4.2 A	S8PS-05012	S8PS-05012D	
			24 V	2.1 A	S8PS-05024	S8PS-05024D	
		100 W	24 V	4.5 A	S8PS-10024	S8PS-10024D	
		150 W	24 V	6.5 A	S8PS-15024	S8PS-15024D	

Specifications

■ Ratings/Characteristics

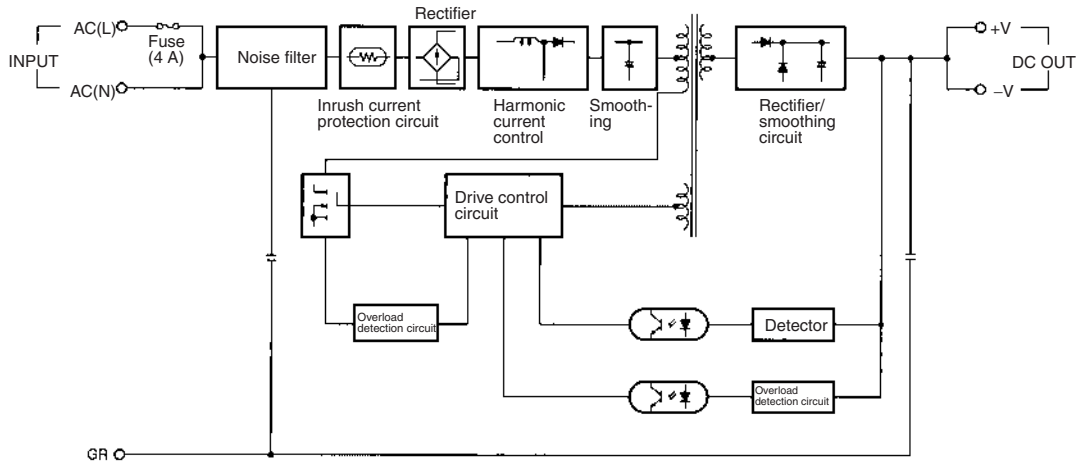
Item		50 W	100 W	150 W	300 W	600 W
Efficiency (typical)		75 to 87% (depends on the model)				
Input	Voltage	100 to 240 VAC (85 to 264 VAC)				
	Frequency	47 to 450 Hz				
	Current (see note 1)	0.9 or 0.45 A max.	1.8 or 0.9 A max.	2.7 or 1.4 A max.	5.4 or 2.7 A max.	10 or 5 A max.
	Power factor (see note 1)	0.95 TYP.				
	Leakage current (see note 1)	0.5 or 1.0 mA max.				
	Inrush current (25°C, cold start) (see note 1)	25 or 50 A max.				
Output	Voltage adjustment range	-5% to 10%				
	Ripple (see note 1)	2% (p-p) max.				
	Input variation influence	0.4% max. (at 85 to 132 VAC input/at 170 to 264 VAC input, 100% load)				
	Load variation influence	0.8% max. (with rated input, 0 to 100% load)				
	Temperature variation influence (see note 1)	0.05%/°C max.				
	Rise time	1,000 ms max. (up to 90% of output voltage at rated output voltage/current)				
	Hold time (see note 1)	20 ms min.				
Additional function	Overload protection	105% min., voltage trailing intermittent operation (With the 600-W model, output is turned OFF at 5 s min.)				
	Overvoltage protection	Yes				Yes
	Overheat protection	No				Yes
	Protection-ON alarm indicator	No				Yes (Red)
Other	Parallel operation	No				Yes, 2 units max.
	Heat radiation	Natural air-cooling				Fan
	Ambient temperature	Operating: See the derating curve in the <i>Engineering Data</i> section. (with no condensation nor icing) Storage: -25°C to 65°C (with no condensation nor icing)				
	Ambient humidity	25% to 85%				
	Dielectric strength	3.0 kVAC, 50/60 Hz for 1 min (between all inputs and outputs) 2.2 kVAC, 50/60 Hz for 1 min (between all inputs and GR terminals) 1 kVAC, 50/60 Hz for 1 min (between all outputs and GR terminals)				
	Insulation resistance	100 MΩ min. (between all output and input/GR terminals at 500 VDC)				
	Vibration resistance	10 to 55 Hz, 0.75-mm amplitude for 2 h each in X, Y, and Z directions				
	Shock resistance	300 m/s ² , 3 times each in ±X, ±Y, and ±Z directions				
	Output indicator	Yes (green)				
	Terminal screw tightening torque	1.08 N·m (see note 2)				
	Electromagnetic interference	Conforms to FCC Class B, EN50081-1				
	EMC	(EMI): EN50081-1 Emission Enclosure: EN55022 class B Emission AC Mains: EN55022 class B Harmonic Current: EN61000-3-2 (EMS): EN50082-2 Immunity ESD: EN61000-4-2: 4-kV contact discharge (level 2) 8-kV air discharge (level 3) Immunity RF-interference: ENV50140: 10 V/m (80 MHz to 1 GHz) (level 3) Immunity Conducted Disturbance: ENV50141: 10 V (0.15 to 80 MHz) (level 3) Immunity Burst: EN61000-4-4: 2-kV power-line (level 3) 2-kV output line (level 4) Immunity Surge: EN61000-4-5: between 3-kV lines between 4.5-kV line and FG				
	Approved standards	UL508, UL1012, CSA C22.2 No. 950, CSA C22.2 No. 14, EN60950, VDE0160. Conforms to UL1950 and CSA E.B. 1402C				
	Reliability (MTBF) (see note 3)	135,000 hrs min.				60,000 hrs min.
	Life expectancy (see note 4)	10 yrs. min. (Used at 40°C at the rated input with a 50% load, standard installation)				
	Weight (see note 5)	420 g max.	600 g max.	900 g max.	2,200 g max.	3,500 g max.
	Mounting method	Front-mounting Bracket or DIN Track Mounting Bracket				Front-mounting Bracket

- Note:**
- 100% load for rated input voltage (100 VAC or 200 VAC)
 - Do not press down on the terminal block with a force exceeding 75 N while tightening the terminals.
 - 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.
 - The life expectancy shown in the above table 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. It must be noted that the life expectancy of the fan built into the 600-W model is not included.
 - The weight indicated is for the open-frame type. (Includes the cover for 300-W and 600-W models.)

Connections

Block Diagrams

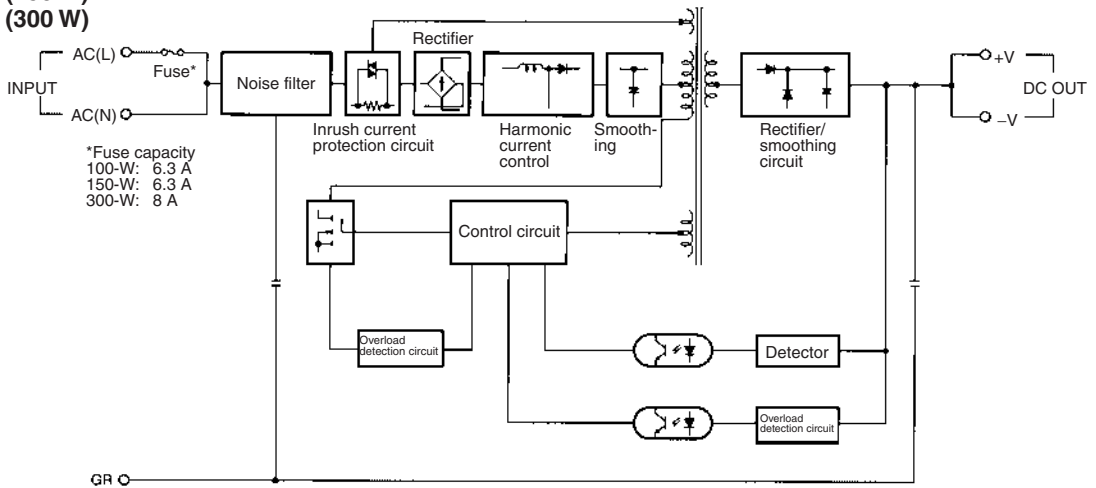
S8PS-050 (50 W)



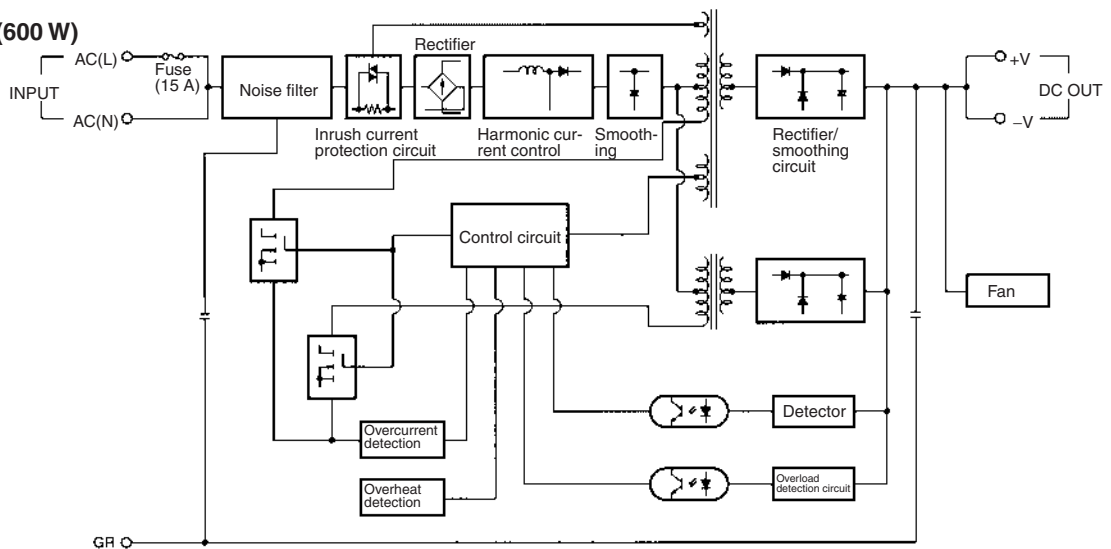
S8PS-10024 (100 W)

S8PS-15024 (150 W)

S8PS-30024 (300 W)



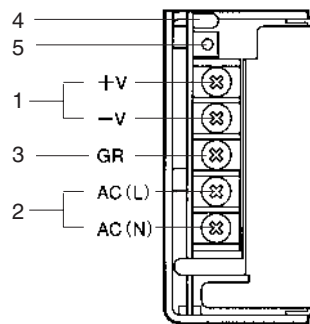
S8PS-60024C (600 W)



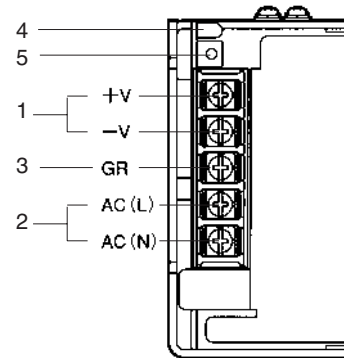
Power Supplies

■ Installation

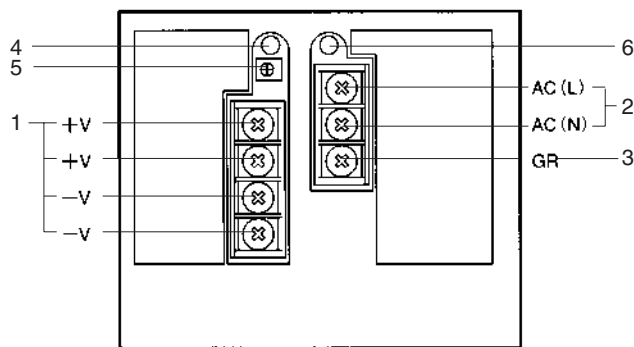
50-W Models



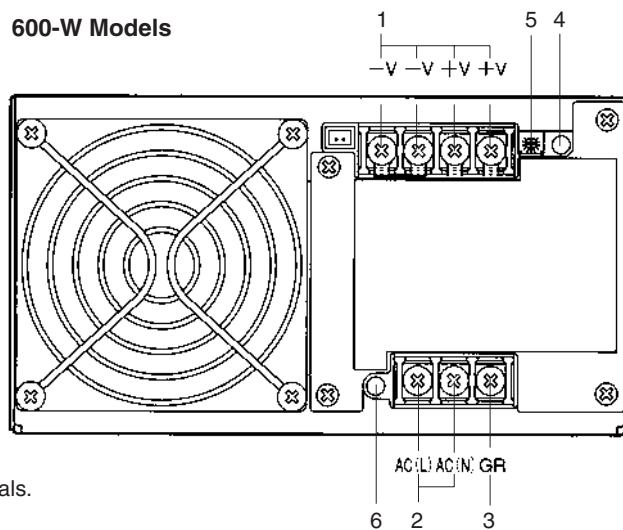
100-/150-W Models



300-W Models



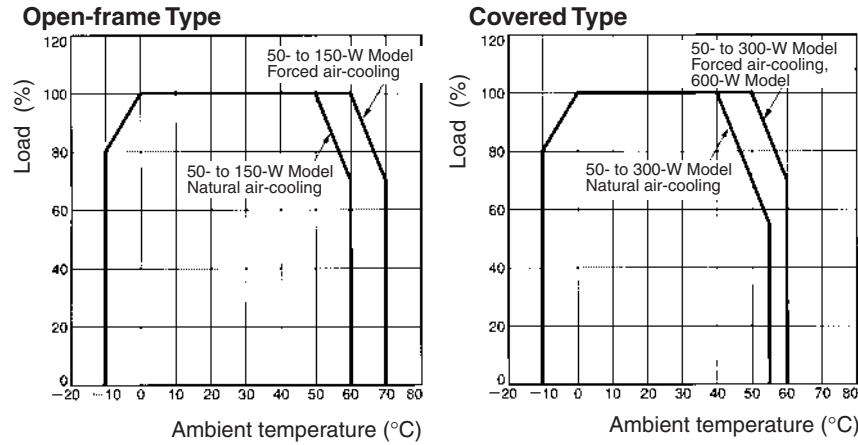
600-W Models



1. **DC Output Terminals:** Connect the load lines to these terminals.
2. **Input Terminals:** Connect the input lines to these terminals.
Note: A fuse is inserted into the AC (L) side.
3. **Ground Terminal (GR):** Connect a ground line to this terminal.
4. **Output Indicator (DC ON):** Lights while a Direct Current (DC) output is ON.
5. **Output Voltage Adjuster (V.ADJ):** It is possible to increase or decrease the output voltage by 10%.
6. **Protection-ON Alarm Indicator:** The red indicator will be lit if the overvoltage (for a 300-/600-W model) or overheat protection (for a 600-W model) circuit is triggered. This indicator will also be lit when overcurrent (for a 600-W model) is detected.

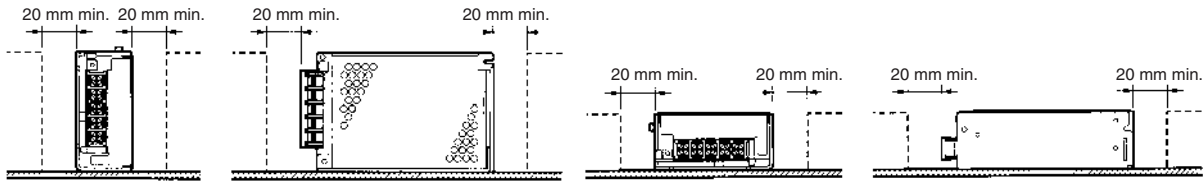
Engineering Data

Derating Curve

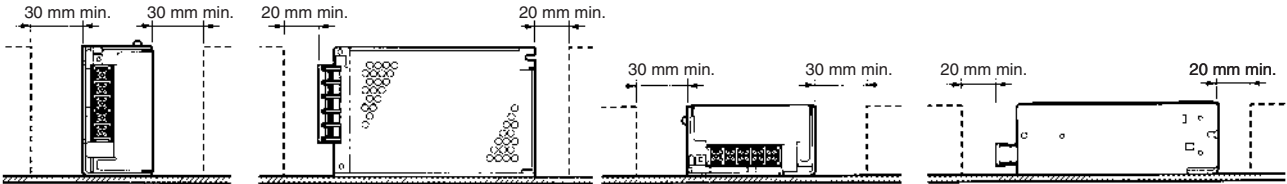


Note: 1. Forced air-cooling must be provided with an air volume of 1 m³/min.
 2. The derating curve shown is for standard installation. The derating curve depends on the mounting direction of the Power Supply.

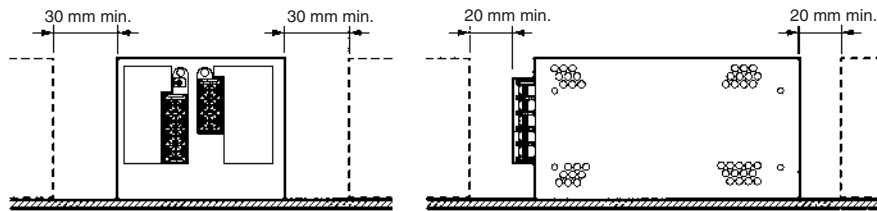
Standard Installation 50-W Model



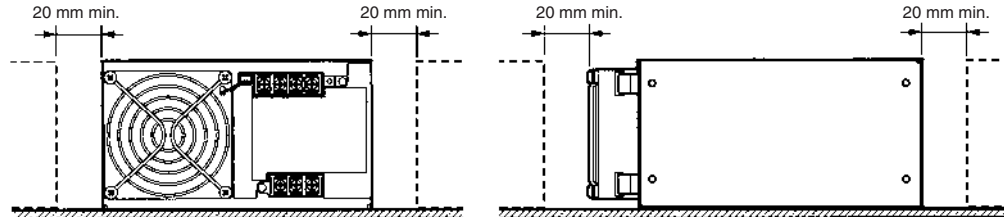
Standard Installation 100/150-W Model



Standard Installation 300-W Model



Standard Installation 600-W Model

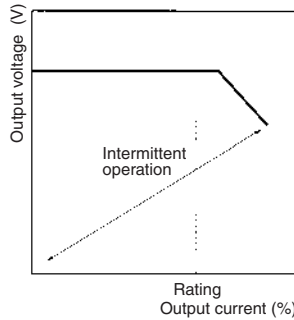


Power Supplies

■ Overload Protection

50- to 300-W Models

The Power Supply is provided with an overload protection function that protects the load and the power supply from possible damage by overcurrent. The protection function operates when the load current rises above an overcurrent set value (105% of the rated load current). For a short-circuit or overcurrent lasting less than 20 seconds, output voltage is decreased to protect equipment. When the output current falls within the rated range, the overload protection function is automatically cleared.



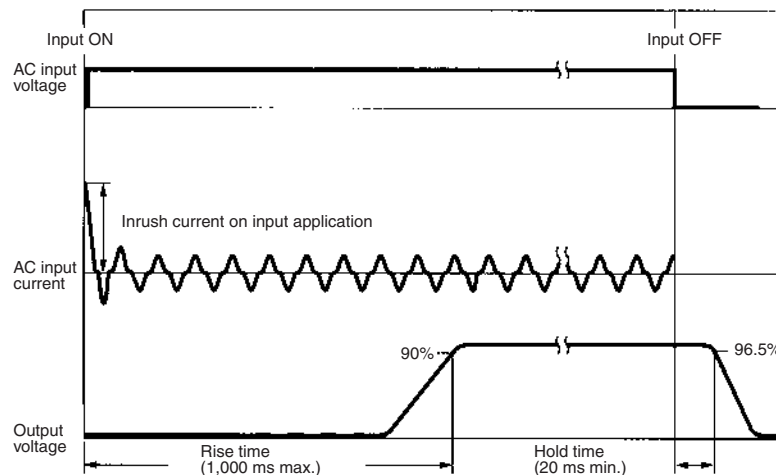
Note: Do not continue using the S8PS under short-circuited or overcurrent conditions for longer than 20 seconds, otherwise the internal elements of the S8PS may be damaged or broken.

600-W Models

If an excessive current flows for 5 s or more, the output will be turned OFF and simultaneously protection-ON alarm indicator will be lit. To reset the S8PS, turn OFF the input voltage, leave the S8PS for at least three minutes, and then apply the input voltage again.

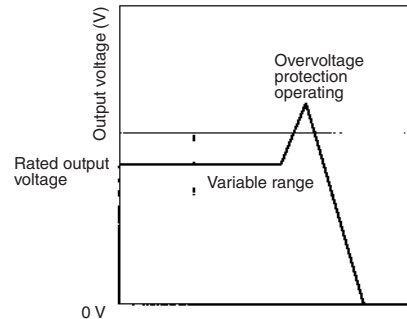
Note: Do not continue using the S8PS with the output terminals short-circuited or the overcurrent condition continued, otherwise the internal elements of the S8PS may be damaged or broken.

■ Inrush Current, Rise Time, Hold Time



■ 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 the output voltage rises above a set value (115% of the rated output voltage), the protection function is triggered, shutting OFF the output voltage. If this occurs, reset the Power Supply by turning it OFF for 1 minute min. and then turning it ON again.



300- and 600-W Models Only

The overvoltage protection-ON alarm indicator lights when the function is operating.

■ Overheat Protection Function

600-W Model Only

If the internal temperature of the S8PS rises excessively as a result of fan failure or any other reason, the overheat protection circuit will be triggered to protect the internal elements of the S8PS and simultaneously a protection-ON alarm indicator will be lit. To reset the S8PS turn OFF the input voltage, leave the S8PS for at least one minute and then apply the input voltage again.

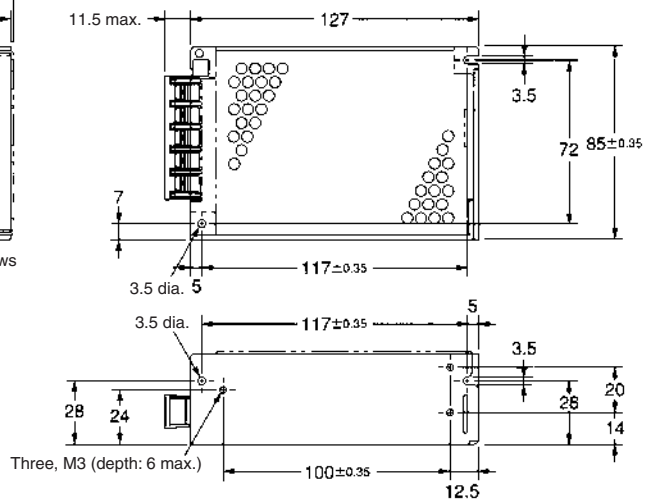
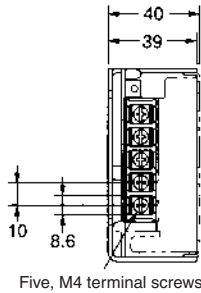
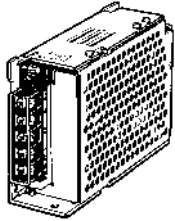
Dimensions

Note: All units are in millimeters unless otherwise indicated.

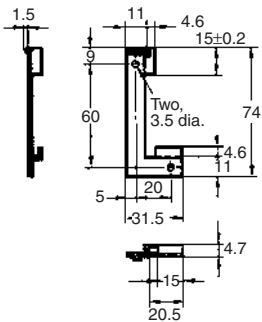
■ Front-mounting Bracket Type

The Front-mounting Bracket is provided as an accessory. Screws for fixing the Bracket to the panel are not provided.

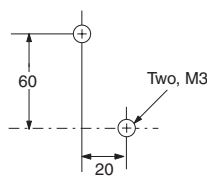
S8PS-050□□ (50 W)
S8PS-050□□C (50 W)



Front-mounting Bracket for 50-W Models

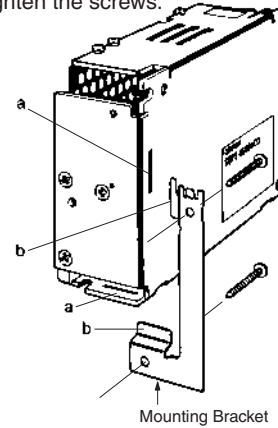


Mounting Holes

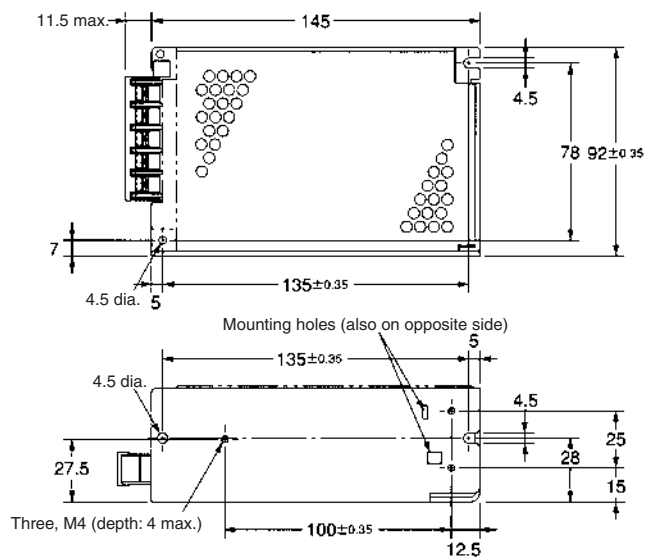
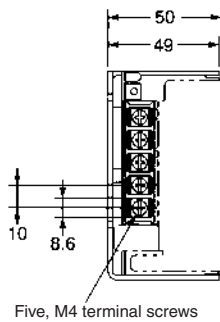
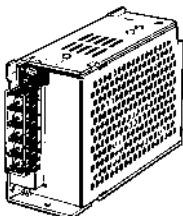


Using the Mounting Bracket

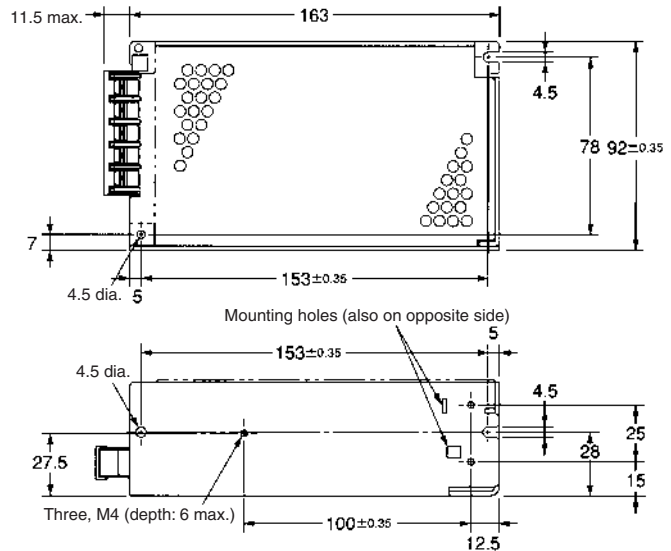
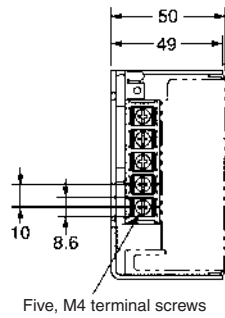
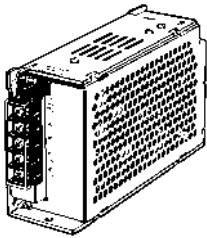
Attach the Mounting Bracket to the panel and loosely tighten the two screws. Insert the projected parts of the Bracket (b) to the square holes of the power supply (a). Then securely tighten the screws.



S8PS-10024 (100 W)
S8PS-10024C (100 W)

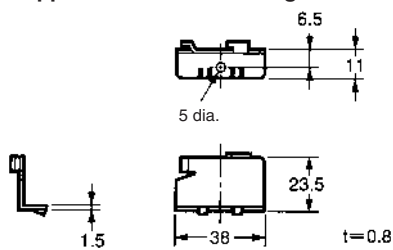


S8PS-15024 (150 W)
S8PS-15024C (150 W)

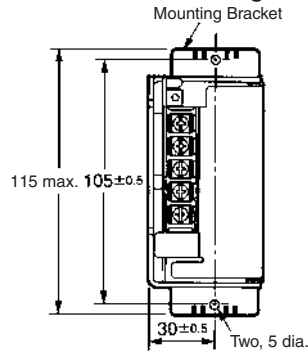


Front-mounting Bracket for 100/150-W Models

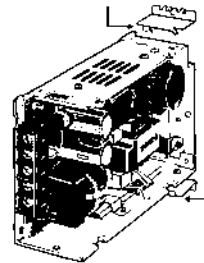
Appearance and Mounting Dimensions



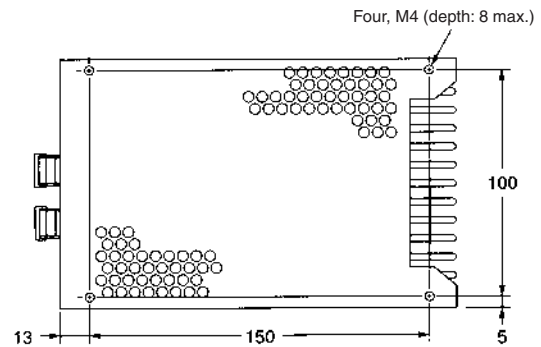
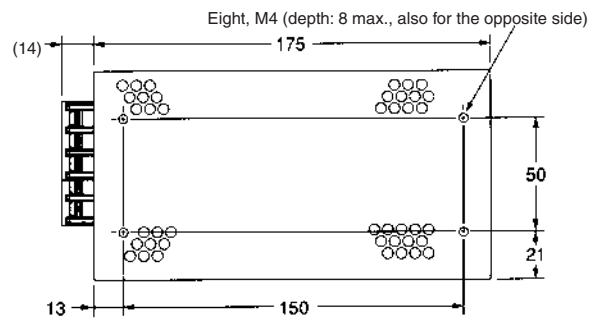
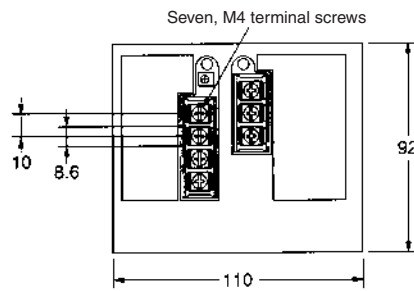
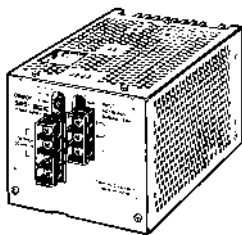
Dimensions with Mounting Bracket



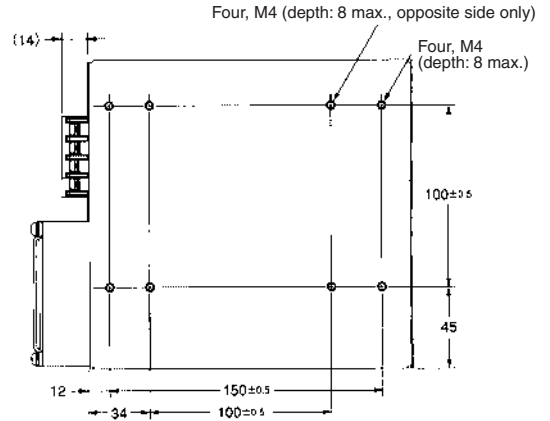
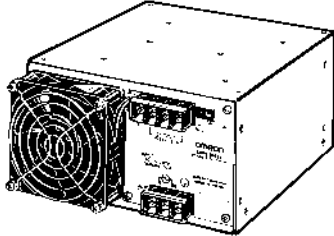
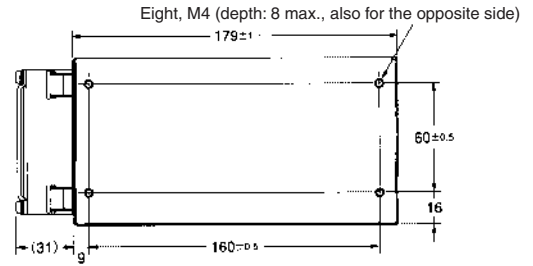
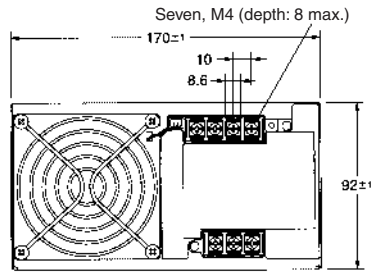
Using the Mounting Bracket



S8PS-30024C (300 W)

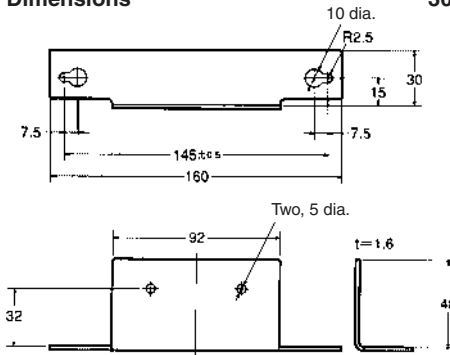


S8PS-60024C (600 W)

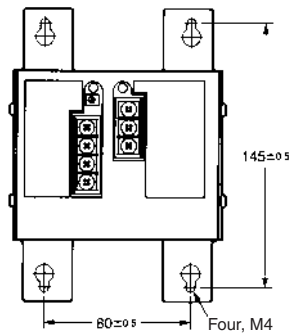


Front-mounting Bracket for 300/600-W Models

Appearance and Mounting Dimensions



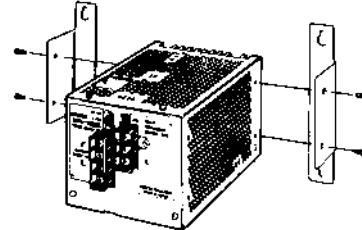
Dimensions with Mounting Bracket 300-W models



Using the Mounting Bracket

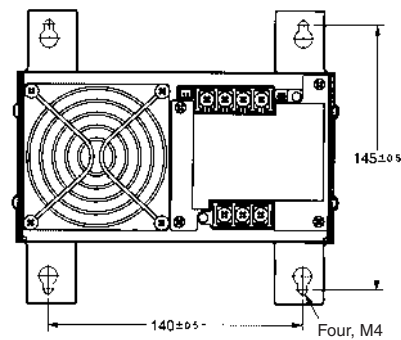
Note: Four screws for attaching the Bracket to the Power Supply Unit are provided.

300-W models

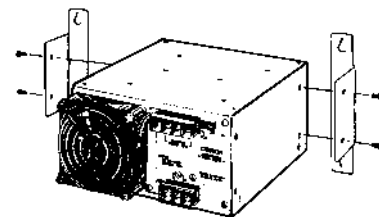


Note: Mount the Unit 21.6 mm away from the mounting surface in order to provide air ventilation on the rear side.

600-W models

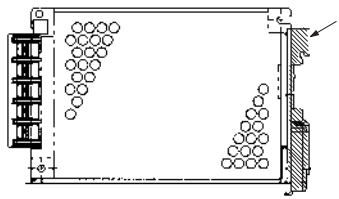


600-W models



Note: Mount the Unit 28 mm away from the mounting surface in order to provide air ventilation on the rear side.

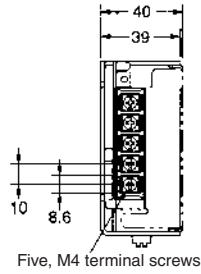
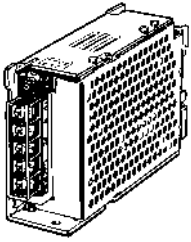
■ DIN Track Mounting Bracket Type



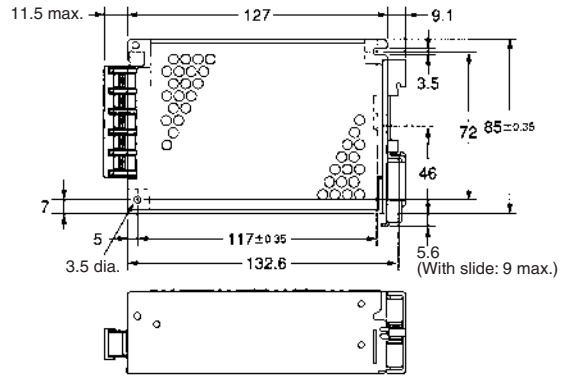
DIN Track Mounting Bracket

DIN Track Mounting Bracket is attached to the Power Supply Unit when the Unit is shipped.

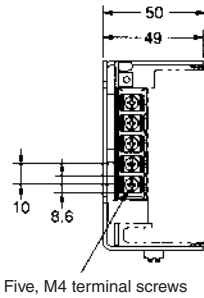
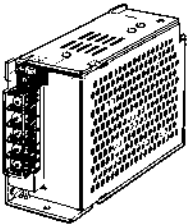
S8PS-050□□D (50 W)
S8PS-050□□□CD (50 W)



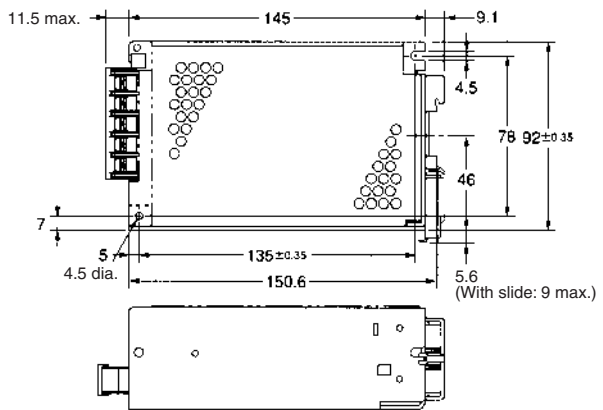
Five, M4 terminal screws



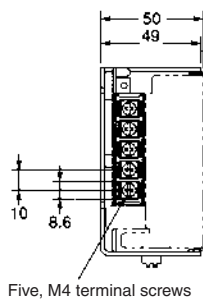
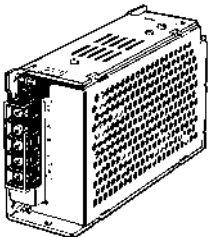
S8PS-10024D (100 W)
S8PS-10024CD (100 W)



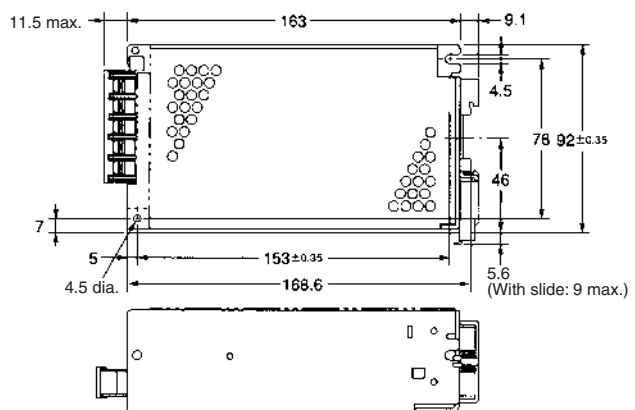
Five, M4 terminal screws



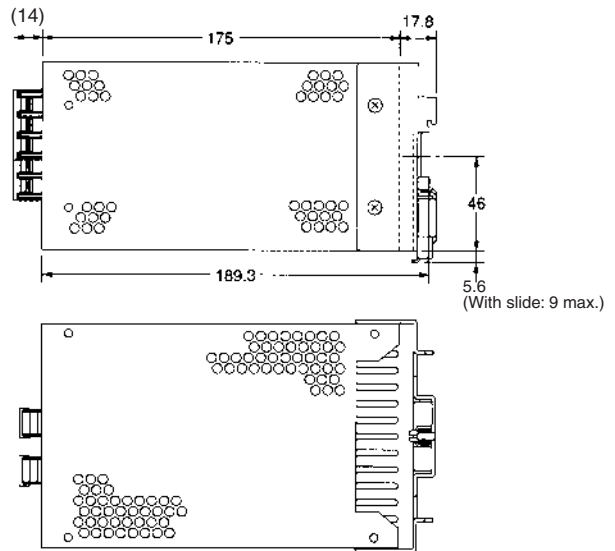
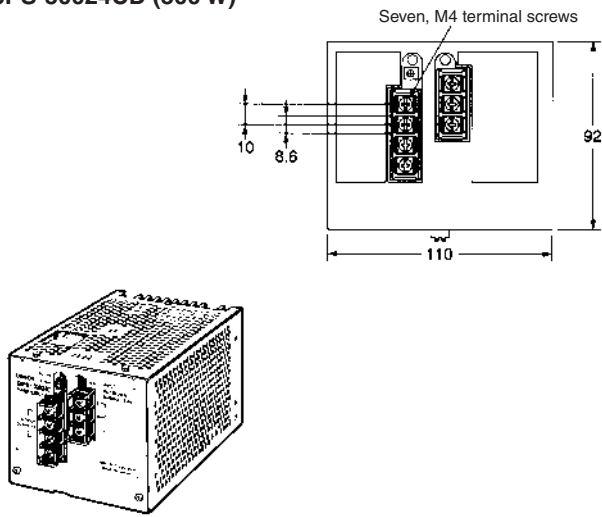
S8PS-15024D (150 W)
S8PS-15024CD (150 W)



Five, M4 terminal screws



S8PS-30024CD (300 W)

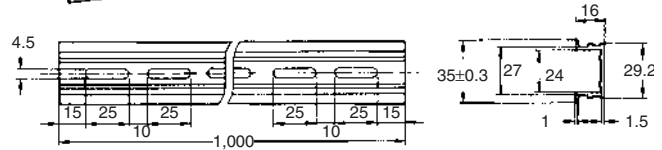
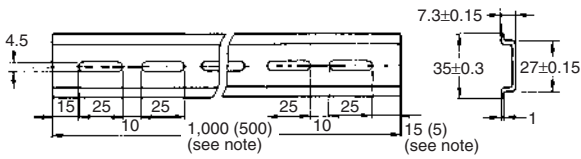
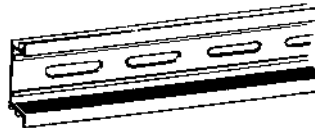


Accessories

Mounting Track (Order Separately)
PFP-100N/PFP-50N



PFP-100N2



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

Precautions

Caution

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

WARNING

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.

Do not touch the terminals of the Power Supply within one minute after power has been turned OFF. Doing so may result in electric shock due to a residual voltage.

Do not touch the S8PS or heat radiation fin while the power is being supplied or immediately after the power is turned OFF. Otherwise, a skin burn may result from the hot Switching Power Supply or radiator.

Mounting

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

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.

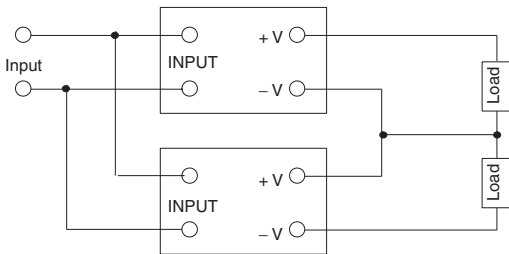
When mounting the Power Supply, mounting it to a metal plate is recommended.

Forced air-cooling is highly recommended.

It is recommended that the clearance around the Power Supply be larger than those shown on page 103 under *Standard Installation*.

Generating Output Voltage (±)

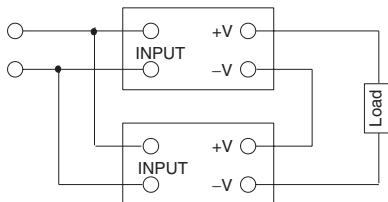
An output of ± can be generated by using two Power Supplies as shown below, because the Power Supply produces a floating output.



Series Operation

Only models with power ratings of 100/150 W allow series operation.

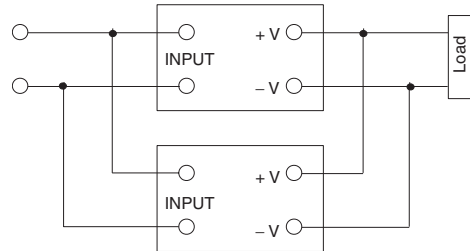
As shown in the following diagram, the output voltage from each Switching Power Supply can be added.



Parallel Operation

Only 300- and 600-W models can be in parallel operation provided that they are operated under 90% of the ratings. Do not operate any other models in parallel.

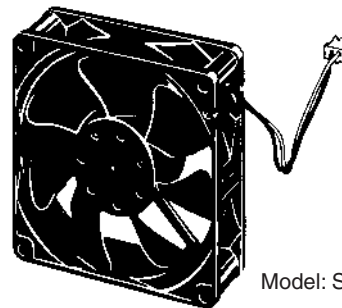
Make sure that the thickness and the length of all wires connected to the load are the same to ensure that the wires will have no voltage drop differences.



Fan Replacement

The service life of the fan is approximately 50,000 hours (at 25°C). The service life varies, however, depending on the ambient temperature or other surrounding environmental conditions such as dust. As a preventive maintenance measure, replace the fan within two years if it is used at an ambient temperature of 40°C.

Fans are available as replacements.

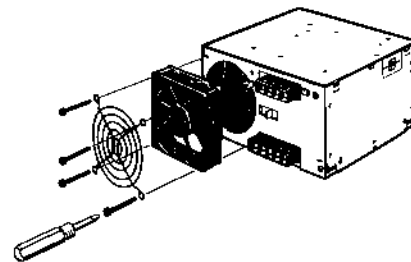


Model: S82Y-JFAN

Fan Set:

Fan (above), four M4 x 35 sems screws, instruction sheet, and packing case

Replace the fan as shown in the following illustration.



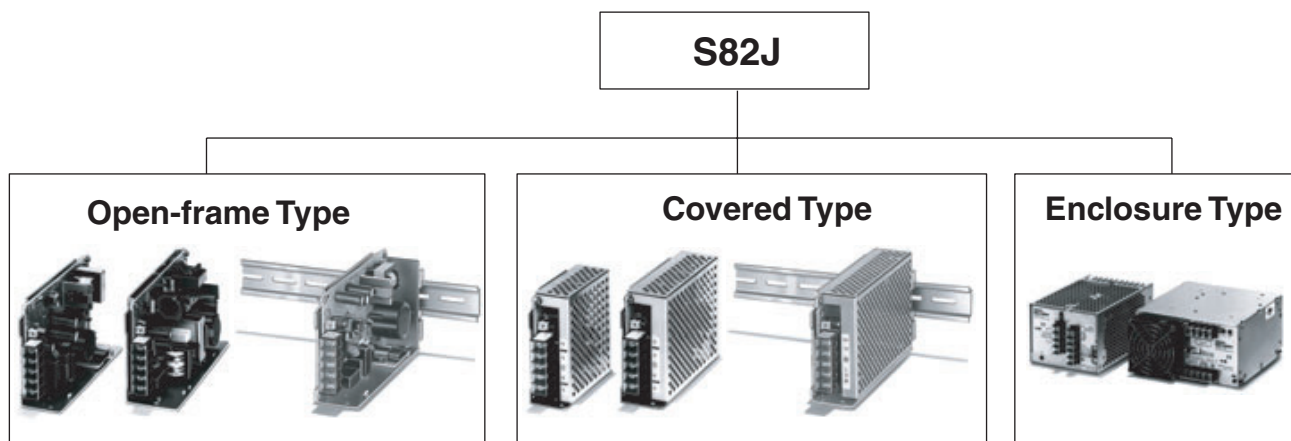
ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

Switch Mode Power Supply S82J

Compact and Economical Switch mode Power Supplies with Capacities Up to 600 W DIN Track Mounting Bracket Type Now Available

- Power range from 10 W up to 600 W.
- Output Voltages: 5 V, 12 V, 15 V, or 24 V.
- Mounting bracket provided for mounting to control panels.
- Maintenance-free up to 300 W due to natural ventilation.
- Protection-ON alarm indicator shows valuable protection functions in action (300-/600-W models).
- Conforms to EMC standards: EN50081-2 and EN50082-2.
- With an external filter, achieves conformance to EN50081-1 for universal usage on EMI (300-/600-W models).
- Finger protection terminal block to meet VDE0106/P100
- Class 2 approved 10-W, 25-W (except for 5-V output), and 50-W (only for 24-V output) models.
- UL508 approved. All models can be used at full load in UL508A industrial control panel applications.
- Approved by UL/CSA standards, EN60950, and EN50178 (VDE0160).
- Six-language instruction manual provided. (English, French, German, Italian, Spanish, and Japanese)



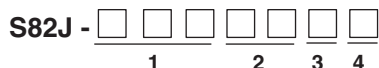
- <10 W to 150 W>
- 100 to 240-VAC input
 - 100 or 200 VAC (selected automatically)
(100-W 5-/12-/15-V output, 150-W models)

- <10 W to 150 W>
- 100 to 240-VAC input
 - 100 or 200 VAC (selected automatically)
(100-W 5-/12-/15-V output, 150-W models)

- <300/600 W>
- 100 or 200 VAC (selectable)

Model Number Structure

Model Number Legend



1. Power Ratings

- 010: 10 W
- 025: 25 W
- 050: 50 W
- 100: 100 W
- 150: 150 W
- 300: 300 W
- 600: 600 W

2. Output Voltage

- 05: 5 V
- 12: 12 V
- 15: 15 V
- 24: 24 V

3. Configuration




- A: Open-frame type, front terminals
- B: Open-frame type, top terminals
- C: Open-frame type, connector
- D: Covered type, front terminals
- E: Covered type, top terminals
- F: Covered type, connector
- N: Without Mounting Bracket
- None: Enclosure type, front terminals with Mounting Bracket

4. Mounting Bracket

- None: Front-mounting Bracket Type
- D: DIN Track Mounting Bracket Type




Ordering Information

■ Front-mounting Bracket Type

Configuration	Input Voltage	Power ratings	Output voltage	Output current	Front terminals 	Top terminals* 	Connector* 
Open-frame type	100 to 240 VAC	10 W	5 V	2 A	S82J-01005A	---	---
			12 V	1 A	S82J-01012A	---	---
			15 V	0.7 A	S82J-01015A	---	---
			24 V	0.5 A	S82J-01024A	---	---
		25 W	5 V	5 A	S82J-02505A	---	---
			12 V	2.1 A	S82J-02512A	---	---
			15 V	1.7 A	S82J-02515A	---	---
			24 V	1.1 A	S82J-02524A	---	---
		50 W	5 V	10 A	S82J-05005A	---	---
			12 V	4.2 A	S82J-05012A	---	---
			24 V	2.1 A	S82J-05024A	---	---
		100 or 200 VAC (selected automatically)	100 W	5 V	20 A	S82J-10005A	S82J-10005B
	12 V			8.5 A	S82J-10012A	S82J-10012B	S82J-10012C
	15 V			7 A	S82J-10015A	S82J-10015B	S82J-10015C
	100 to 240 VAC		24 V	4.5 A	S82J-10024A	---	---
	100 or 200 VAC (selected automatically)	150 W	24 V	6.5 A	S82J-15024A	S82J-15024B	S82J-15024C
Covered type	100 to 240 VAC	10 W	5 V	2 A	S82J-01005D	---	---
			12 V	1 A	S82J-01012D	---	---
			15 V	0.7 A	S82J-01015D	---	---
			24 V	0.5 A	S82J-01024D	---	---
		25 W	5 V	5 A	S82J-02505D	---	---
			12 V	2.1 A	S82J-02512D	---	---
			15 V	1.7 A	S82J-02515D	---	---
			24 V	1.1 A	S82J-02524D	---	---
		50 W	5 V	10 A	S82J-05005D	---	---
			12 V	4.2 A	S82J-05012D	---	---
			24 V	2.1 A	S82J-05024D	---	---
		100 or 200 VAC (selected automatically)	100 W	5 V	20 A	S82J-10005D	S82J-10005E
	12 V			8.5 A	S82J-10012D	S82J-10012E	S82J-10012F
	15 V			7 A	S82J-10015D	S82J-10015E	S82J-10015F
	100 to 240 VAC		24 V	4.5 A	S82J-10024D	---	---
	100 or 200 VAC (selected automatically)	150 W	24 V	6.5 A	S82J-15024D	S82J-15024E	S82J-15024F
	100 or 200 VAC (selectable)	300 W	24 V	14 A	S82J-30024	---	---
				27 A	S82J-60024	---	---
		600 W	24 V	14 A	S82J-30024N	---	---
				27 A	S82J-60024N	---	---

Note: * The S82J top terminals and connector models will be discontinued in March 2005.

■ DIN Track Mounting Bracket Type

Configuration	Input Voltage	Power ratings	Output voltage	Output current	Front terminals 	Top terminals* 	Connector* 	
Open-frame type	100 to 240 VAC	10 W	5 V	2 A	S82J-01005AD	---	---	
			12 V	1 A	S82J-01012AD	---	---	
			15 V	0.7 A	S82J-01015AD	---	---	
			24 V	0.5 A	S82J-01024AD	---	---	
		25 W	5 V	5 A	S82J-02505AD	---	---	
			12 V	2.1 A	S82J-02512AD	---	---	
			15 V	1.7 A	S82J-02515AD	---	---	
			24 V	1.1 A	S82J-02524AD	---	---	
		50 W	5 V	10 A	S82J-05005AD	---	---	
			12 V	4.2 A	S82J-05012AD	---	---	
			24 V	2.1 A	S82J-05024AD	---	---	
			100 or 200 VAC (selected automatically)	5 V	20 A	S82J-10005AD	S82J-10005BD	S82J-10005CD
	12 V	8.5 A		S82J-10012AD	S82J-10012BD	S82J-10012CD		
	15 V	7 A		S82J-10015AD	S82J-10015BD	S82J-10015CD		
	24 V	4.5 A		S82J-10024AD	---	---		
	100 to 240 VAC	150 W	24 V	6.5 A	S82J-15024AD	S82J-15024BD	S82J-15024CD	
	100 or 200 VAC (selected automatically)		24 V	6.5 A	S82J-15024AD	S82J-15024BD	S82J-15024CD	
	Covered type	100 to 240 VAC	10 W	5 V	2 A	S82J-01005DD	---	---
				12 V	1 A	S82J-01012DD	---	---
				15 V	0.7 A	S82J-01015DD	---	---
24 V				0.5 A	S82J-01024DD	---	---	
25 W			5 V	5 A	S82J-02505DD	---	---	
			12 V	2.1 A	S82J-02512DD	---	---	
			15 V	1.7 A	S82J-02515DD	---	---	
			24 V	1.1 A	S82J-02524DD	---	---	
50 W			5 V	10 A	S82J-05005DD	---	---	
			12 V	4.2 A	S82J-05012DD	---	---	
			24 V	2.1 A	S82J-05024DD	---	---	
			100 or 200 VAC (selected automatically)	5 V	20 A	S82J-10005DD	S82J-10005ED	S82J-10005FD
12 V		8.5 A		S82J-10012DD	S82J-10012ED	S82J-10012FD		
15 V		7 A		S82J-10015DD	S82J-10015ED	S82J-10015FD		
24 V		4.5 A		S82J-10024DD	---	---		
100 to 240 VAC		150 W	24 V	6.5 A	S82J-15024DD	S82J-15024ED	S82J-15024FD	
100 or 200 VAC (selected automatically)			24 V	6.5 A	S82J-15024DD	S82J-15024ED	S82J-15024FD	

Note: * The S82J top terminals and connector models will be discontinued in March 2005.

Specifications

■ Ratings/Characteristics

Item		100 to 240 VAC input				100 or 200 VAC (selected automatically)		100 or 200 VAC (selectable)		
		10 W	25 W	50 W	100 W (24 V)	100 W (5, 12, 15 V)	150 W	300 W	600 W	
Efficiency (typical)		67% min. (77% min. for 50-W, 24-V models)			83% min.	75% min.	82% min.			
Input	Voltage	100 to 240 VAC (85 to 264 VAC) 110 to 170 VDC (set the terminal (L) to + side) (10 and 25 W only) (See note 1.)				100 (85 to 132) or 200 (170 to 264) VAC (selected automatically)		100 (85 to 132) or 200 (170 to 253) VAC (selectable)		
	Frequency	50/60 Hz (47 to 450 Hz)								
	Current (See note 2.)	100 VAC input	0.35 A max.	0.8 A max.	1.4 A max.	2.5 A max.	2.5 A max.	3.5 A max.	8 A max.	14 A max.
		200 VAC input	0.3 A max.	0.6 A max.	0.8 A max.	1.5 A max.	1.4 A max.	2.1 A max.	4 A max.	7 A max.
	Leakage current (See note 2.)	100 VAC input	0.5 mA max.							
		200 VAC input	1 mA max.							
	Inrush current (25°C, cold start) (See note 2.)	100 VAC input	25 A max.							30 A max.
		200 VAC input	50 A max.							60 A max.
Noise filter		Yes								
Output (See note 3.)	Voltage adjustment range	±10% (adjustable with variable resistor (V. ADJ))								
	Ripple (See note 2.)	2% (p-p) max.								
	Input variation influence	0.4% max.								
	Load variation influence	0.8% max. (with rated input, 10% to 100% load)								
	Temperature variation influence	0.05%/°C max. (with rated input and output)								
	Startup time	500 ms max. (up to 90% of output voltage at rated input and output)						300 ms max. (up to 90% of output voltage at rated input and output)		
	Hold time (See note 2.)	20 ms min.								
Additional function	Overload protection	105% to 160% of rated load current, inverted L drop/intermittent operation type, automatic reset				105% min. of rated load current, inverted L drop type, automatic reset (For the 600-W model, the circuit will be shut OFF when the overload exceeds 5 ±3 s. Protection-ON alarm indicator lit (See note 4.))				
	Overvoltage protection (See note 5.)	No			Yes (See note 5.)	Yes (5-V output models only) (See note 5.)	No		Yes, protection-ON alarm indicator lit (See note 4.)	
	Overheat protection	No							Yes, protection-ON alarm indicator lit (See note 4.)	
	Protection-ON alarm indicator	No						Yes (color, red)		
	Parallel operation	No						Yes, 5 units max.		
	Series operation	No			Yes					

Item		100 to 240 VAC input				100 or 200 VAC (selected automatically)		100 or 200 VAC (selectable)	
		10 W	25 W	50 W	100 W (24 V)	100 W (5, 12, 15 V)	150 W	300 W	600 W
Other	Ambient temperature	Operating: See the derating curve in the Engineering Data section. Storage: -25 to 65°C (with no condensation and icing)							
	Ambient humidity	Operating: 25% to 85% Storage: 25% to 90%							
	Dielectric strength	3.0 kVAC, 50/60 Hz for 1 min (between all inputs and all outputs)							
		2.2 kVAC, 50/60 Hz for 1 min (between all inputs and GR terminal)							
		1.0 kVAC, 50/60 Hz for 1 min (between all outputs and GR terminal)							
	Insulation resistance	100 MΩ min. (between all outputs and all inputs/GR terminals at 500 VDC)							
	Vibration resistance	10 to 55 Hz, 0.375-mm double amplitude for 2 h each in X, Y, and Z directions							
	Shock resistance	300 m/s ² , 3 times each in ±X, ±Y, and ±Z directions							
	Terminal screw tightening	0.74 N·m				1.08 N·m			
	Output indicator	Yes (green)							
	Electromagnetic interference (See note 2.)	Conforms to FCC Class A							
	EMC	Emission Enclosure: EN55011 class A				Emission AC Mains: EN55011 class A			
		Immunity ESD: EN61000-4-2: 4 kV contact discharge (level 2) 8 kV air discharge (level 3)				Immunity RF-interference: ENV50140: 10 Vm (80 MHz to 1 GHz) (level 3) Immunity Conducted Disturbance: ENV50141: 10 V (0.5 to 80 MHz) (level 3) Immunity Burst: EN61000-4-4: 2 kV power-line (level 3) 2 kV output line (level 4)			
EMC standards	Conforms to EN50081-2 and EN50082-2						Conforms to EN50081-2 and EN50082-2 (See note 6.) With noise filter, confirms to EN50081-1 (See note 6 and 7.)		
Approved standards	UL	UL508 (Listing), 1950, Class 2 (per UL1310) (See note 10.)			UL508 (Listing), 1012, 1950 (See note 8.)		UL508/1012		
	CSA	CSA C22.2 No. 14, No. 950, Class 2 (See note 10.)			CSA C22.2 No. 14, No. 950		CSA EB1402C		
	VDE	EN50178 (VDE0160) and EN60950 Terminal types (only terminal part): VDE0106/P100							
Weight (See note 9.)	250 g max.	350 g max.	400 g max.	500 g max.	1,000 g max.		2,000 g max.	2,500 g max.	

- Note:**
- DC inputs not included in safety standard approvals.
 - At 100% load for rated input voltage (100 VAC or 200 VAC).
 - The output specification is defined at the power supply output terminals.
 - For resetting, turn OFF the power supply, leave for more than three minutes (90 seconds min. for the 300-W models), and then turn ON the power supply.
 - For resetting, turn OFF the power supply, leave for more than one minute, and then turn ON the power supply.
 - To ensure the Emission Enclosure rating ferrite ring cores (recommended model: S82Y-JC-T) should be used on all cabling.
 - To ensure the Emission AC Mains rating for EN50081-1 (only for 200-VAC input), a noise filter (recommended models: S82Y-JF3-N for 300-W, S82Y-JF6-N for 600-W) should be used on the input lines.
 - With UL508, 150-W connector type has “Recognized” approval.
 - The weight indicated is the weight of the open-frame type. (Includes the covers for 300-W and 600-W models)
 - Class 2 approved for 10-W, 25-W (except for 5-V output), and 50-W (only for 24-V output) models.

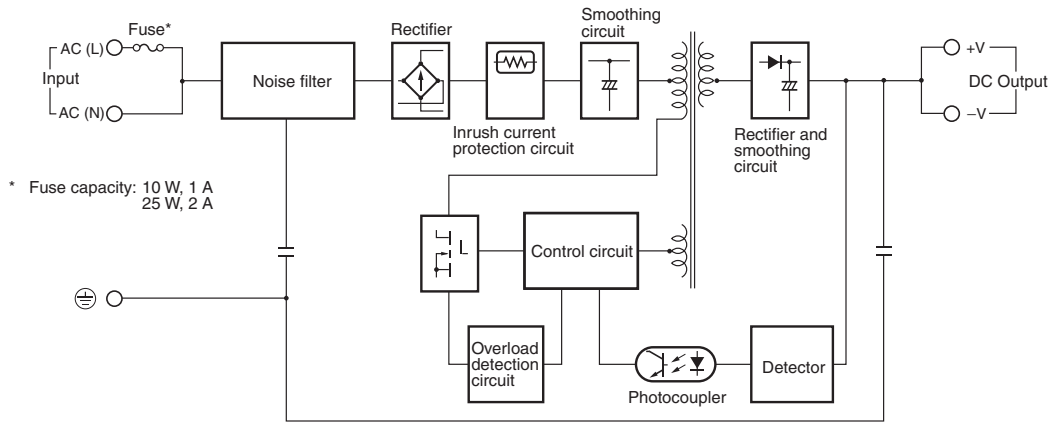
■ Reference Value

Item	Value	Definition
Reliability (MTBF)	135,000 hours 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	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.

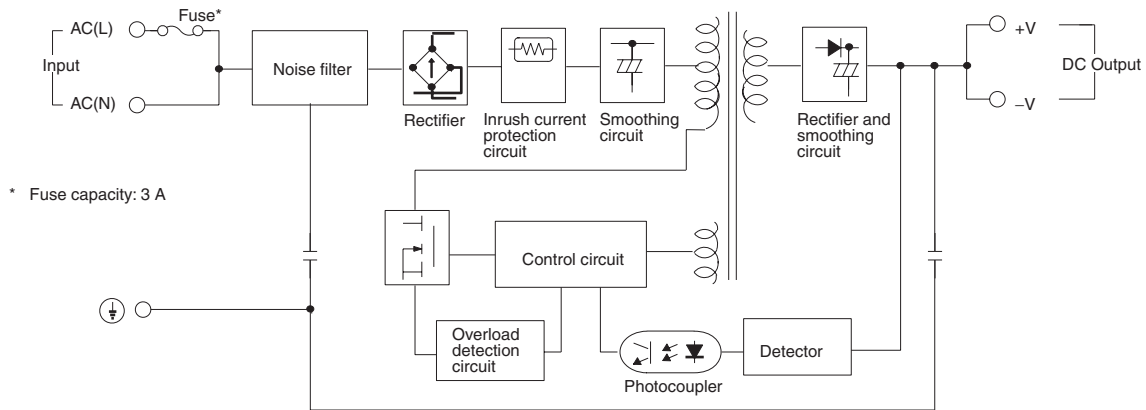
Connections

Block Diagrams

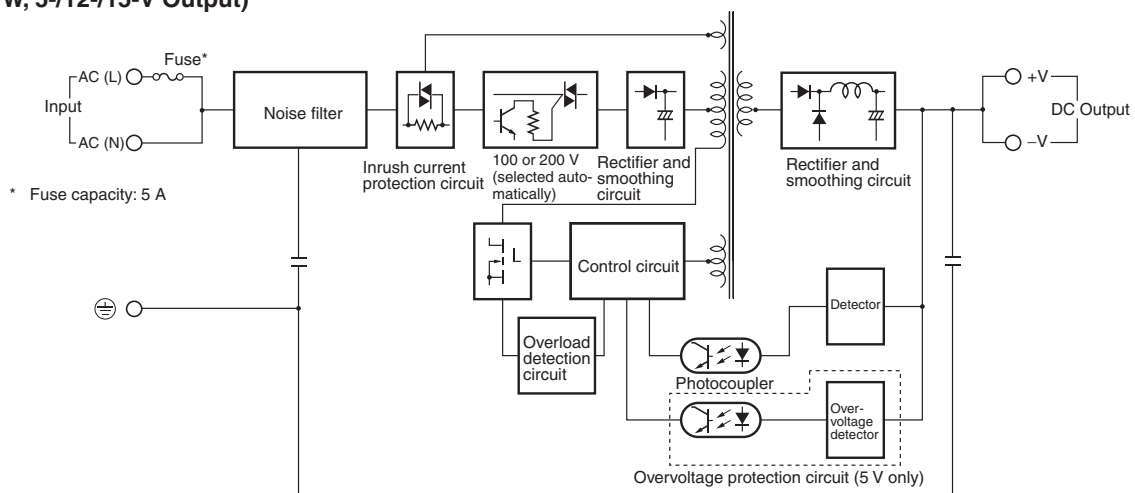
S82J-010□□□□ (10 W)
S82J-025□□□□ (25 W)



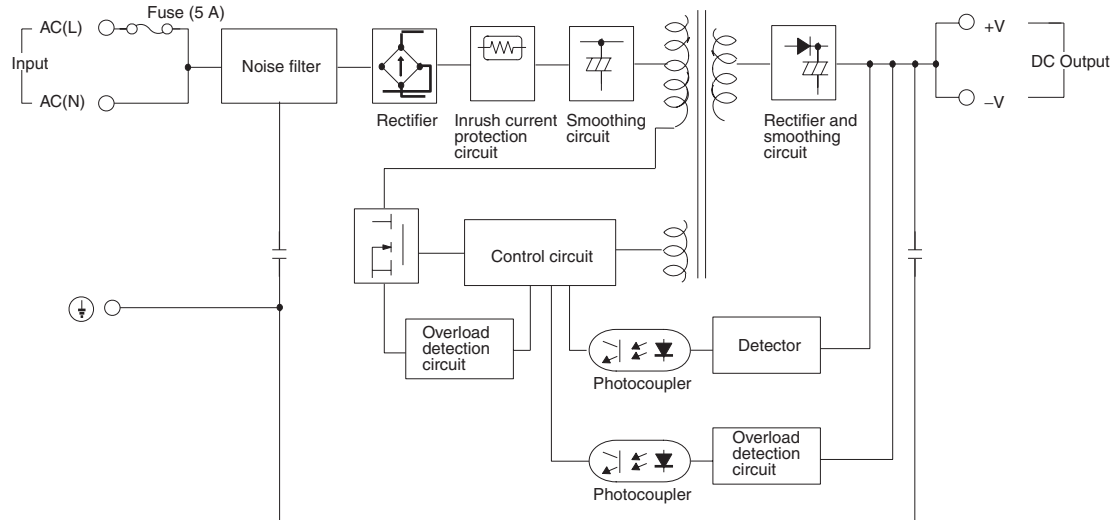
S82J-050□□□□ (50 W)



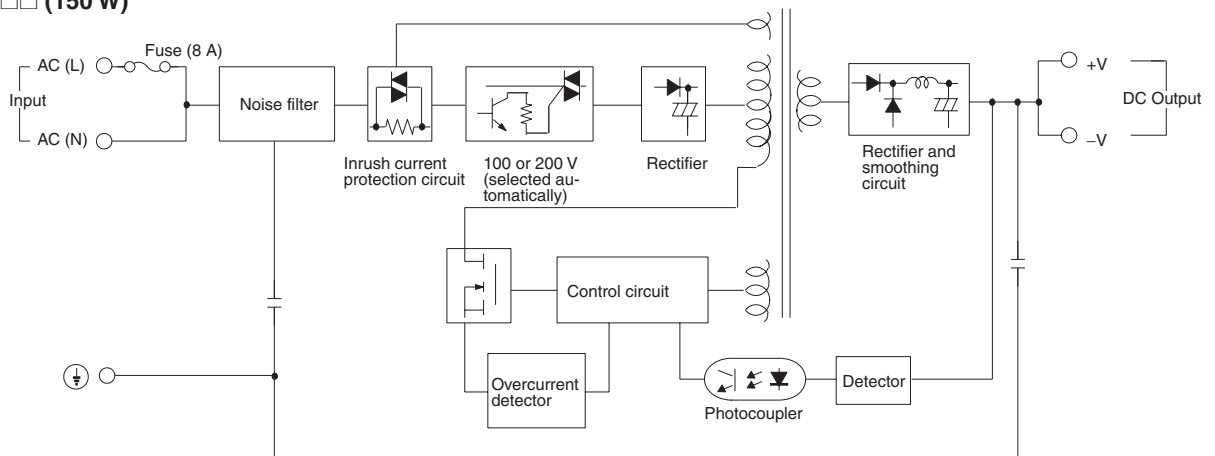
S82J-100□□□□
(100 W, 5-/12-/15-V Output)



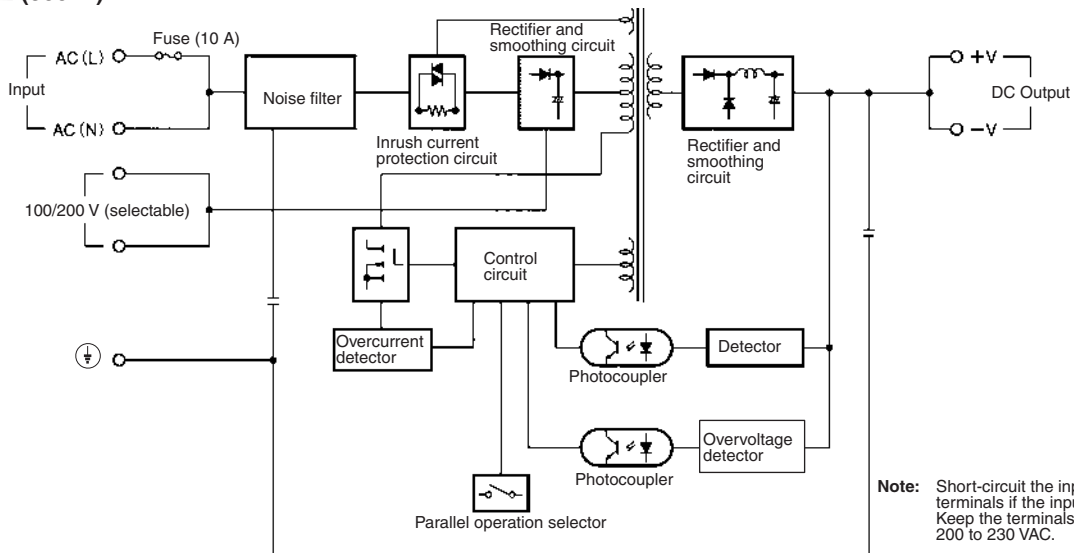
S82J-10024□□ (100 W, 24-V Output)



S82J-15024□□ (150 W)

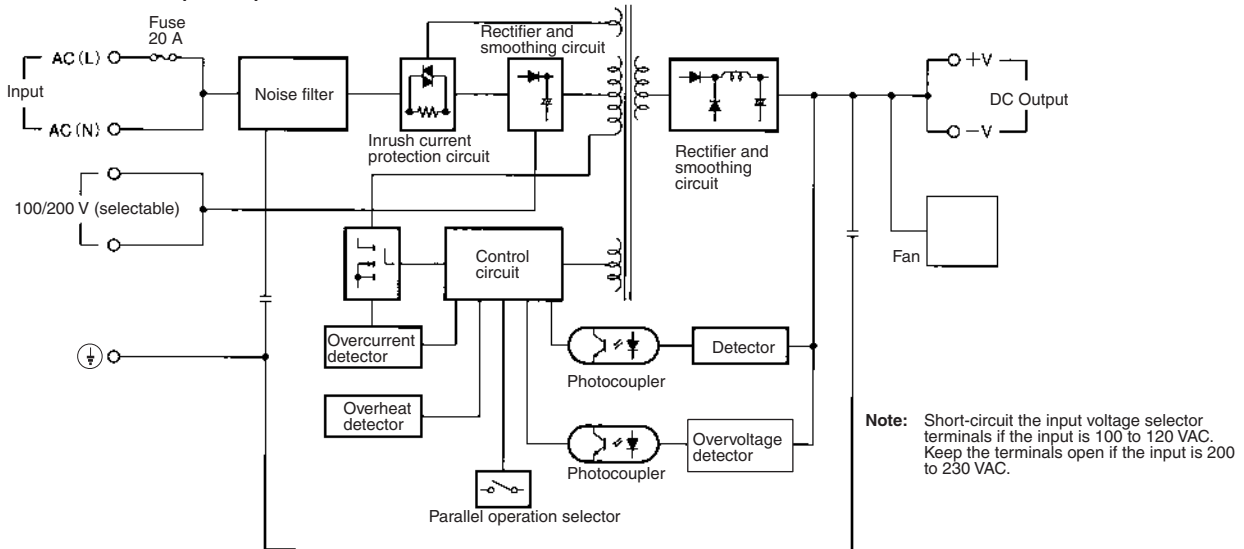


S82J-30024□ (300 W)



Note: Short-circuit the input voltage selector terminals if the input is 100 to 120 VAC. Keep the terminals open if the input is 200 to 230 VAC.

S82J-60024□ (600 W)

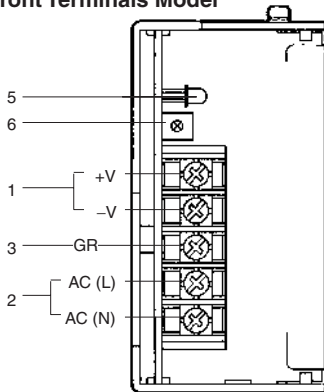


■ Installation

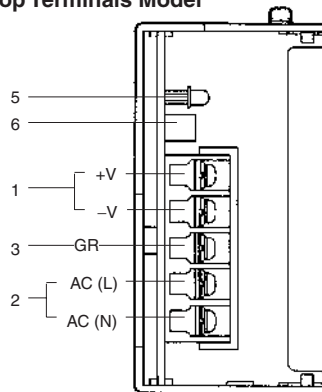
10-/25-/50-/100-/150-W Models

Note: 10-/25-/50-/100 (24 V)-W models are available only as Front Terminal Models.

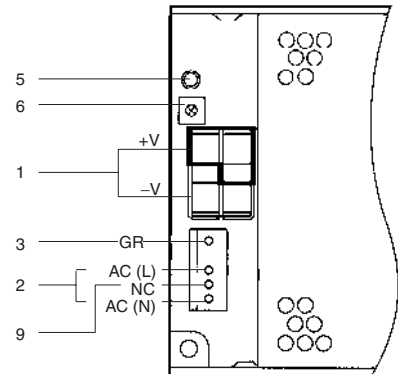
Front Terminals Model



Top Terminals Model



Connector Model

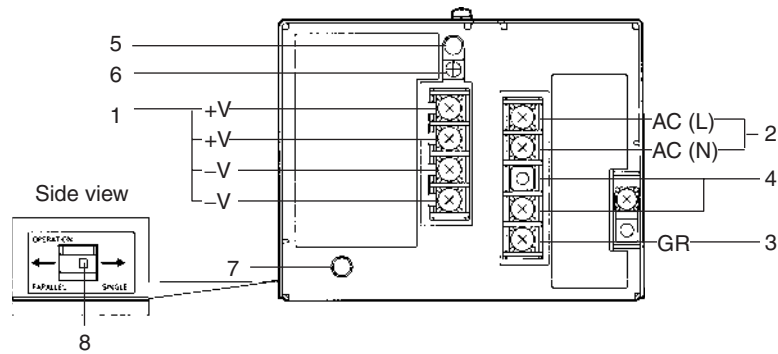


Types of Connector for the Connector Model (Housing and Terminal Not Included)

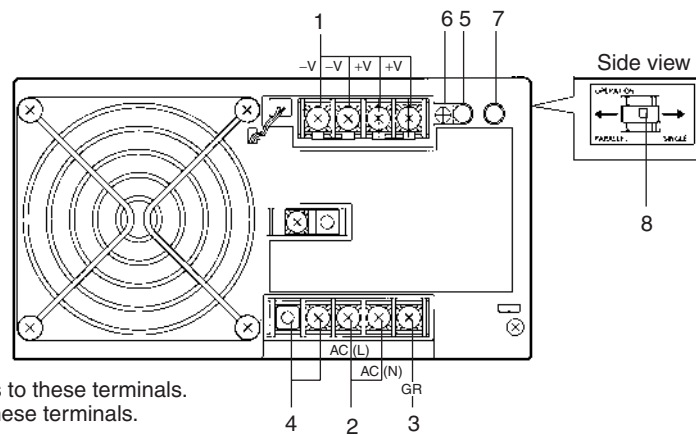
Connector	Connector on the PCB side	Housing	Terminal
Input	Wafer (Made by Molex) 5277-04A-RE	Housing (Made by Molex) 5196-04-RE or 5196-04	Terminal (Made by Molex) 5194T or 5194TL
Output	Tab header (Made by Nippon AMP) 1-178140-5	Rise housing (Made by Nippon AMP) 1-178129-6	Rise contact (Made by Nippon AMP) 1-175196-5 or 1-175218-5

Note: The permissible current of the output connector is 8 A per pin.

300-W Models



600-W Models



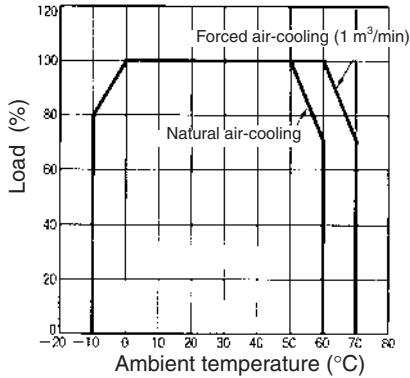
1. **DC Output Terminals:** Connect the load lines to these terminals.
2. **Input Terminals:** Connect the input lines to these terminals.
Note: A fuse is inserted into the AC (L) side.
3. **Ground Terminal (GR):** Connect a ground line to this terminal.
4. **Input Voltage Selector Terminals:** Short-circuit the terminals if the input is 100 to 120 VAC and open the terminals if the input is 200 to 230 VAC
5. **Output Indicator (DC ON):** Lights while a Direct Current (DC) output is ON.
6. **Output Voltage Adjuster (V.ADJ):** It is possible to increase or decrease the output voltage by 10%.
7. **Protection-ON Alarm Indicator:** The red indicator will be lit if the overvoltage (for a 300-/600-W model) or overheat protection (for a 600-W model) circuit is triggered. This indicator will also be lit when overcurrent (for a 600-W model) is detected.
8. **Parallel/Single Operation Selector:** Set the selector to PARALLEL if the Units are in parallel operation.
9. **NC Terminals:** Leave unconnected.

Engineering Data

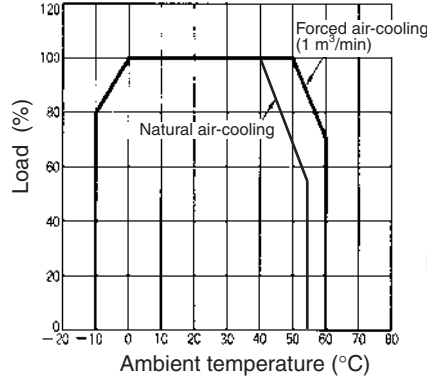
Derating Curve

10-/25-/50-/100-/150-W Model

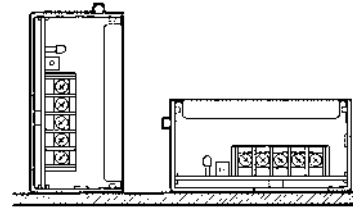
Open-frame type



Covered-type



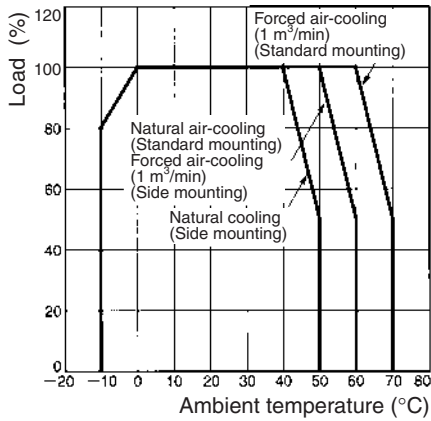
Standard Installation



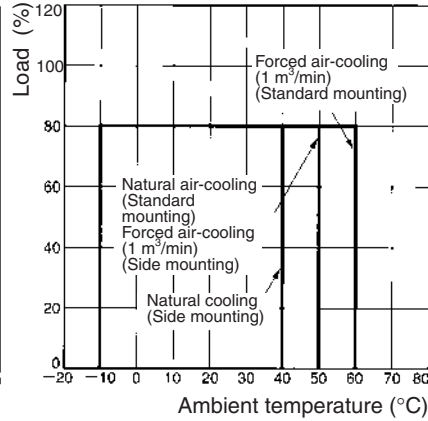
Note: The derating curve shown is for standard installation. The derating curve depends on the mounting direction of the Power Supply.

300-W Model

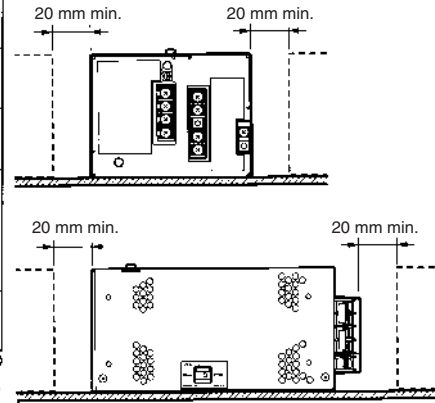
Single Operation



Parallel Operation

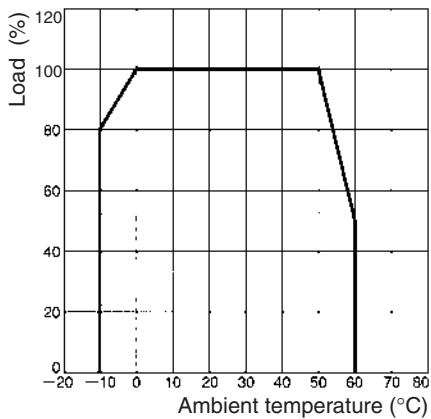


Standard mounting

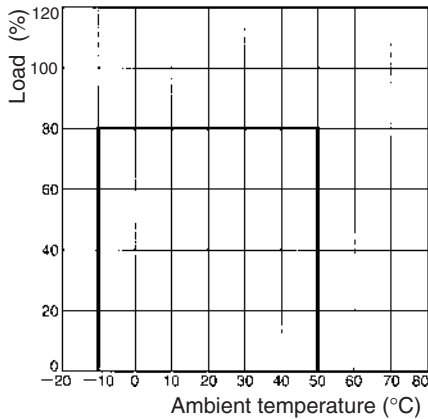


600-W Model

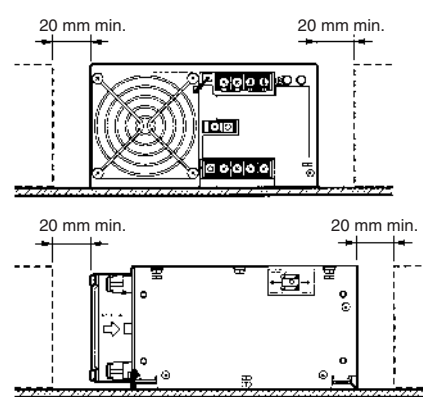
Single Operation



Parallel Operation



Standard Mounting



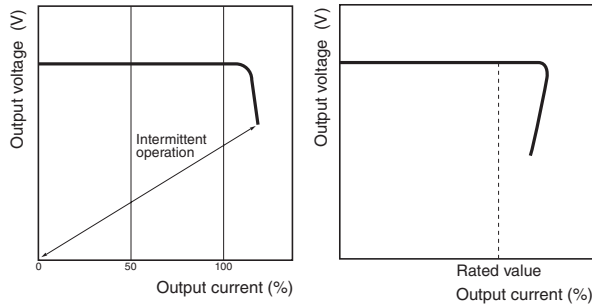
Note: Provide a minimum clearance of 20 mm between the Power Supplies.

Overload Protection

10- to 300-W Models

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% to 160% of the rated output 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.

10- to 100 (24 V)-W Models 100 (5, 12, 15 V)-W, 150-W, and 300-W Models



- Note:**
1. If the S82J is connected to a load with a built-in DC-DC converter, the overload protection function may be triggered at startup, and consequently the S82J may not operate.
 2. Do not continue using the S82J with the output terminals short-circuited or the overcurrent condition continued, otherwise the internal elements of the S82J may be damaged or broken.
 3. In actual operation, the output voltage may not fall to 0 V when the overload protection function is triggered. Even with short-circuits on the load side, the drop in voltage will vary depending on factors such as the impedance in the load line.
 4. The overload protection function is activated at 105% of the rated output current for 300-W models.

600-W Models

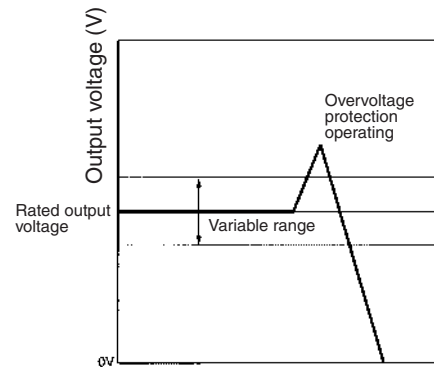
If an excessive current flows for 5 s or more, the output will be turned off and simultaneously protection-ON alarm indicator will be lit. To reset the S82J, turn off the input voltage, leave the S82J for at least three minutes, and then apply the input voltage again.

Note: Do not continue using the S82J with the output terminals short-circuited or the overcurrent condition continued, otherwise the internal elements of the S82J may be damaged or broken.

Overvoltage Protection

100 (5, 24 V)-W Models

The Power Supply is provided with an overvoltage protection function that protects the load and the Power Supply from possible damage by overvoltage. When the output voltage rises above a set value (120% of the rated output voltage), the protection function is triggered, shutting off the output voltage. If this occurs, reset the Power Supply by turning it off for 1 minutes min. and then turning it on again.



300- and 600-W Models

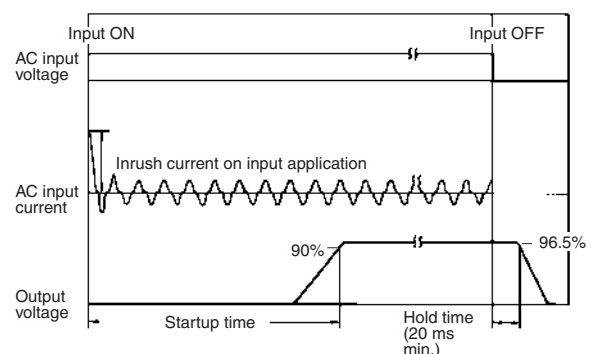
If a voltage that is 120% of the rated output voltage or above is output, the output voltage will be turned off and simultaneously protection-ON alarm indicator will be lit. To reset the S82J, turn off the input voltage, leave the S82J for at least three minutes if it is a 600-W model or at least 90 seconds if it is a 300-W model, and then apply the input voltage again.

Overheat Protection Function

600-W Model Only

If the internal temperature of the S82J rises excessively as a result of fan failure or any other reason, the overheat protection circuit will be triggered to protect the internal elements of the S82J and simultaneously a protection-ON alarm indicator will be lit. To reset the S82J, turn off the input voltage, leave the S82J for at least three minutes, and then apply the input voltage again.

Inrush Current, Startup Time, Hold Time

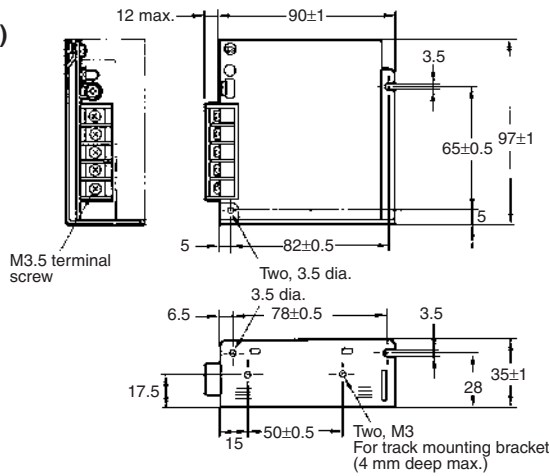
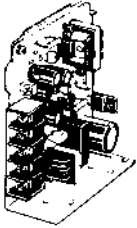


Dimensions

Note: All units are in millimeters unless otherwise indicated.
Open-frame type and covered type have the same dimensions.

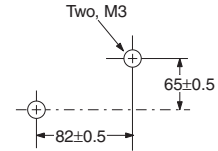
■ Front-mounting Bracket Type

S82J-010□□□□ (10 W)

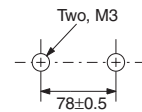


Mounting Holes (Surface Screw Mounting)

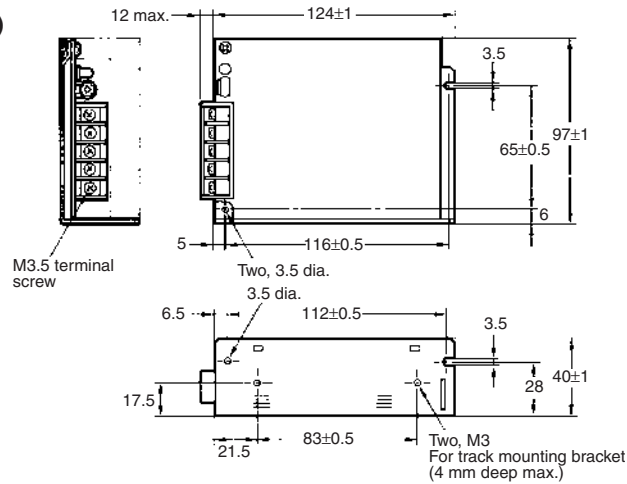
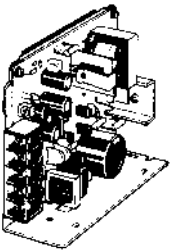
Side Mounting



Bottom Mounting

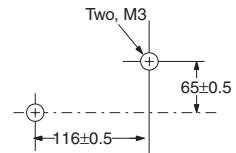


S82J-025□□□□ (25 W)

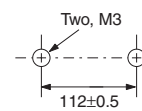


Mounting Holes (Surface Screw Mounting)

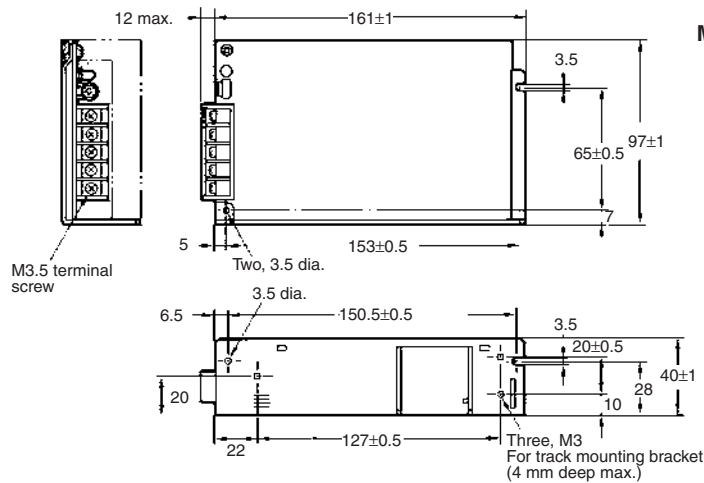
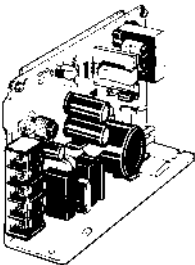
Side Mounting



Bottom Mounting

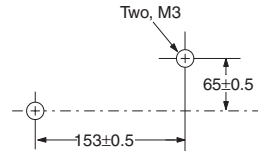


S82J-050□□□□ (50 W)

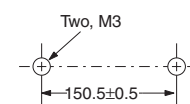


Mounting Holes

Side Mounting

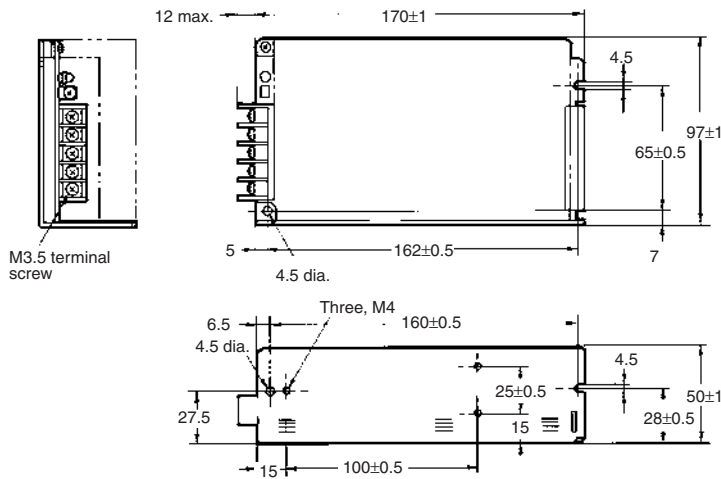
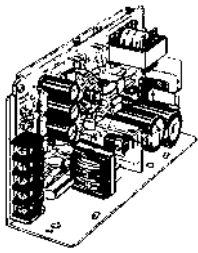


Bottom Mounting



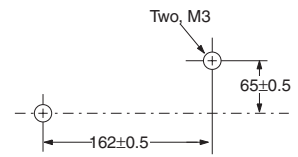
Power Supplies

S82J-10024 (100 W, 24-V Output)

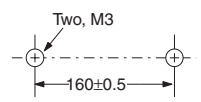


Mounting Holes

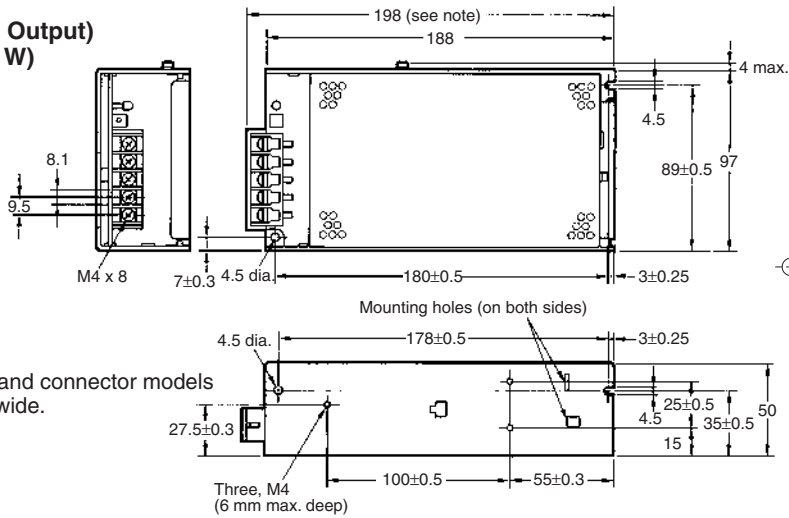
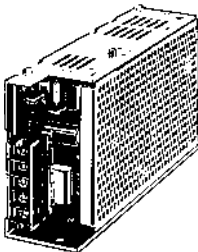
Side Mounting



Bottom Mounting

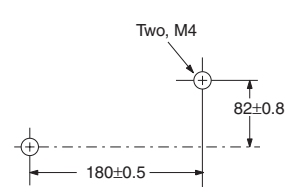


S82J-100 (100 W, 5-/12-/15-V Output)
S82J-15024 (150 W)

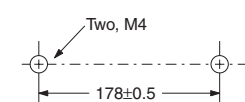


Mounting Holes (Surface Screw Mounting)

Side Mounting

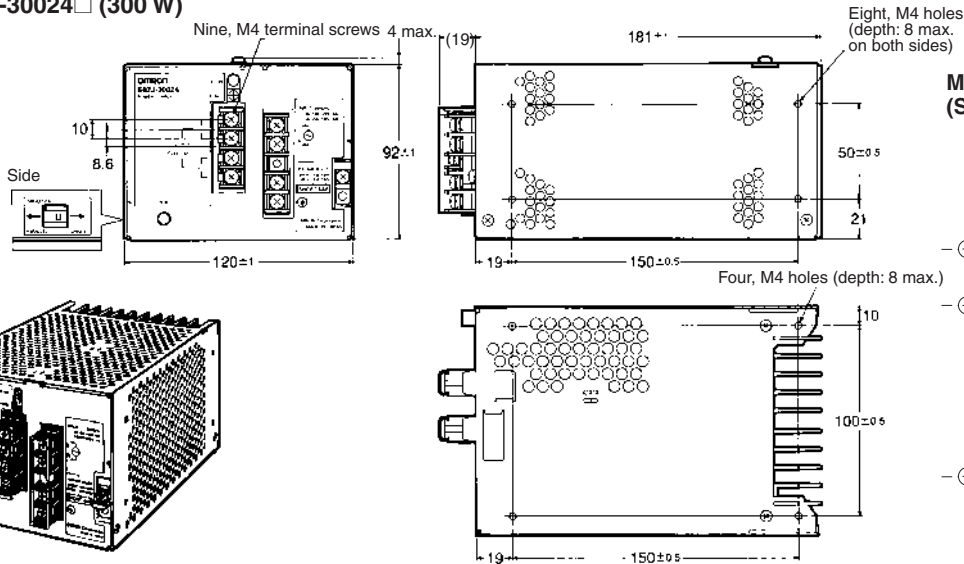
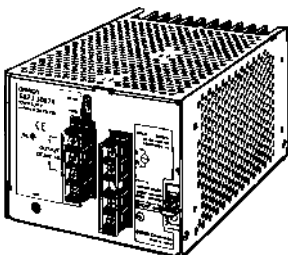


Bottom Mounting



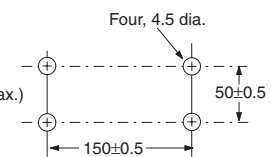
Note: Top terminal and connector models are 188 mm wide.

S82J-30024 (300 W)

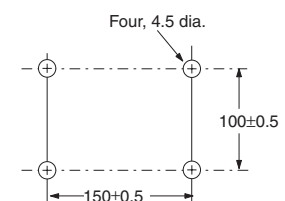


Mounting Holes (Surface Screw Mounting)

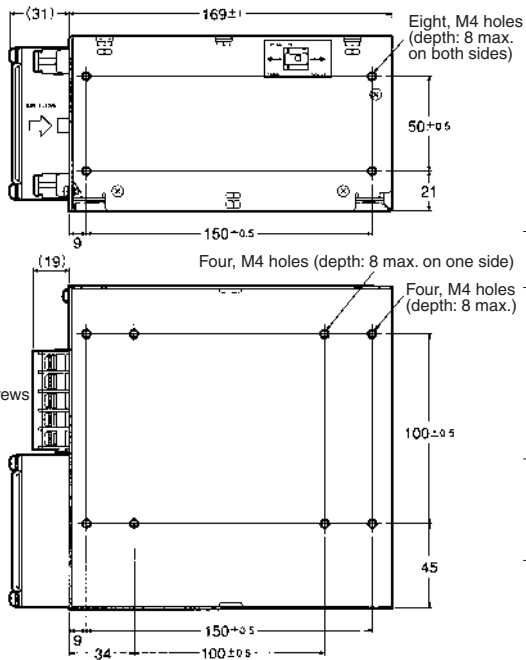
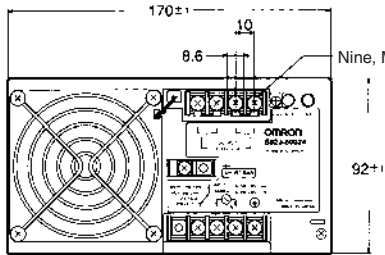
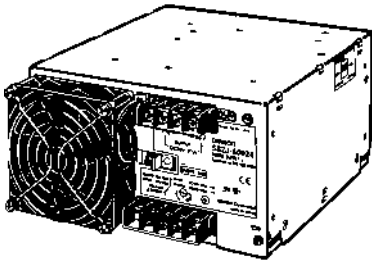
Side Mounting



Bottom Mounting

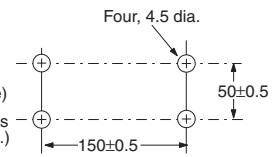


S82J-60024□ (600 W)

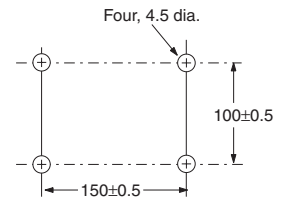


Mounting Holes (Surface Screw Mounting)

Side Mounting

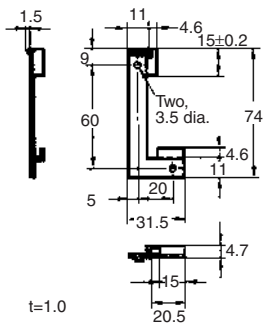


Bottom Mounting

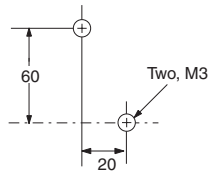


Dimensions with Mounting Bracket (Provided)

10-/25-/50-/100 (24 V)-W Models



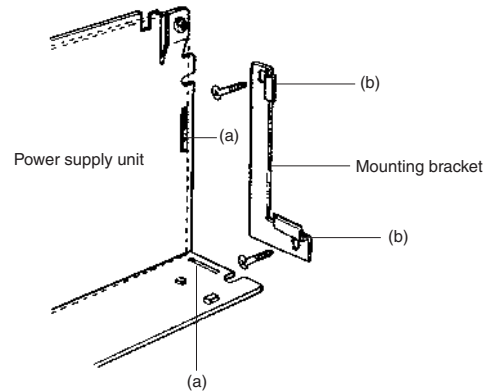
Mounting Holes



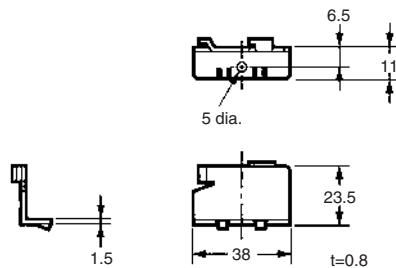
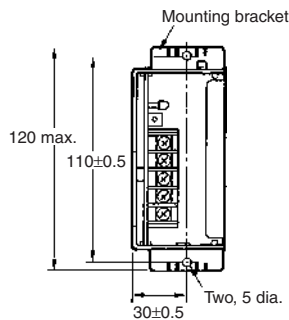
Using the Mounting Bracket

Attach the mounting bracket to the panel and loosely tighten the two screws. Insert the projected parts of the bracket (b) to the square holes of the power supply (a). Then securely tighten the screws.

Note: The mounting screws are order separately.

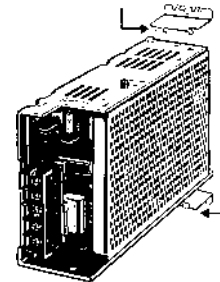


100- (5, 12, 15 V) and 150-W Models

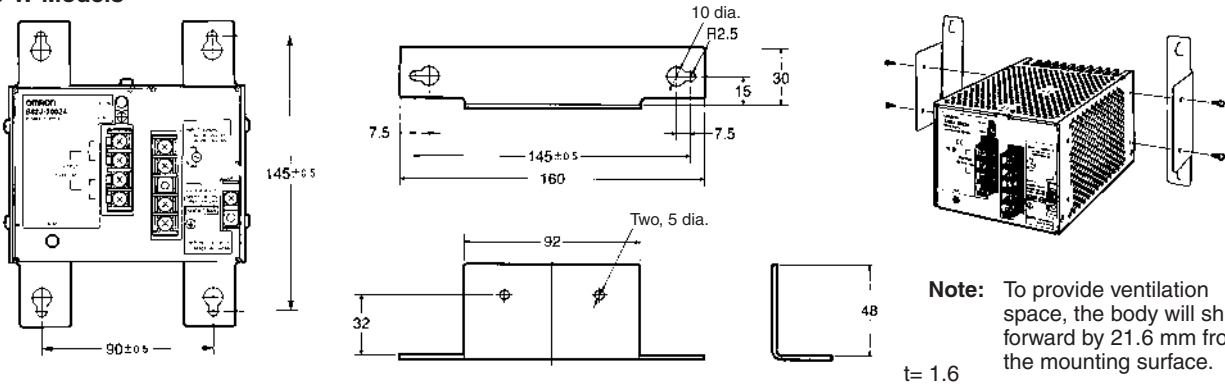


Note: The brackets are for front-mounting.

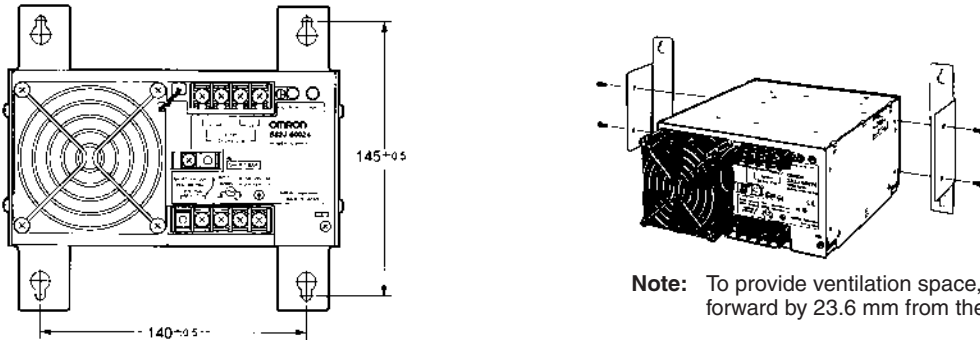
Mounting with Brackets



300-W Models

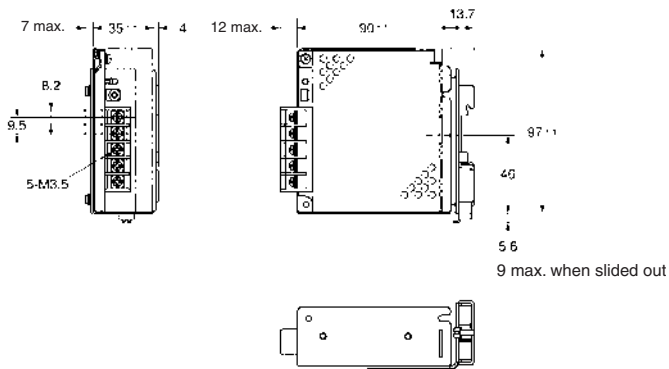
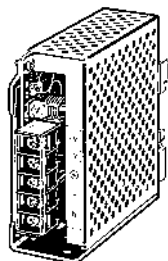


600-W Models

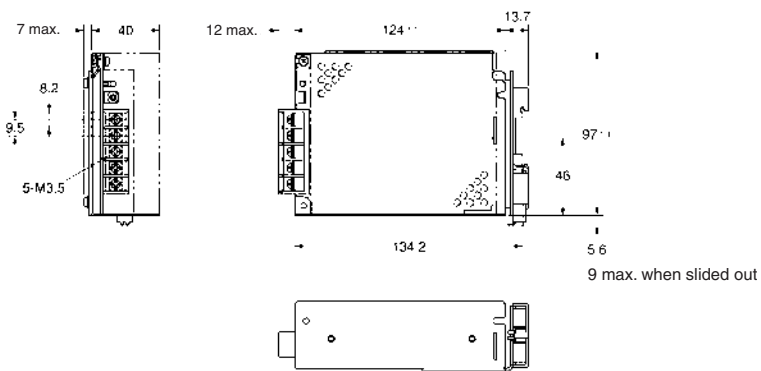
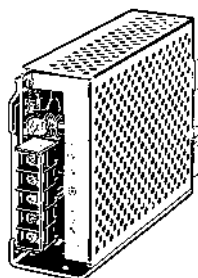


■ DIN Track Mounting Bracket Type

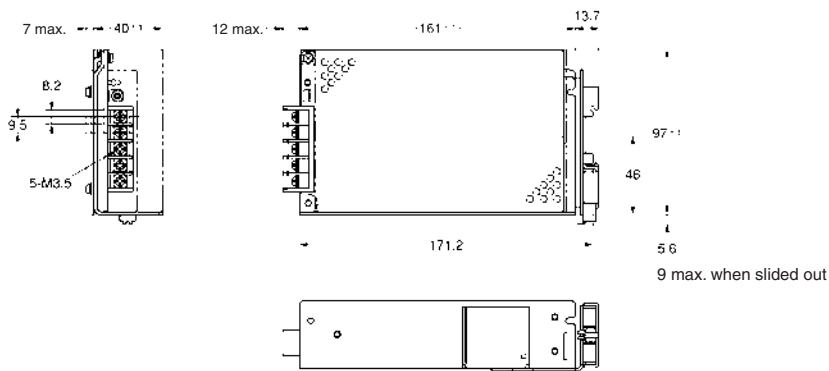
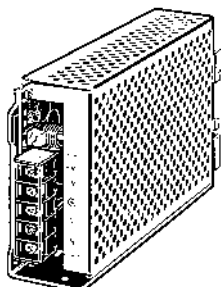
S82J-010□□□D (10 W)



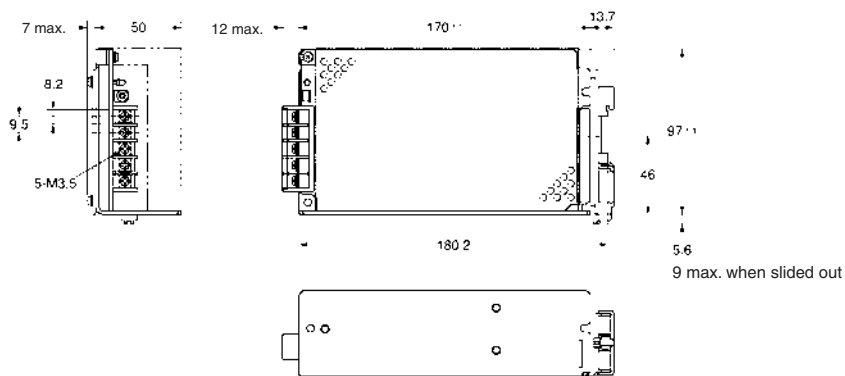
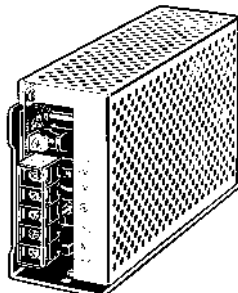
S82J-025□□□D (25 W)



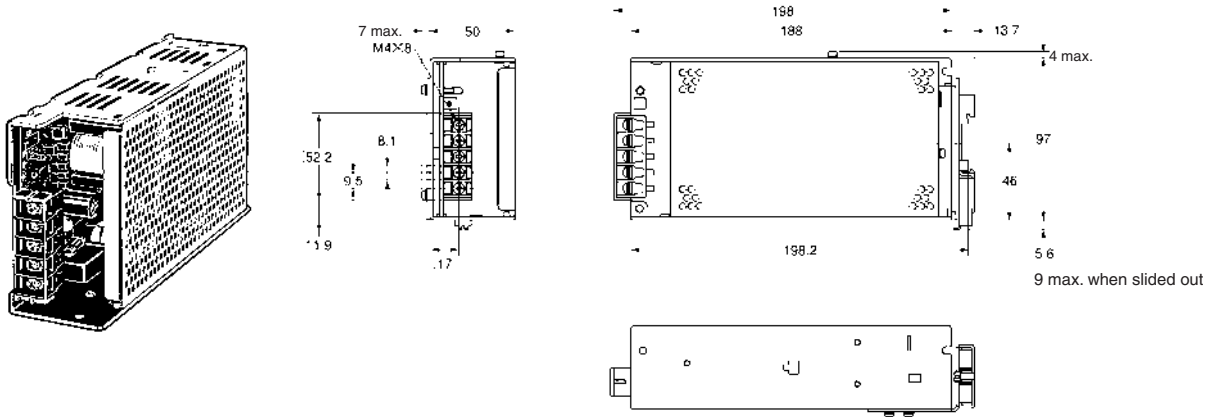
S82J-050□□□D (50 W)



S82J-10024□D
(100 W, 24-V Output)



S82J-100□□□D (100 W, 5-/12-/15-V Output)
 S82J-15024□□D (150 W)



■ DIN Track Mounting Bracket (Order Separately)

Can be used with 10-W to 150-W Front-mounting Bracket models.

If DIN track mounting is necessary, use a DIN Track Mounting Bracket. Refer to the S82Y DIN Track Mounting Bracket datasheet for details.

■ Front-mounting Bracket for S82J-10024□ Power Supply (Order Separately)

(Unit: mm)

Product	Model number	Dimensions	Mounting hole dimensions
Front-mounting Bracket	S82Y-J10F		

Note: These Front-mounting Brackets cannot be used with S82J 100-W (5, 12, or 15-V) or 150-W models.

Precautions

Mounting

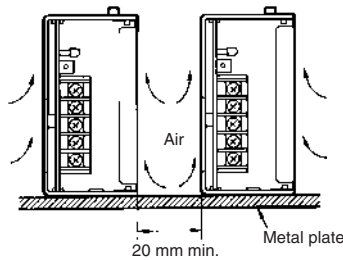
To improve and maintain the reliability of the Power Supply over a long period of time, adequate consideration must be given to heat radiation.

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.

When mounting the Power Supply, mounting it to a metal plate is recommended.

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

Forced air-cooling is recommended.

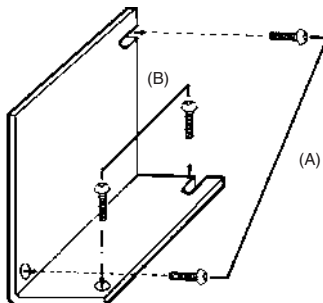


Mounting Methods

The following mounting methods are available.

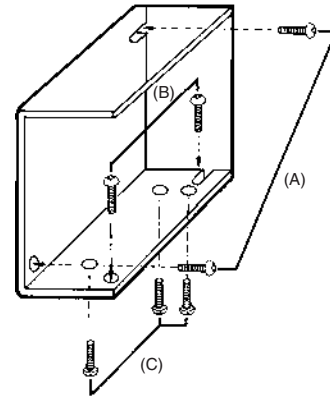
10-/25-/50-/100 (24 V)-W Models

- (A) Side mounting
- (B) Bottom mounting
- (C) Front mounting (see *Accessories*)

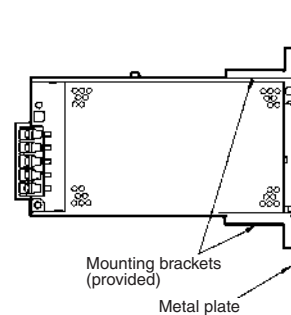


100 (5, 12, 15 V)/150-/300-/600-W Models

- (A) Side mounting (except for 300- and 600-W models)
- (B) Bottom mounting (secured with screws from the inside of the Switching Power Supply) (except for 300- and 600-W models)
- (C) Bottom mounting (secured with screws from the back of the Switching Power Supply)

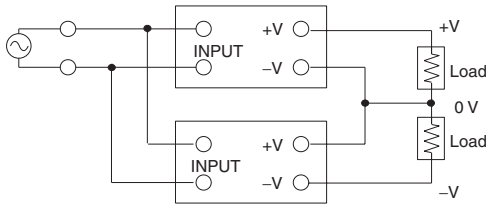


- (D) Front mounting
Front mounting is possible with the mounting brackets provided. Refer to *Dimensions*.



Generating Output Voltage (\pm)

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



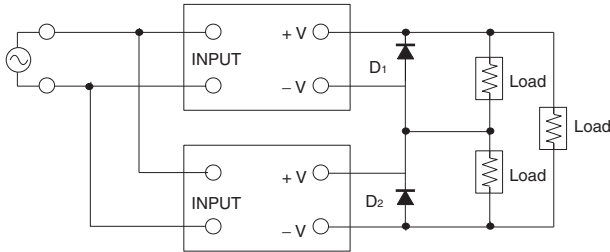
If operation amplifiers as loads are connected in series, connect a diode between the positive and negative output terminals of each Switching Power Supplies as shown in the illustration below. Without these diodes, the Power Supply may not start when power is turned on, possibly damaging internal circuits over a period of time.

Use Schottky barrier diodes with a low forward voltage (V_F). Other types of diodes will not be effective.

Guidelines for the dielectric strength and current of the diodes are as follows:

- Dielectric strength: At least twice the rated output voltage of the Power Supply
- Forward current: At least twice the rated output current

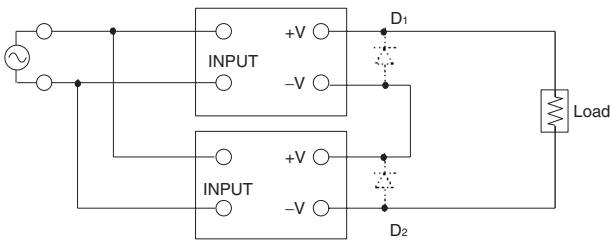
No diodes are required for models that allow series operation.



Series Operation

Only models with power ratings of 50/100/150/300/600 W allow series operation.

As shown in the following diagram, the output voltage from each Switching Power Supply can be added.



With the S82J-050□□□□ or S82J-10024□□, if the load is shorted a reverse voltage may result in the Power Supply causing deterioration and damage. It is recommended that diodes are connected as shown in the previous diagram (D_1 , D_2).

Parallel Operation

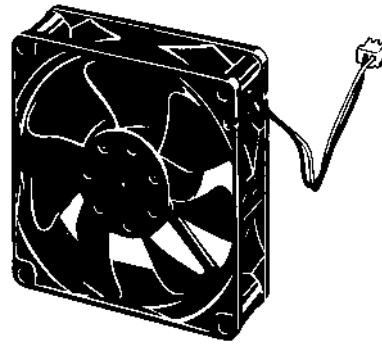
Only 300- and 600-W models can be in parallel operation. Do not operate any other models in parallel. The output of the models in parallel operation is a maximum of 80% of the rated output.

Set the parallel operation selector to PARALLEL if the Units are in parallel operation and make sure that the thickness and the length of all wires connected to the load are the same to ensure that the wires will have no voltage drop differences.

Fan Replacement

The service life of the fan is approximately 50,000 hours (at 25°C). The service life varies, however, depending on the ambient temperature or other surrounding environmental conditions such as dust. As a preventive maintenance measure, replace the fan within two years if it is used at an ambient temperature of 40°C.

Fans are available as replacements.

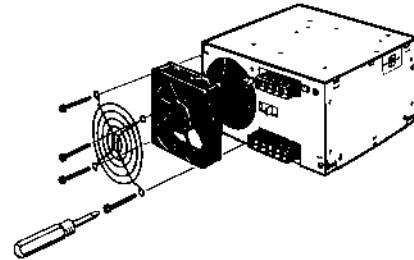


Model: S82Y-JFAN

Fan Set:

Fan (above), four M4 x 35 sems screws, instruction sheet, and packing case

Replace the fan as shown in the following illustration.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

Three phase input switch mode Power Supply 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 track-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)	85%	88%	87%	90%	–	–	–	–
	(Vin = 480 VAC, Pmax)	84%	88%	87%	90%	–	–	–	–
	(Vin = 230 VAC, Pmax)	–	–	–	–	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	0.64	0.89	0.89	–	–	–	–
		0.52	0.59	0.84	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	0.9 mA	1.3 mA	0.7 mA	–	–	–	–
0.5 mA		1.1 mA	1.6 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)	–	–	–	–	10 ms	4 ms	4 ms	5 ms
		21 ms	17 ms	11 ms	14 ms	–	–	–	–
		25 ms	26 ms	24 ms	26 ms	–	–	–	–
		–	–	–	–	20 ms	10 ms	8 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).

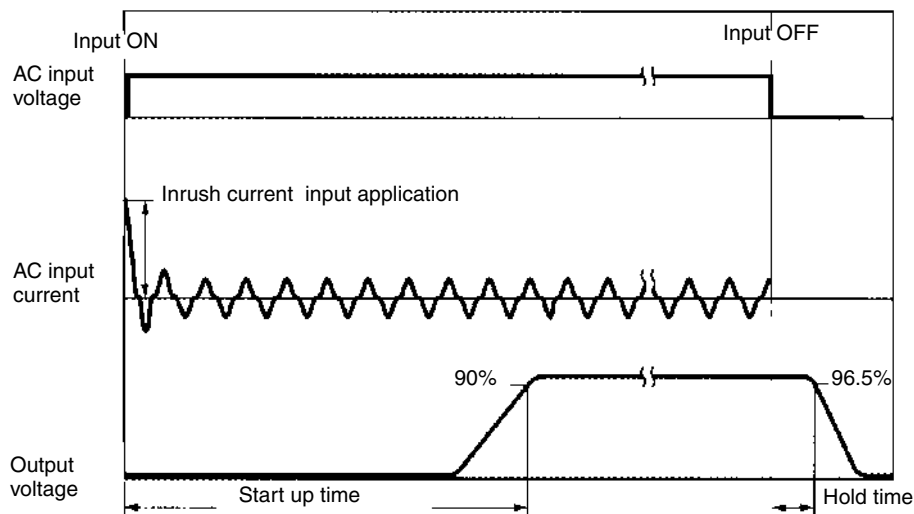
3. Under the ambient temperature of 40 °C, and a load rate of 50%.

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 Protection

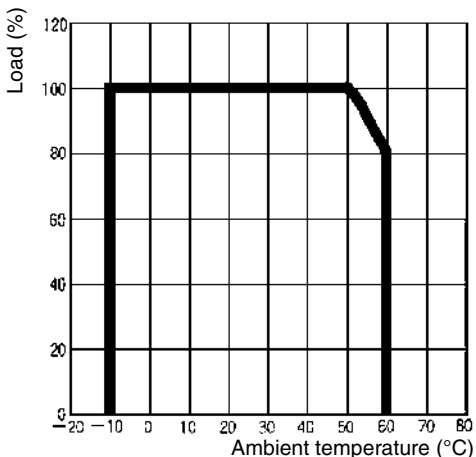
The Power supply is provided with an overload protection function that protect the load and the power supply from possible damage by over current. When the output current rises above between 105 to 130% of the rated current, the protection function is triggered, decreasing the output voltage. When output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

■ Overvoltage Protection

(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

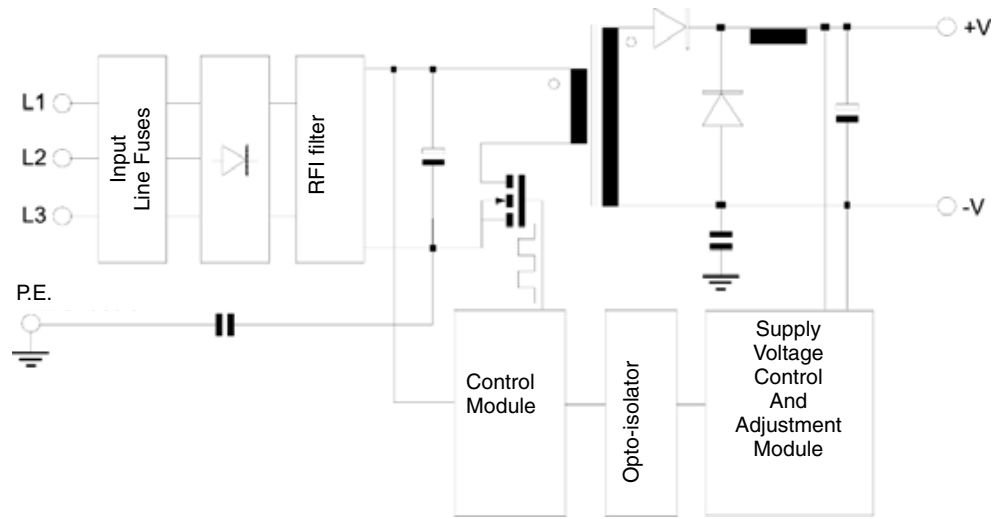


For UL and CSA the maximum temperature is 50% (with derating of 2%/°C from 40 °C to 50 °C, only for 40 A model)

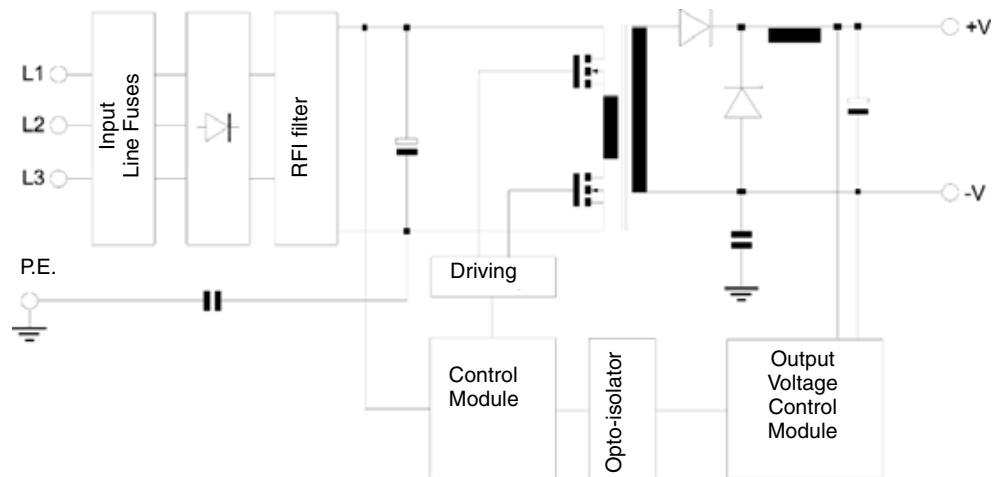
Operation

■ Block Diagram

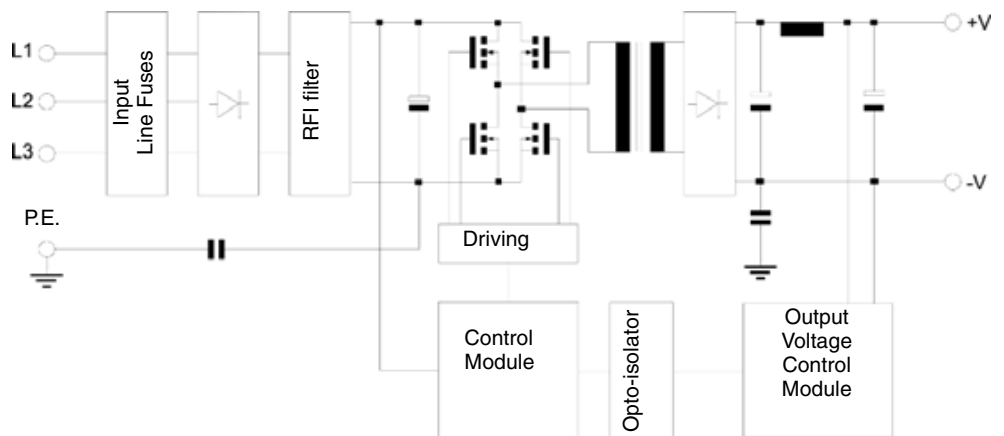
S8PE-F12024CD/J12024CD (5 A)
 S8PE-F24024CD/J24024CD (10 A)



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



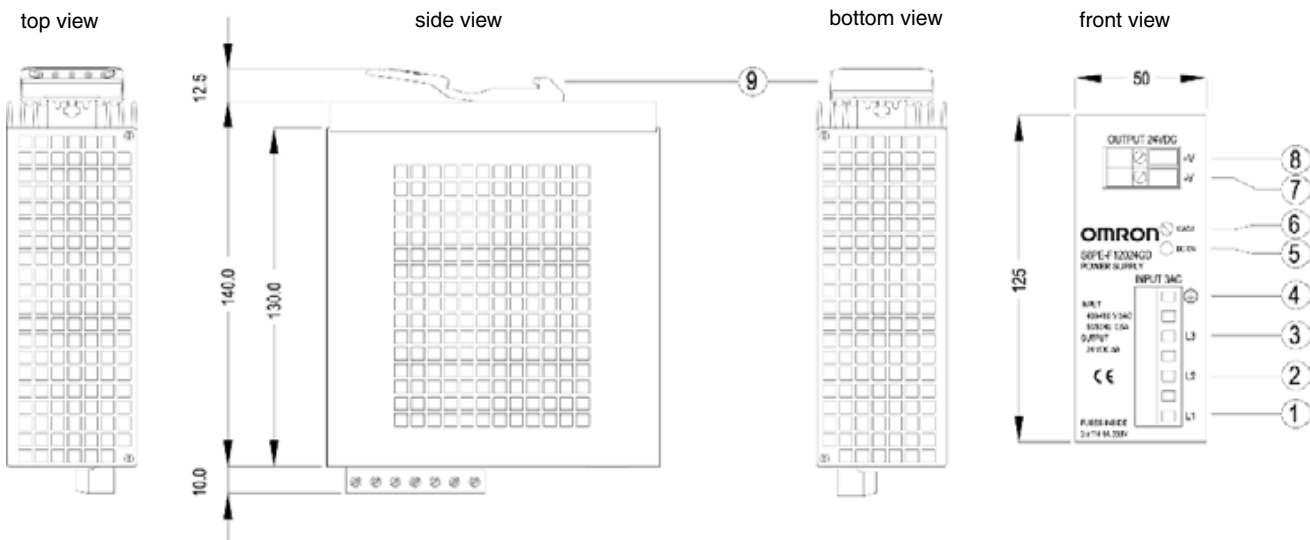
S8PE-F96024C/J96024C (40 A)



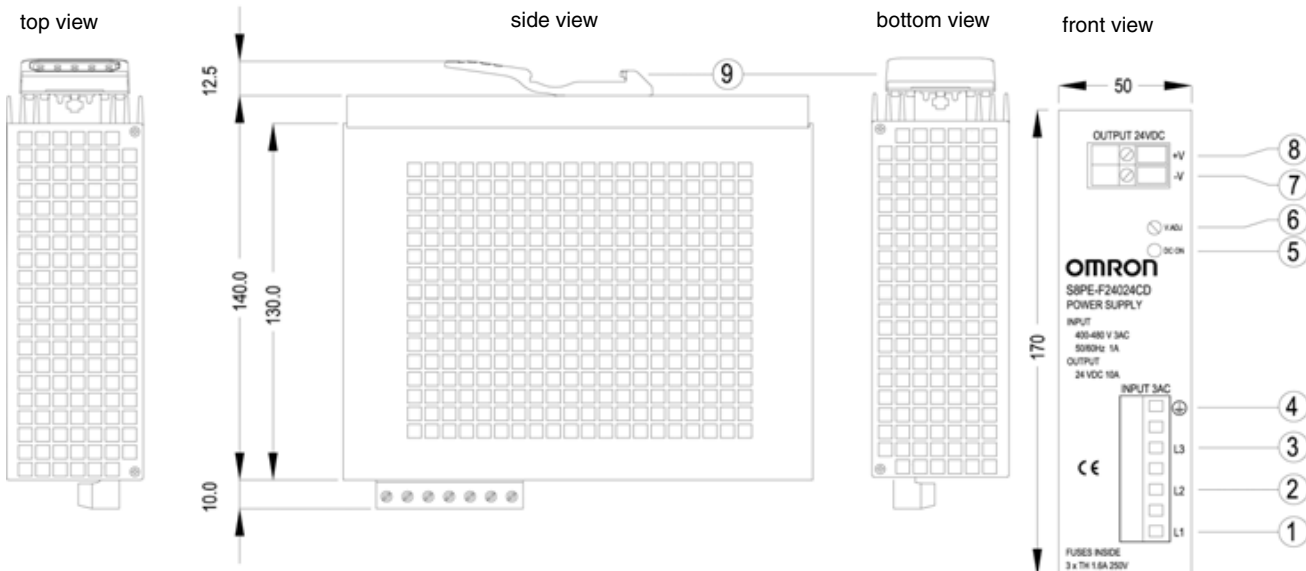
Dimensions and Installation

Note: All dimensions shown are in millimeters.

S8PE-F12024CD/J12024CD (5 A)

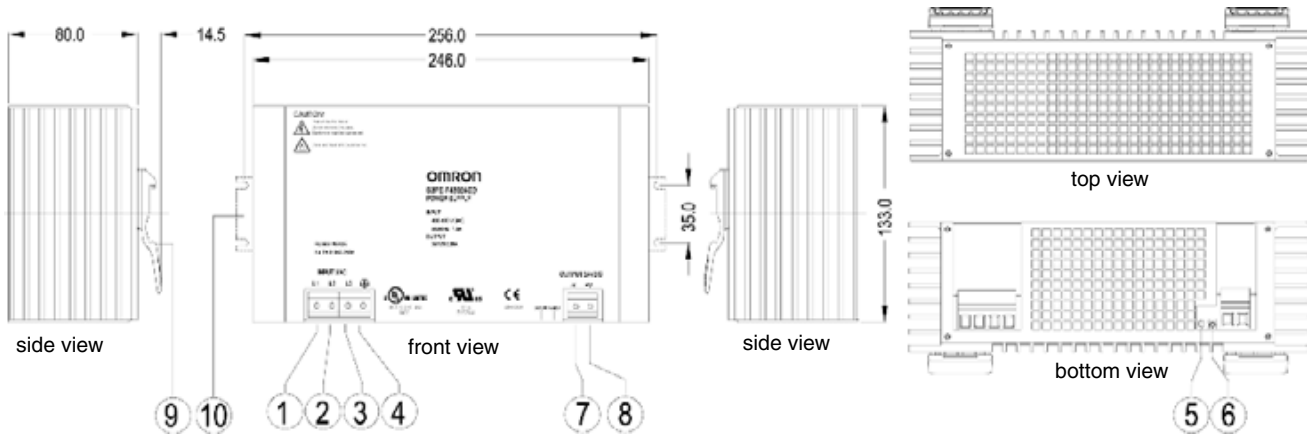


S8PE-F24024CD/J24024CD (10 A)

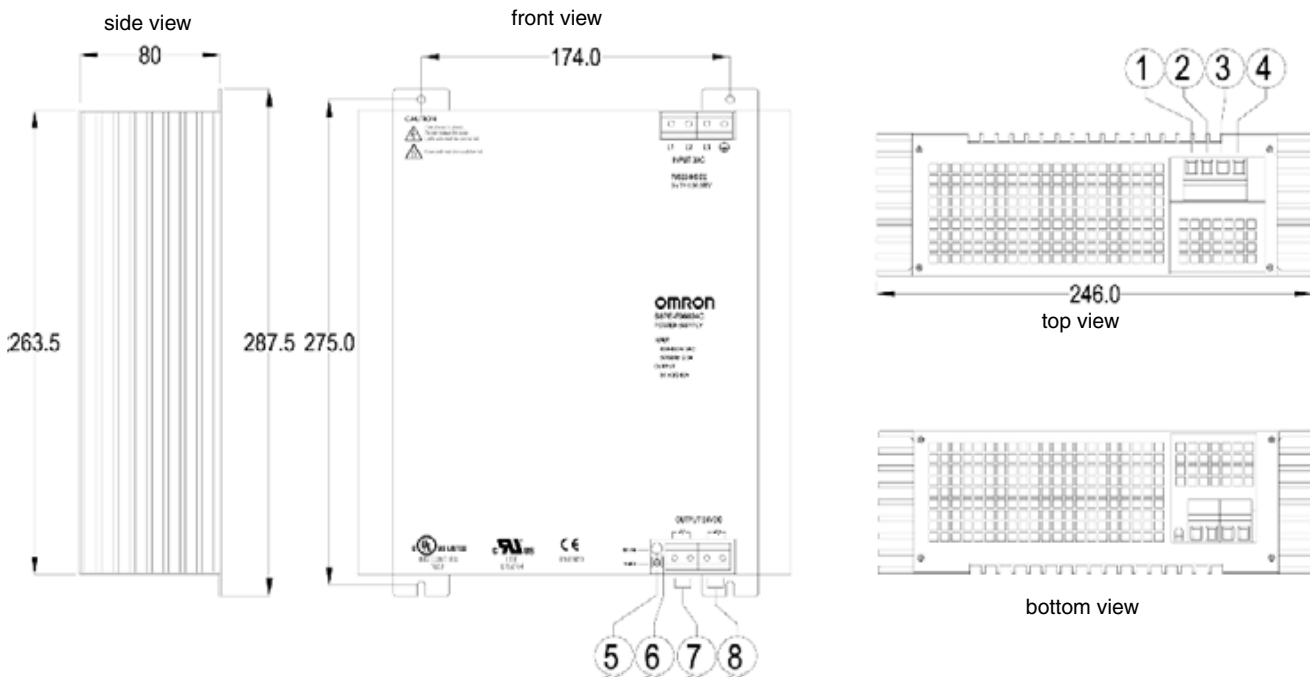


①	AC INPUT L1	⑥	Output Voltage adjustment trimmer V.ADJ
②	AC INPUT L2	⑦	DC OUTPUT -V
③	AC INPUT L3	⑧	DC OUTPUT +V
④	Protective Earth (P.E.)	⑨	35 mm DIN-rail attachment
⑤	DC OUTPUT indicator		

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
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 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 performance 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

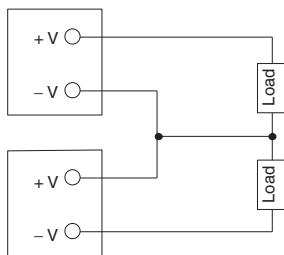
To improve and maintain the reliability of the Power Supply over a long period, adequate consideration must be taken to heat radiation.

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 distance of 10 cm at 50 °C ambient, 5 cm at 20 °C ambient.

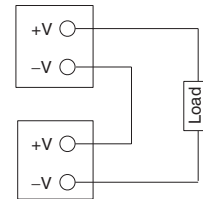
Generating (±) Output Voltage

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



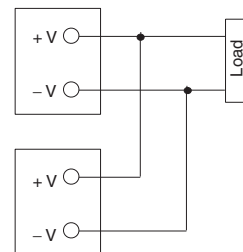
Serial Operation

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



Parallel Operation



As shown below, The Power supply can use for parallel operation. All the output voltage of each S8PEs should be exactly the same. Also, make sure that the thickness and the length of all wires connected to the load are the same to ensure that the wires will have no voltage drop difference. Types must be the same.





Safety Precautions


■ Safety Signal words

This document uses the following signal words to mark safety precautions for the S8PE. These precautions provide important information for the safe application of the product. You must be sure to follow the instructions provided 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. M044-E1-04

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