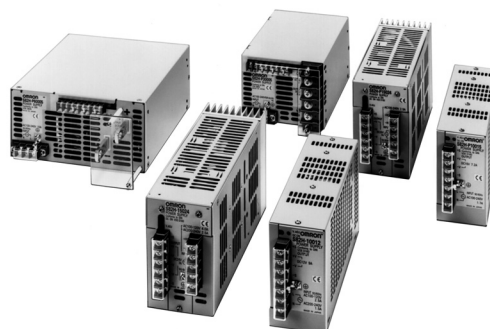


Switching Power Supply

S82H

Industrial Power Supply with Power Factor Correction Available

- Models range from 15 to 150 W.
- 120/240 selectable on 15 to 150 W Models.
- All meet UL and CSA standards.
- 100 to 150 W models also have VDE and CE approvals.
- 3-year warranty.



Ordering Information

■ NON-PFC TYPE SWITCHING POWER SUPPLIES

Stock Note: Shaded models are normally stocked.

Rated input voltage	Power ratings	Output voltage	Output current	Part number
120/240 VAC selectable	15 W	5 V	3 A	S82H-3105
		12 V	1.2 A	S82H-3112
		15 V	1 A	S82H-3115
		24 V	0.6 A	S82H-3124
	30 W	5 V	6 A	S82H-3305
		12 V	2.5 A	S82H-3312
		15 V	2 A	S82H-3315
		24 V	1.3 A	S82H-3324
	50 W	5 V	10 A	S82H-3505
		12 V	4.5 A	S82H-3512
		15 V	3.4 A	S82H-3515
		24 V	2.3 A	S82H-3524
	100 W	5 V	20 A	S82H-10005
		12 V	9 A	S82H-10012
		15 V	7.2 A	S82H-10015
		24 V	4.6 A	S82H-10024
	150 W	5 V	30 A	S82H-15005
		12 V	13.5 A	S82H-15012
		15 V	10 A	S82H-15015
		24 V	7 A	S82H-15024

■ ACCESSORIES (ORDER SEPARATELY)

Stock Note: Shaded models are normally stocked.

Item	Applicable power supplies	Mounting type	Part number
Mounting bracket	S82H-31□□ (15 W)	Bottom mounting	S82Y-H01B
		Side mounting	S82Y-H01S
		Front/flush mounting	S82Y-H01F
DIN-rail mounting bracket			S82Y-01N
DIN rail			PFP-100N2 PFP-50N PFP-100N
Mounting bracket	S82H-33□□ (30 W)	Bottom mounting	S82Y-H03B
		Side mounting	S82Y-H03S
		Front/flush mounting	S82Y-H03F
DIN-rail mounting bracket			S82Y-03N
DIN rail			PFP-100N2 PFP-50N PFP-100N
Mounting bracket	S82H-35□□ (50 W)	Bottom mounting	S82Y-H05B
		Side mounting	S82Y-H05S
		Front/flush mounting	S82Y-H05F
DIN-rail mounting bracket			S82Y-05N
DIN rail			PFP-100N2 PFP-50N PFP-100N
Mounting bracket	S82H-□100□□ (100 W)	Bottom mounting	S82Y-H10B
		Side mounting	S82Y-H10S
		Front/flush mounting	S82Y-H10F
	S82H-□150□□ (150 W)	Bottom mounting	S82Y-F15B
		Side mounting	S82Y-F15S
		Front mounting/back mounting	-----
Mounting bracket	S82H-P300□□ (300 W)	Bottom mounting	S82Y-D30B
		Side mounting	S82Y-D30S
		Front mounting/back mounting	-----
	S82H-P600□□ (600 W)	Bottom mounting	S82Y-D60B
		Side mounting	S82Y-D60S
		Front mounting/back mounting	-----
Fan	S82H-P300□□	—	S82Y-DFAN
	S82H-P600□□	—	
Terminal expansion bracket	S82H-P600□□	—	S82Y-D60T

MODEL NUMBER LEGEND

15 to 50 W Models

S82H - 3
1 2

1. Power ratings

1: 15 W
3: 30 W
5: 50W

2. Output voltage

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

100 to 600 W Models

S82H -
1 2

1. Output Capacity

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

Specifications

NON-PFC TYPE SWITCHING POWER SUPPLIES (15 W, 30 W, 50 W)

Power ratings		15 W	30 W	50 W
Efficiency (typ.)		70% to 80% (24 V)		
Input				
Operating voltage	AC	85 to 132 VAC/170 to 264 VAC (selectable)		
	DC	No		
Frequency		47 to 450 Hz		
Current at rated input voltage and rated output voltage/current	At 100-V input	0.5 A max.	0.9 A max.	1.3 A max.
	At 200-V input	0.3 A max.	0.6 A max.	0.8 A max.
Leakage current at rated input voltage and output voltage current (See Note 2.)	At 100-V input	0.5 mA max.		
	At 200-V input	1 mA max.		
Inrush current at rated input voltage and rated output voltage/current (See Note 2.)	At 100-V input	25 A max.		
	At 200-V input	50 A max.		
Noise filter		Provided		
Output				
Voltage adjustment		±10% (adjustable with variable resistor V–ADJ)		
Ripple and noise		2% (p-p) max.		
Regulation, line		0.5% max. (at 85 to 132/170 to 264 V input, 100% load)		
Regulation, load		2% max. (at rated input, 10 to 100% load)		
Temperature coefficient		0.05%/°C max. (at rated input/output in range of 0° to 40°C)		
Rise time		200 ms max. (90% output voltage rise at rated input voltage and rated output voltage/current)		
Hold up time		20 ms min. (90% output voltage rise at rated input voltage and rated output voltage/current)		
Additional functions				
Overload protection		120% of rated output current typ., inverted L trailing, automatic reset		
Overvoltage protection		No		
Remote sensing		No		
Remote control		No		

(This table continues on the next page.)

Specifications Table – continued from previous page

Power ratings		15 W	30 W	50 W
Characteristics				
Temperature	Operating	See Derating Curve in <i>Engineering Data</i> .		
	Storage	-20° to 85°C (–40° to 185°F)		
Humidity		Operating: 30 to 90% RH; Storage: 20 to 95% RH		
Dielectric strength		2,000 VAC, 50/60 Hz, for 1 minute (between input terminals and output terminals/housing) 500 VDC for 1 minute (between output terminals and input terminals/housing) Refer to Note 3 (on the next page).		
Insulation resistance		100 MΩ min. (between output terminals and input terminals/housing)		
Vibration		10 to 55 Hz, 0.75 mm double amplitude (approx. 4.5 G) in 3 directions, respectively for 2 hours		
Shock		294 m/s ² (30 G) in 6 directions, respectively 3 times		
Output indicator		Red LED		
Heat radiation		1.9 cal/sec	3.2 cal/sec	4.7 cal/sec
Electro Magnetic Interference		FCC Class B		
Mean Time Between Failures		100,000 hours min.		
Approved standards		UL (E105544), CSA (LR63986)		
Weight		400 g max.	520 g max.	660 g max.

■ NON-PFC TYPE SWITCHING POWER SUPPLIES (100 W, 150 W)

Power ratings		100 W	150 W
Efficiency		70% to 86% (depending on the model)	
Life expectancy (See Note 1.)		10 years min. in standard installation conditions at 40°C (104°F) at the rated input with 50% load.	
Input			
Voltage		100 to 120 VAC/200 to 240 VAC automatically selected (85 to 132 VAC/170 to 264 VAC)	
Frequency		47 to 450 Hz	
Current	at 100-V input	2.5 A max.	4 A max.
	at 200-V input	1.5 A max.	2.5 A max.
Leakage current (See Note 2.)	at 100-V input	0.5 mA max.	
	at 200-V input	1 mA max.	
Inrush current (See Note 2)	at 100-V input	25 A max.	
	at 200-V input	50 A max.	
Power factor		0.5 to 0.7 (depending on the model)	
Output			
Voltage adjustment range		±10% (adjustable with variable resistor (V.ADJ))	
Ripple		2% (p-p) max.	
Input variation influence		0.4 % max. (at 85- to 132-VAC/170- to 264-VAC input, 100% load)	
Load variation influence		0.8% max. (with rated input voltage, 0 to 100% load)	
Temperature variation influence		0.05%/°C max. with rated I/O at an ambient temperature range between -10°C to 50°C	
Rise Time		0.8 s max. (Rises up to 90% of the rated voltage under rated input.)	
Hold time		20 ms min.	

(This table continues on the next page.)

Specifications Table – continued from previous page

Power ratings		100 W	150 W
Additional functions			
Overload protection		105% max. of rated load current, inverted L drop type, automatic reset	
Overvoltage protection		120% of rated output voltage (typical), shutoff type, input reset	
Parallel operation		No	Yes, up to five units
Series operation		Yes	
Remote sensing		Yes	
Remote control		No	Yes
Remote voltage adjustment		Yes	
Cooling method		Natural air-cooling used	
Fan alarm function		No	
Characteristics			
Ambient temperature	Operating	See the derating curve in the <i>Engineering Data</i> section. (No condensation or icing.)	
	Storage	–25°C to 65°C (–13°F to 149°F) with no condensation or icing	
Ambient operating humidity		25% to 85%	
Dielectric strength		3 kVAC, 50/60 Hz for 1 min between all inputs and all outputs with a current leakage of 25 mA max. 2.5 kVAC, 50/60 Hz for 1 min between all inputs and GR terminals with a current leakage of 25 mA max. 1.0 kVAC, 50/50 Hz for 1 min between all outputs and GR terminals with a current leakage of 15 mA max. for each 100-W model, 20 mA max. for each 150-W model.	
Insulation resistance		100 MΩ min. between all outputs and all inputs/GR terminals at 500 VDC	
Vibration resistance	Malfunction	10 to 55 Hz, 0.375-mm single amplitude for 2 hrs each in X, Y, and Z directions	
Shock resistance	Malfunction	300 m/s ² (approx. 30G), 3 times each in ±X, ±Y, and ±Z directions	
Output indicator		Yes (green)	
EMC		Emission Enclosure (See Note 4.): EN55022 Group 1 class B Emission AC Mains: EN55022 Group 1 class B Immunity ESD: EN61000-4-2:4 kV contact discharge (level 2) 8 kV air discharge (level 3) Immunity RF-interference: ENV50140:10 V/m (10 k 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 I/O signal-line (level 4)	
Limits for harmonic current emission		---	
EMC standards		Conforms to EN50081-1, EN50082-2	
Electromagnetic interference		Conforms to FCC class B, EN50081–1	
Approved standards		UL1012, CSA E.B. 1402C, VDE 0160, IEC 950, EN 60950, CE	
Weight		950 g max.	1,800 g max.

- Note: 1. The fan is one of the replacement parts (300- and 600-W models).
2. As defined with the rated input voltage and rated output voltage/current.
3. A surge absorber is provided for the input circuits. To test the dielectric strength and insulation resistance of these models, remove the short bar attached across the GR and ACG terminals.
4. To ensure emission enclosure rating, ferrite cores should be used on all cabling.

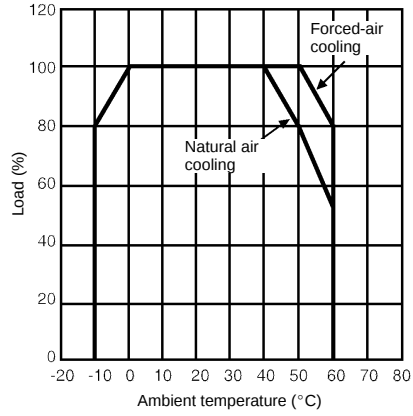
Engineering Data

DERATING CURVE

Note: The derating curve differs depending on the mounting position of the power supply.

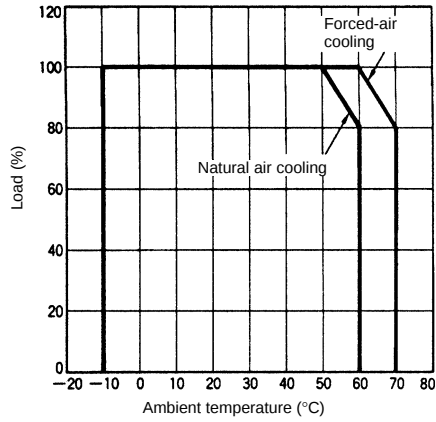
15, 30, 50 W Models

Standard Mounting



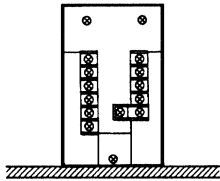
100 and 150 W Models

Standard Mounting

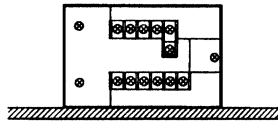


MOUNTING POSITION

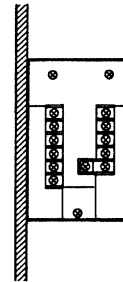
Standard Mounting



Horizontal Mounting (100- and 150-W Models Only)



Side Mounting (150-W Models Only)

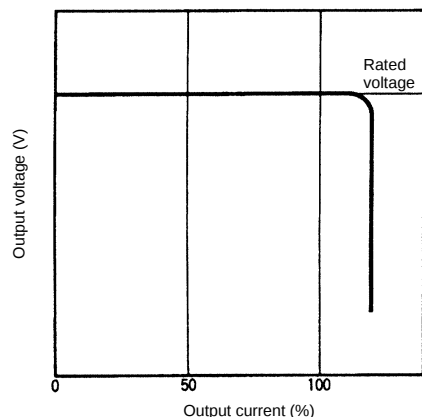


- Note: 1. Forced-air cooling must be applied at an minimum air capacity rate of 1 m³/min.
2. Units cannot be mounted vertically.

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 (105% of the rated output current for S82H), 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.

15-/30-/50-/100- and 150-W Models

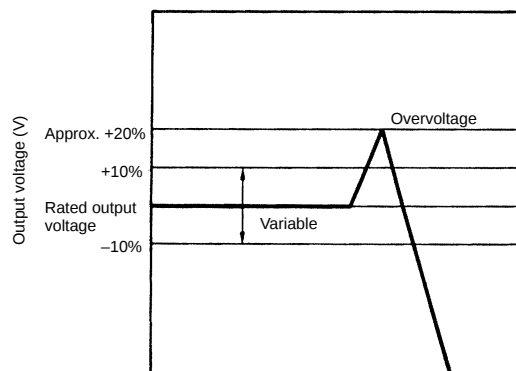


Note: If the product is continuously used under short-circuit or overcurrent conditions, deterioration or damage to internal elements may occur.

OVERVOLTAGE PROTECTION

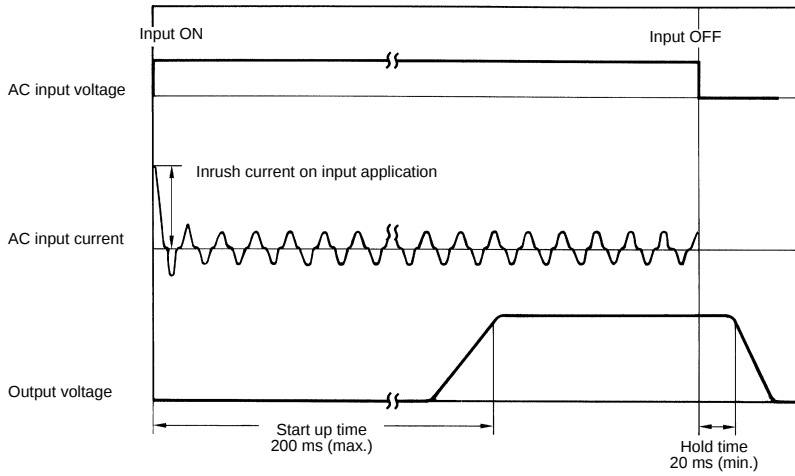
All – Except 15, 30, and 50 W Models

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 S82H by turning it off for more than 1 minute and then turning it on again.



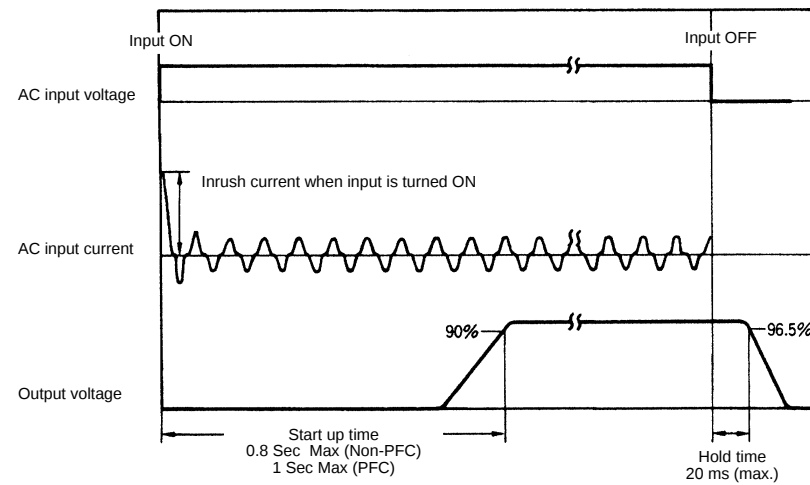
■ INRUSH CURRENT, START UP TIME, HOLD TIME

15 – 50 W Models



■ INRUSH CURRENT, START UP TIME, HOLD TIME

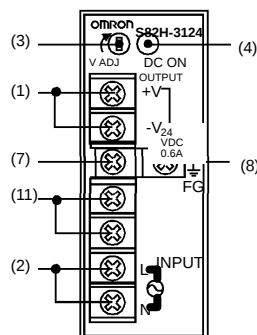
100 – 600 W Models



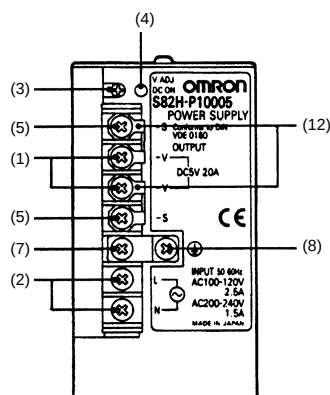
Nomenclature

■ TERMINAL ARRANGEMENT

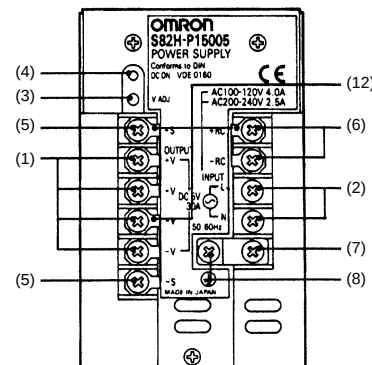
S82H-31□□
S82H-33□□
S82H-35□□



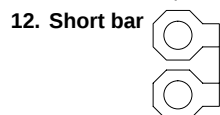
S82H100□□ (100 W)



S82H150□□ (150 W)



1. **DC output terminals:** Connect the load lines to these terminals.
2. **Input terminals L and N (with fuse inserted into the L side):** Connect the input lines to these terminals.
3. **Output voltage adjustment trimmer V.ADJ (with adjustment range of $\pm 10\%$ of rated output):** Adjusts the output voltage.
4. **Output indicator DC ON:** Lit while a DC output is ON.
5. **Remote sensing terminals:** Corrects the voltage drop in the load lines.
6. **Remote control terminals:** Enables external signals to turn the output ON and OFF while the input voltage is imposed. The terminals are short-circuited with a short bar before shipping.
7. **ACG terminal:** The intermediate point of the input filter. The terminal is short-circuited to the GR terminal before shipping.
8. **GR/FG terminal:** Shorted to the housing. Ground the Power Supply through this terminal.
9. **Fan alarm terminals FAN ALM:** Turns ON when the revolution of the built-in fan drops.
10. **Output voltage monitor terminals:** Connected to the DC output terminals internally. No output current can be obtained from these terminals. Short-circuit the terminals to the remote sensing terminals +S and -S if the remote sensing function is not used.
11. **Input voltage selector and terminals:** Switch the input voltage by connecting or removing the short bar (short circuit: 100–120V; Open circuit: 200–240V)

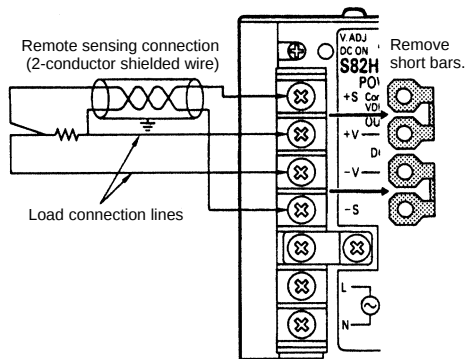


Operation

REMOTE SENSING FUNCTION

The remote sensing function makes it possible to compensate for voltage drops caused by load lines. To use this function, remove the short bar from the remote sensing terminals and wire the Power Supply and load as shown in the following illustration. The remote sensing terminals are short-circuited with the short bar before shipping.

100-W and 150-W Models



Level	Output voltage
L (0.8 V max.)	ON
H (2 V min.)	OFF

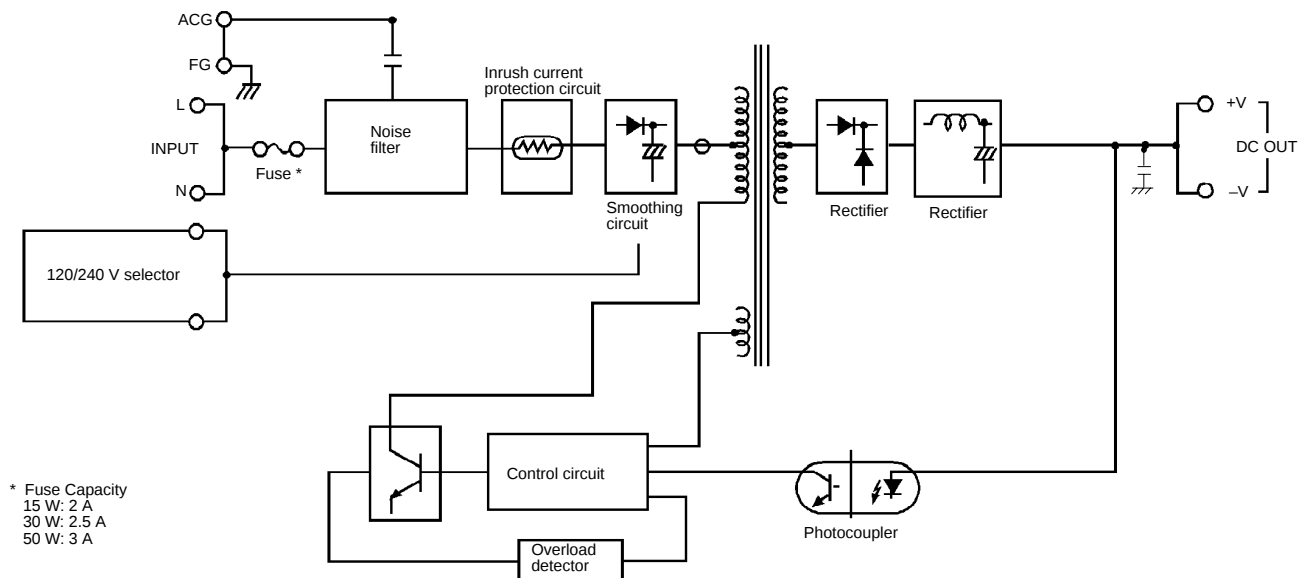
Note: No output will be produced if the terminals are left unconnected. Be sure to firmly tighten the terminal screws.

BLOCK DIAGRAMS

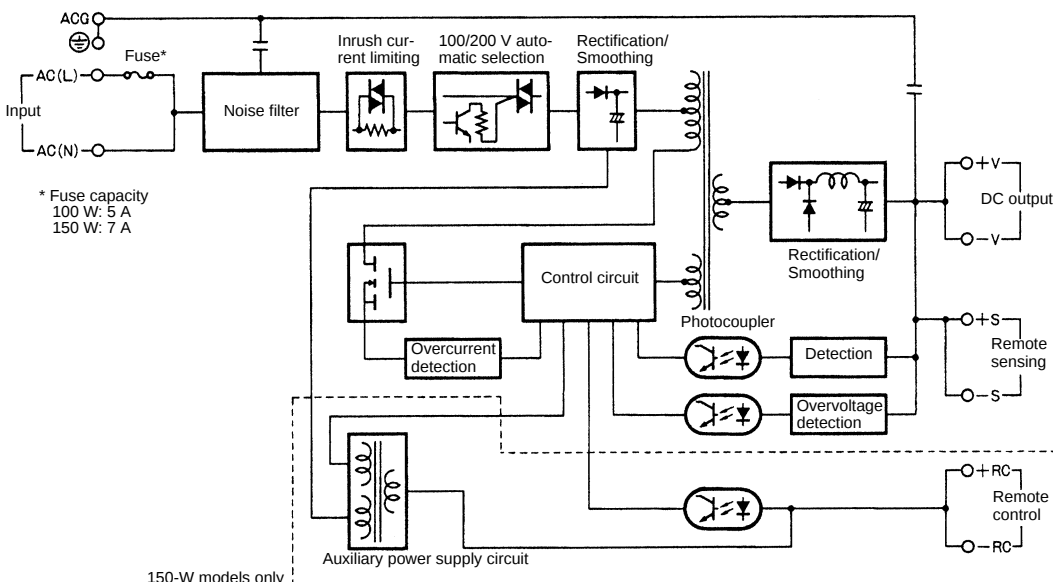
S82H-31□□

S82H-33□□

S82H-35□□



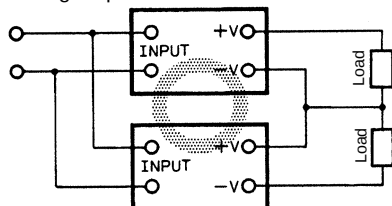
S82H-100 (100 W)
S82H-150 (150 W)



■ GENERATING OUTPUT VOLTAGE ($\pm$)

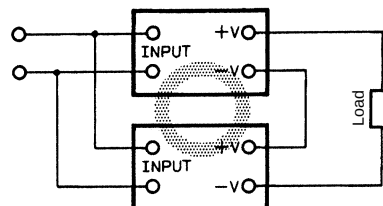
The output of two Power Supplies can be combined in series.

An output of $\pm$ can be generated by using two power supplies (as shown below) because the power supply produces a floating output.



■ SERIES OPERATION

The output of two power supplies can be combined in series.

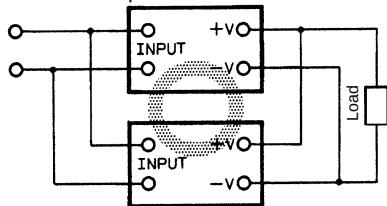


■ PARALLEL OPERATION

Parallel operation is possible by simply connecting the output terminals in parallel. (Other than 100 W models)

Using the output voltage adjustment trimmer, adjust the output of each power supply to the same value.

Operate the Power Supplies connected in parallel at 80% of the rated output current.

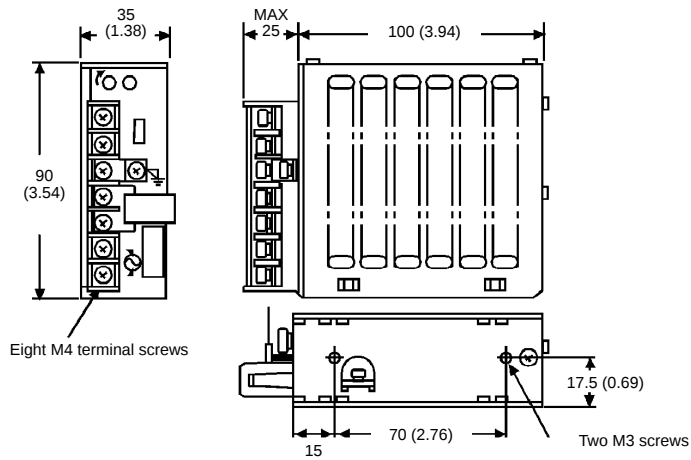


Dimensions

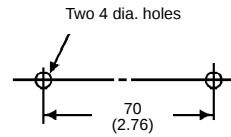
Unit: mm (inch)

SWITCHING POWER SUPPLIES

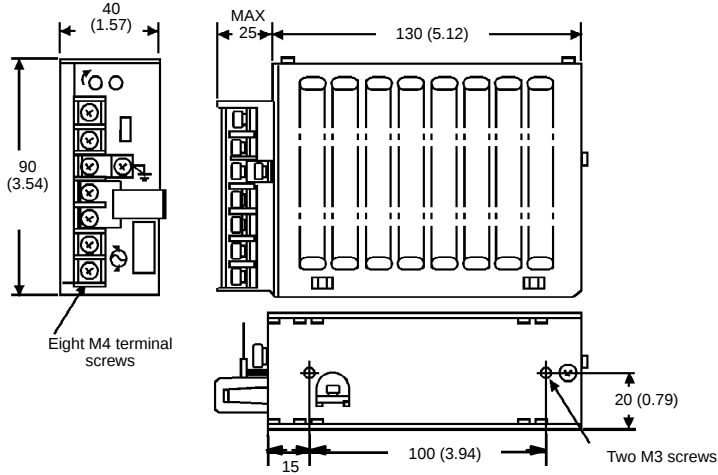
S82H-31□□



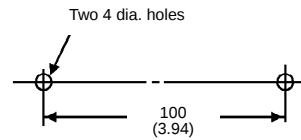
Mounting Holes – Bottom mounting



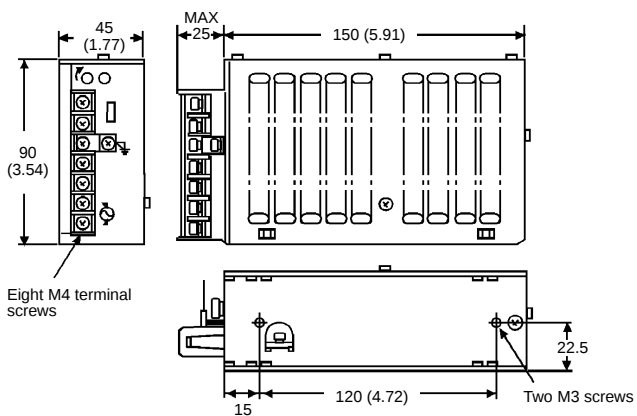
S82H-33□□



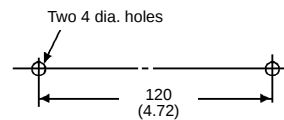
Mounting Holes



S82H-35□□



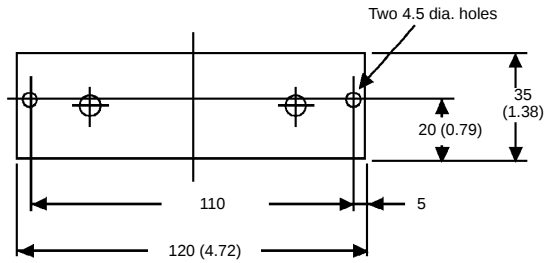
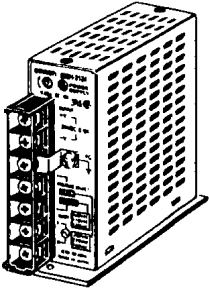
Mounting Holes



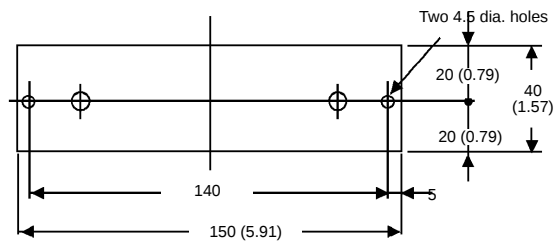
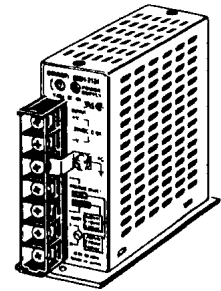
■ MOUNTING BRACKET

Bottom-Mounting Bracket

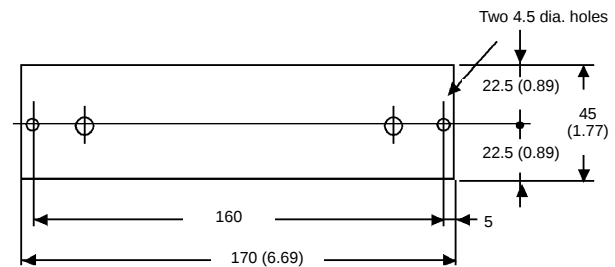
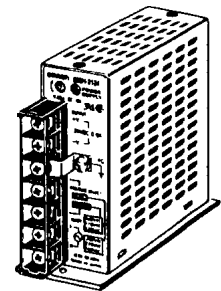
S82Y-H01B (15 W)



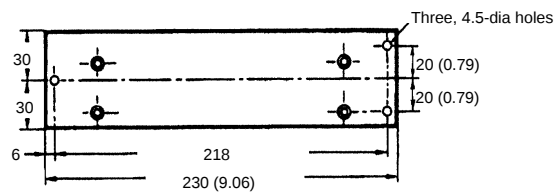
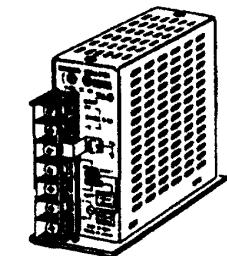
S82Y-H03B (30 W)



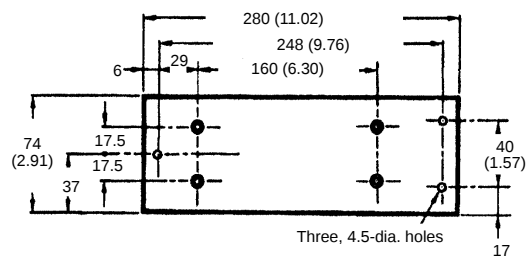
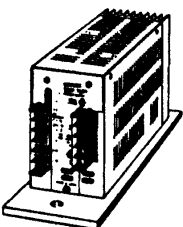
S82Y-H05B (50 W)



S82Y-H10B (100 W)



S82Y-F15B (150 W)

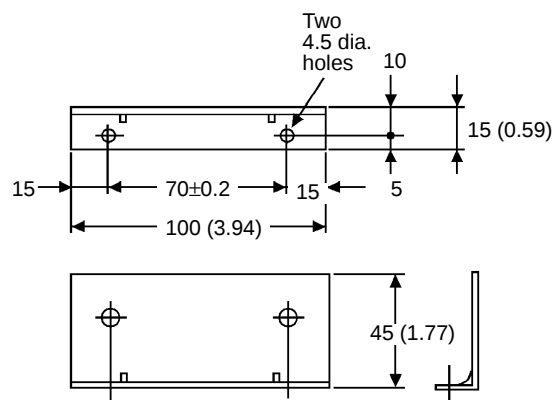
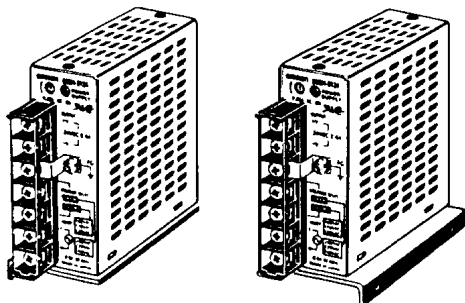


Note: Use countersink screws of M4 x 8 max. when attaching to the unit.

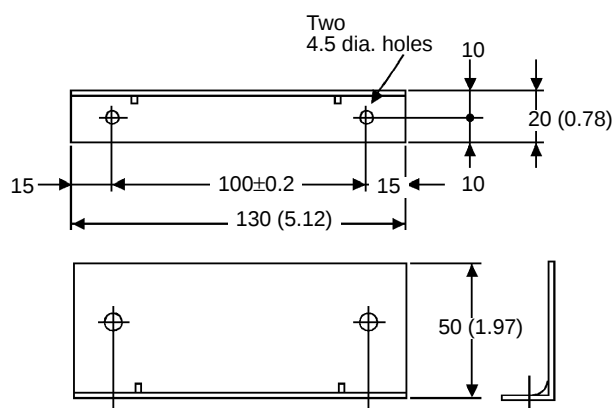
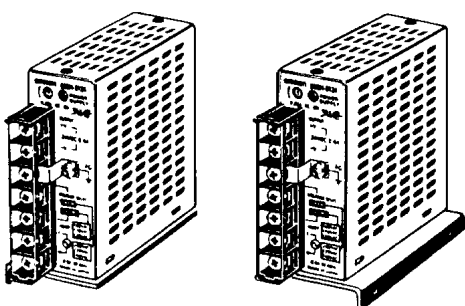
Unit: mm (inch)

Side-Mounting Bracket

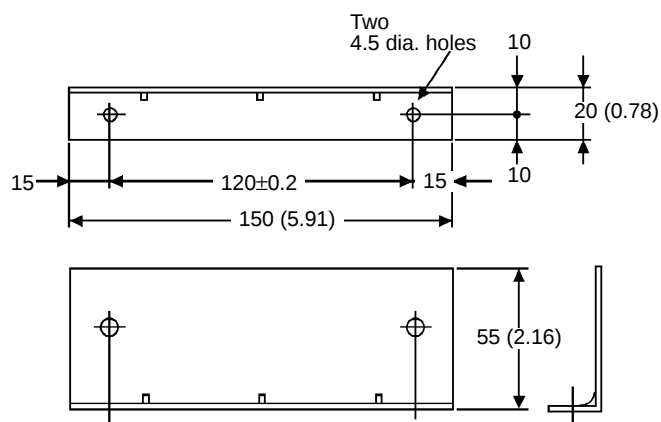
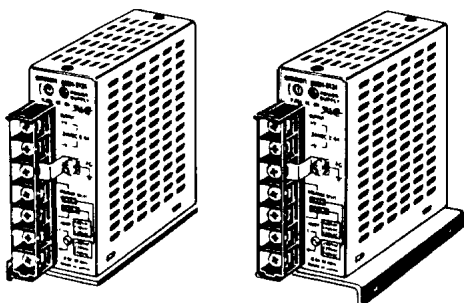
S82Y-H01S (15 W)



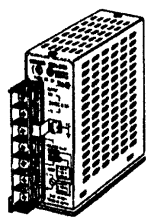
S82Y-H03S (30 W)



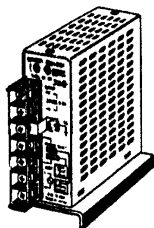
S82Y-H05S (50 W)



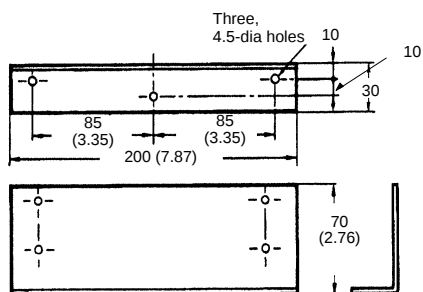
S82Y-H10S (100 W)



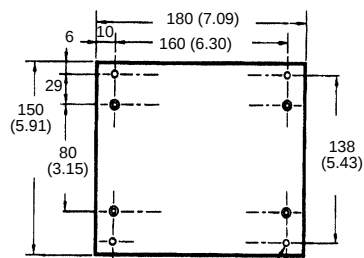
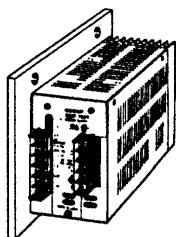
Left-side mounting



Right-side mounting



S82Y-F15S (150 W)

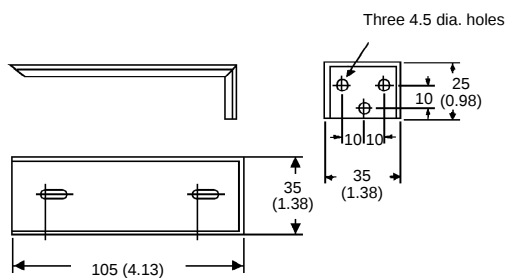
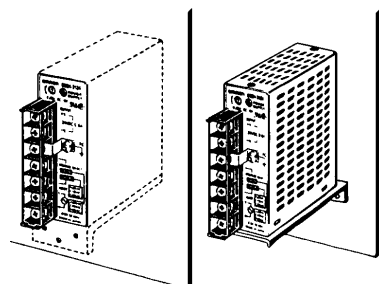


Four, 4.5-dia. holes

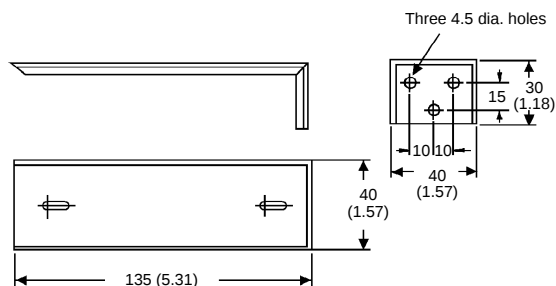
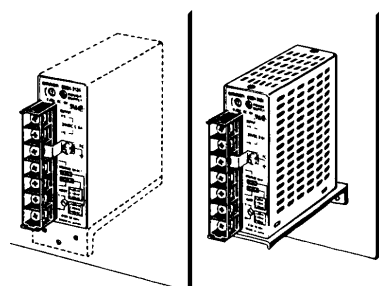
Note: Use countersink screws of M4 x 8 max. when attaching to the unit.

Front/Flush Mounting Bracket

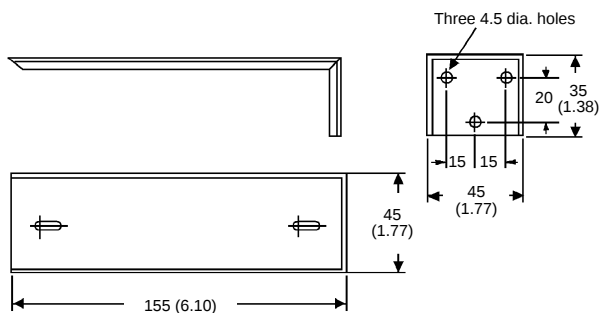
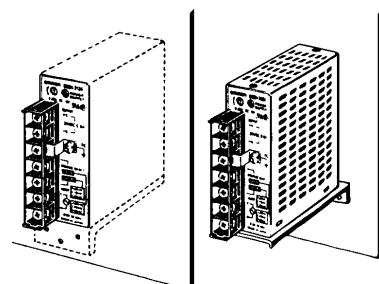
S82Y-H01F (15 W)



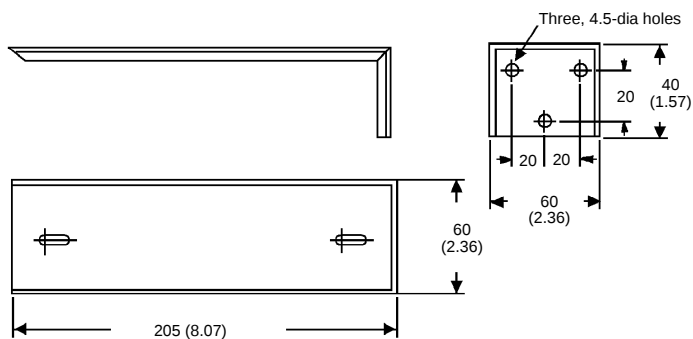
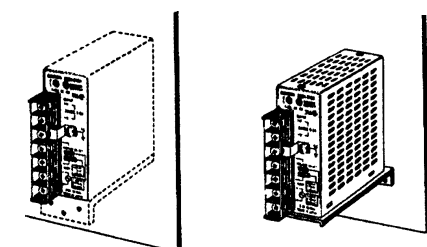
S82H-H03F (30 W)



S82H-H05F (50 W)



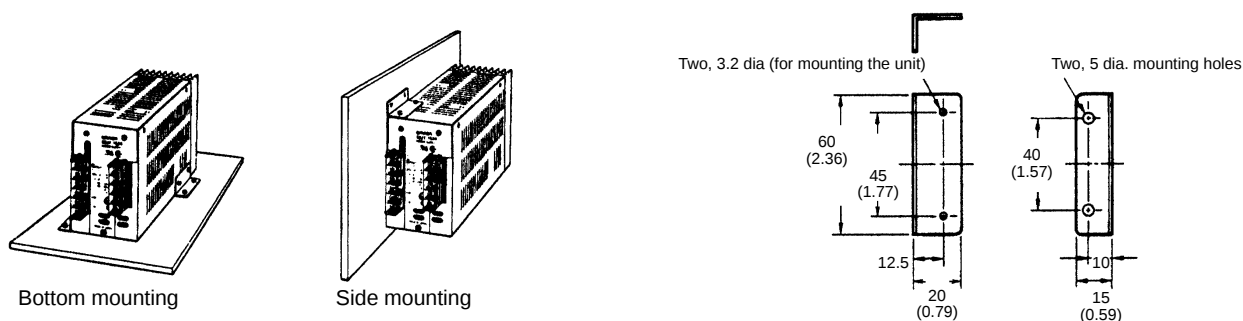
S82Y-H10F (100 W)



■ OTHER ACCESSORIES AND ATTACHMENTS FOR S82H150□□ (150 W)

Using the mounting brackets supplied with the unit, the unit can be attached in two directions.

Bottom or Side Mounting Bracket (Included as an Attachment)



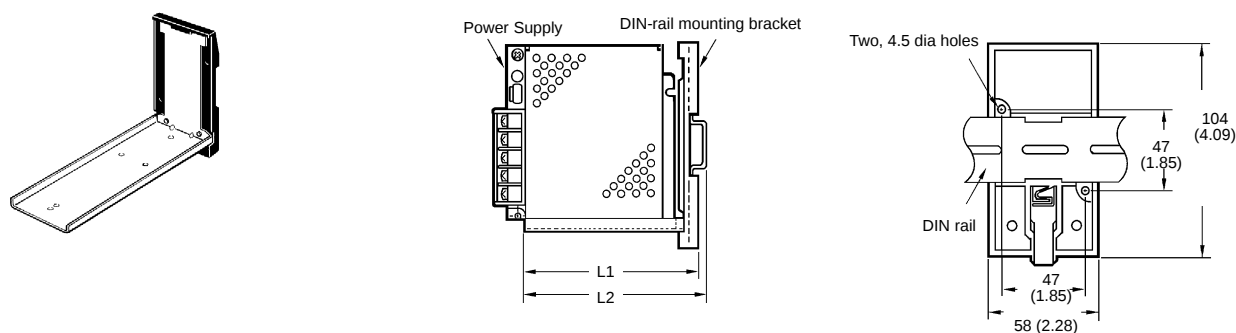
Note: Using two screws, attach the mounting bracket to the unit and then attach it to the panel.

■ DIN-RAIL MOUNTING BRACKET

S82Y-01N (15 W)

S82Y-03N (30 W)

S82Y-05N (50 W)

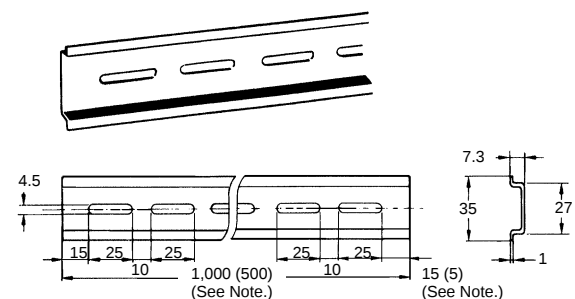


Item	S82Y-01N	S82Y-03N	S82Y-05N
Applicable power supply	S82H-31	S82H-33	S82H-35
Dimensions L1	113 mm (4.45)	143 mm (5.63)	163 mm (6.42)
Dimensions L2	114.8 mm (4.52)	144.8 mm (5.70)	164.8 mm (6.49)

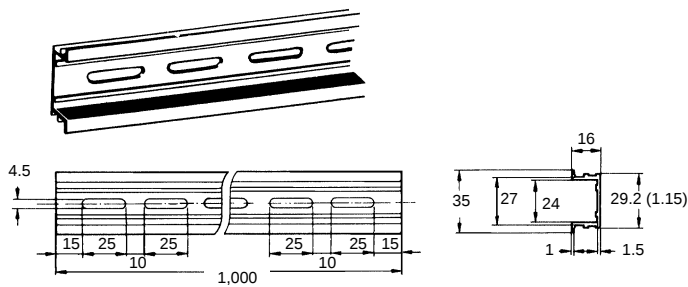
Note: The figures in row L1 apply if a mounting bracket is attached to the power supply. The figures in row L2 apply if PFP-50N or PFP-100N DIN rail is used. Add 10.5 mm to each figure in the L1 row if PFP-100N2 DIN rail is used.

■ DIN RAIL

PFP-100N/PFP-50N



PFP-100N2



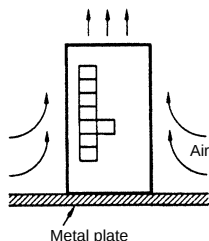
Note: The values shown in parentheses are for the PFP-50N.

Precautions

■ MOUNTING

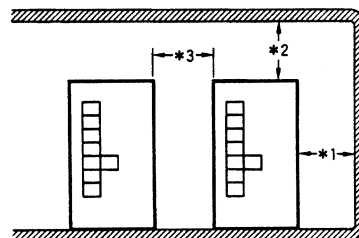
Note: Be careful not to impose any excessive vibration or impact when installing.

- To improve and maintain the reliability of the Power Supply over a long period of time, adequate consideration must be given to heat dissipation.
- Mount the Power Supply so that air flow takes place around the Power Supply. The Power Supply is designed to dissipate heat through natural air-flow.
- It is recommended that the Power Supply be mounted on a metal plate.



Provide at least the spaces listed in the following table.

Model	*1	*2	*3	*4	*5
100W, 150W	30 mm (1.18)	50 mm (1.97)	20 mm (0.78)	20 mm (0.78)	20 mm (0.78)
300W	30 mm (1.18)	50 mm (1.97)	20 mm (0.78)	50 mm (1.97)	40 mm (1.57)
600W	30 mm (1.18)	50 mm (1.97)	20 mm (0.78)	70 mm (2.76)	50 mm (1.97)



- Forced-air cooling is recommended.
- Don't expose the product to the direct sunlight.
- Be careful not to allow any machining chips or dust into the product while fabricating mounting plates.
- Don't use the product where fluids, foreign matter, or corrosive gases may enter the product.
- Provide at least the spaces listed in the following table.

■ WIRING PRECAUTIONS

The Power Supply is provided with reinforced insulation between the primary and secondary terminals. When using the secondary circuit as an SELV circuit, the circuit connected to the output terminals and auxiliary function terminals must be a SELV circuit.

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