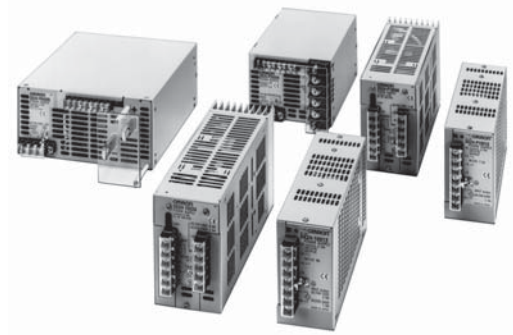


# Switching Power Supply S82H

## 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	<b>S82H-3105</b>
		12 V	1.2 A	<b>S82H-3112</b>
		15 V	1 A	<b>S82H-3115</b>
		24 V	0.6 A	<b>S82H-3124</b>
	30 W	5 V	6 A	<b>S82H-3305</b>
		12 V	2.5 A	<b>S82H-3312</b>
		15 V	2 A	<b>S82H-3315</b>
		24 V	1.3 A	<b>S82H-3324</b>
	50 W	5 V	10 A	<b>S82H-3505</b>
		12 V	4.5 A	<b>S82H-3512</b>
		15 V	3.4 A	<b>S82H-3515</b>
		24 V	2.3 A	<b>S82H-3524</b>
	100 W	5 V	20 A	<b>S82H-10005</b>
		12 V	9 A	<b>S82H-10012</b>
		15 V	7.2 A	<b>S82H-10015</b>
		24 V	4.6 A	<b>S82H-10024</b>
150 W	5 V	30 A	<b>S82H-15005</b>	
	12 V	13.5 A	<b>S82H-15012</b>	
	15 V	10 A	<b>S82H-15015</b>	
	24 V	7 A	<b>S82H-15024</b>	

■ 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)			
<b>Input</b>				
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			
<b>Output</b>				
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)			
<b>Additional functions</b>				
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
<b>Characteristics</b>			
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 <sup>2</sup> (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.	
<b>Input</b>		
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)	
<b>Output</b>		
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
<b>Additional functions</b>		
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	
<b>Characteristics</b>		
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 <sup>2</sup> (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.

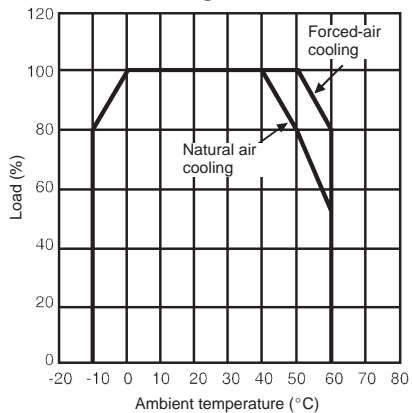
# Engineering Data

## DERATING CURVE

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

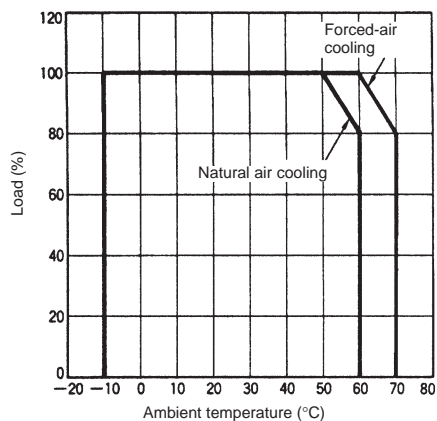
### 15, 30, 50 W Models

#### Standard Mounting



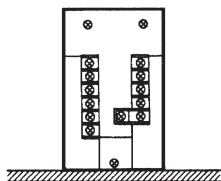
### 100 and 150 W Models

#### Standard Mounting

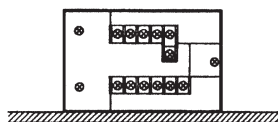


## MOUNTING POSITION

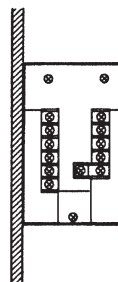
### Standard Mounting



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



### Side Mounting (150-W Models Only)

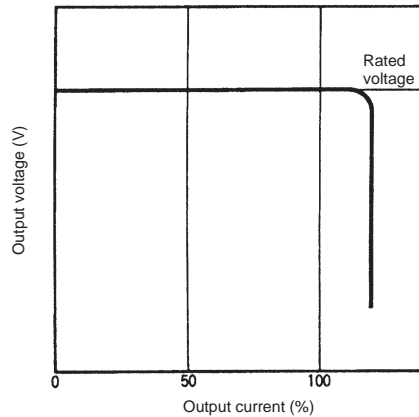


- Note: 1. Forced-air cooling must be applied at a minimum air capacity rate of 1 m<sup>3</sup>/min.  
 2. Units cannot be mounted vertically.

## 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

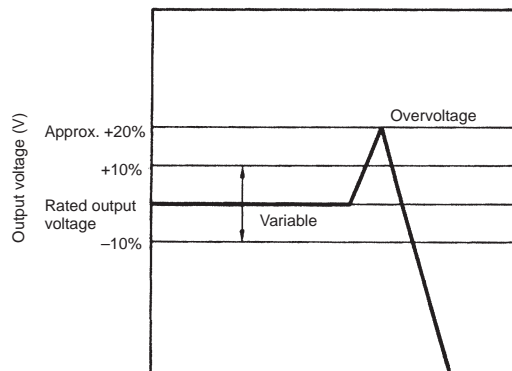


Note: If the product is continuously used under short-circuit or overcurrent conditions, deterioration or damage to internal elements may occur.

## OVERVOLTAGE PROTECTION

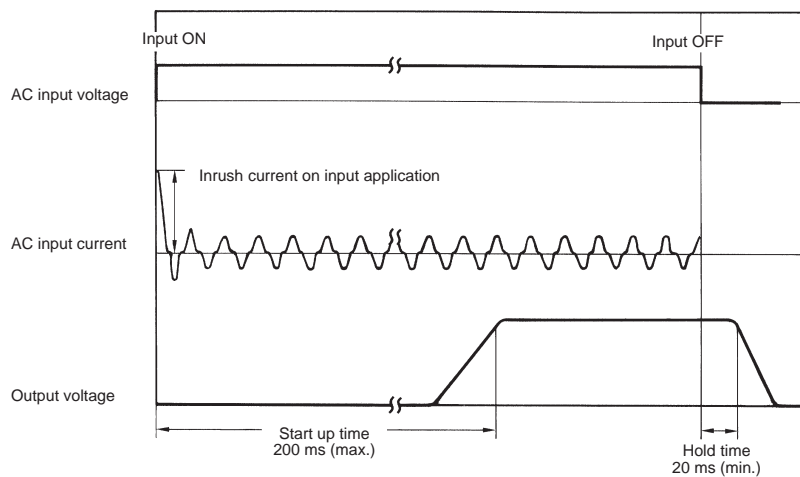
### All – Except 15, 30, and 50 W Models

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.



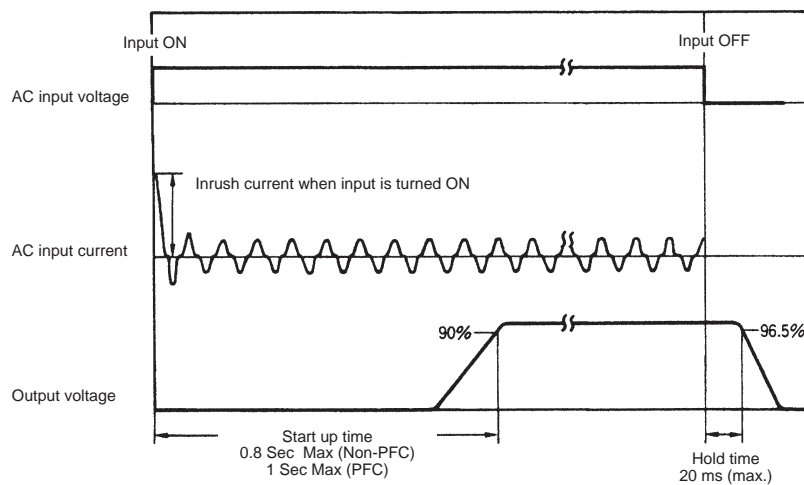
■ INRUSH CURRENT, START UP TIME, HOLD TIME

15 – 50 W Models



■ INRUSH CURRENT, START UP TIME, HOLD TIME

100 – 600 W Models





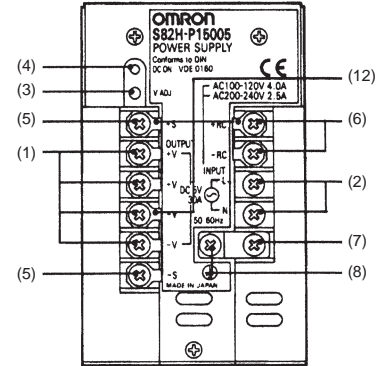
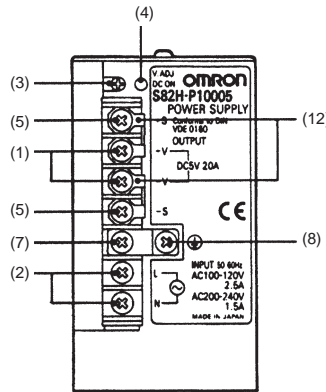
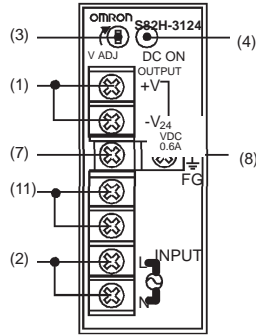
# Nomenclature

## ■ TERMINAL ARRANGEMENT

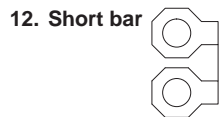
S82H-31□□  
 S82H-33□□  
 S82H-35□□

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)

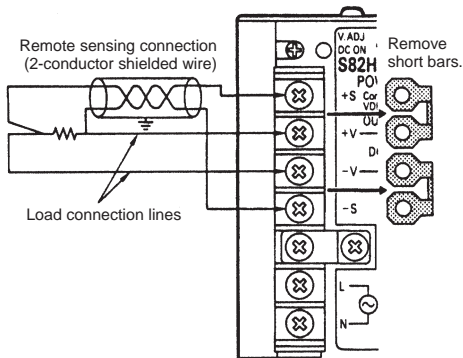


# Operation

## 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

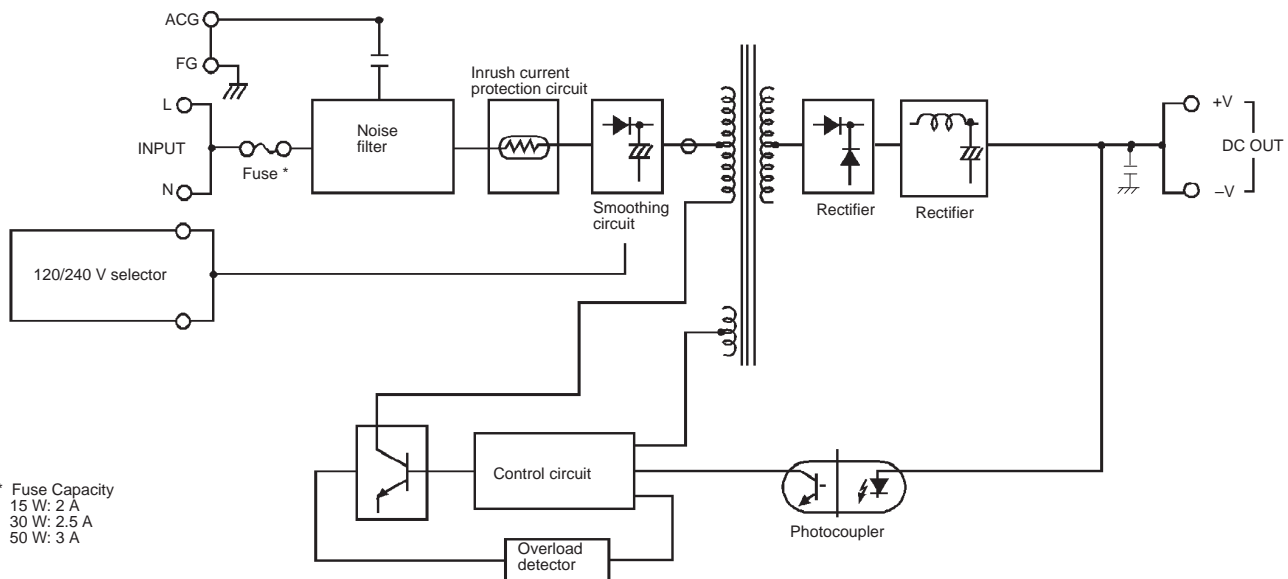
Note: No output will be produced if the terminals are left unconnected. Be sure to firmly tighten the terminal screws.

## BLOCK DIAGRAMS

S82H-31 □ □

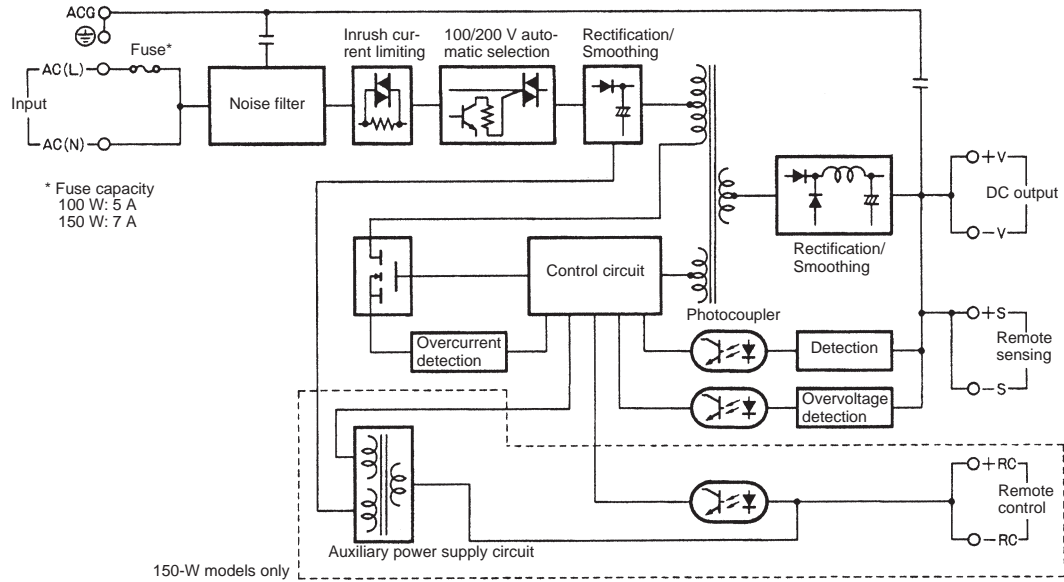
S82H-33 □ □

S82H-35 □ □



\* Fuse Capacity  
 15 W: 2 A  
 30 W: 2.5 A  
 50 W: 3 A

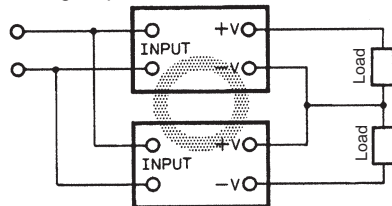
**S82H-100** (100 W)  
**S82H-150** (150 W)



■ **GENERATING OUTPUT VOLTAGE (±)**

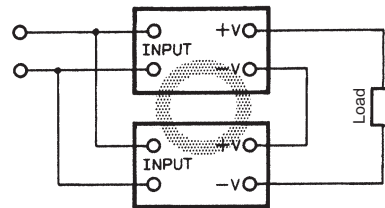
The output of two Power Supplies can be combined in series.

An output of ± 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.

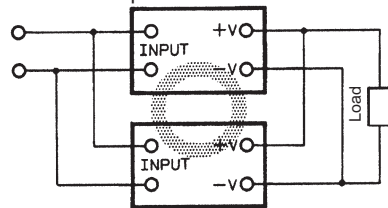


■ **PARALLEL OPERATION**

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.

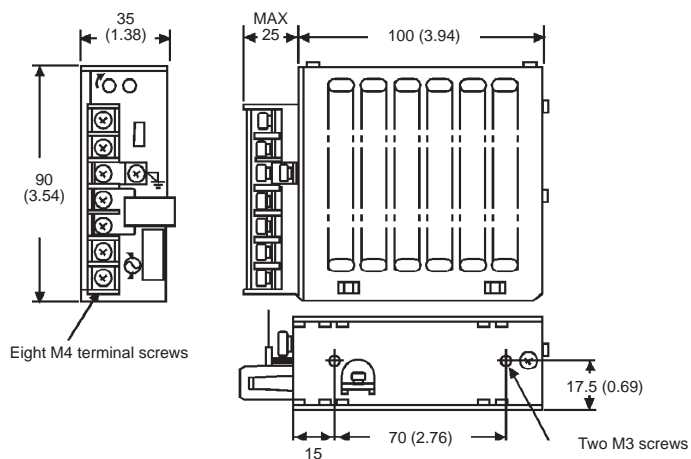


# Dimensions

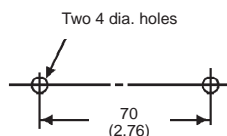
Unit: mm (inch)

## SWITCHING POWER SUPPLIES

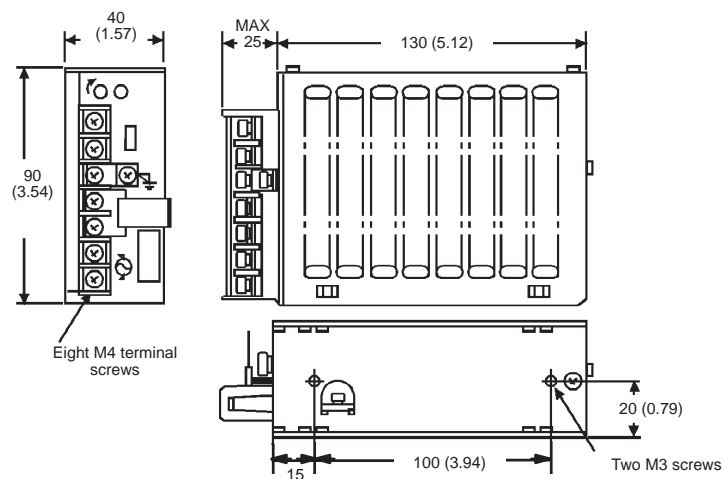
### S82H-31 □□



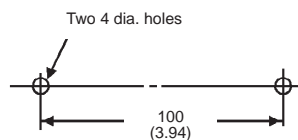
Mounting Holes – Bottom mounting



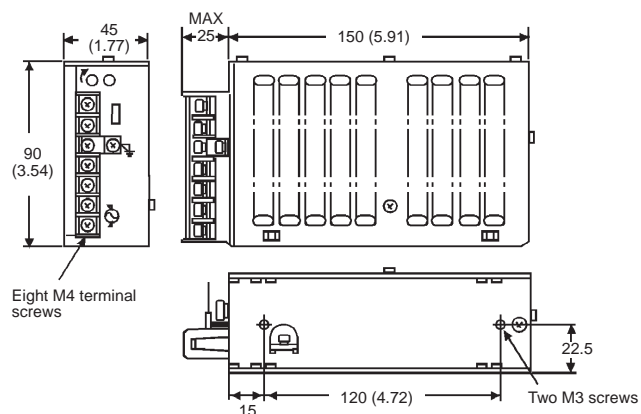
### S82H-33 □□



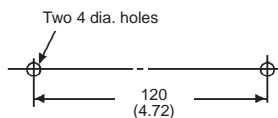
Mounting Holes



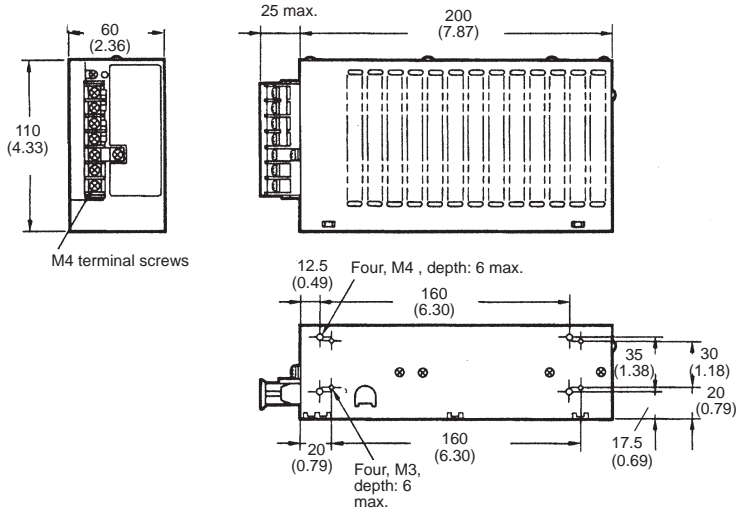
### S82H-35 □□



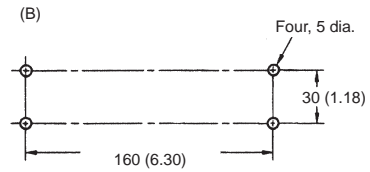
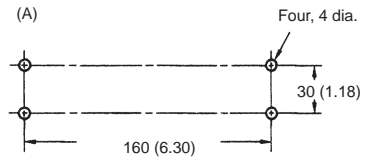
Mounting Holes



**S82H100□□ (100 W)**

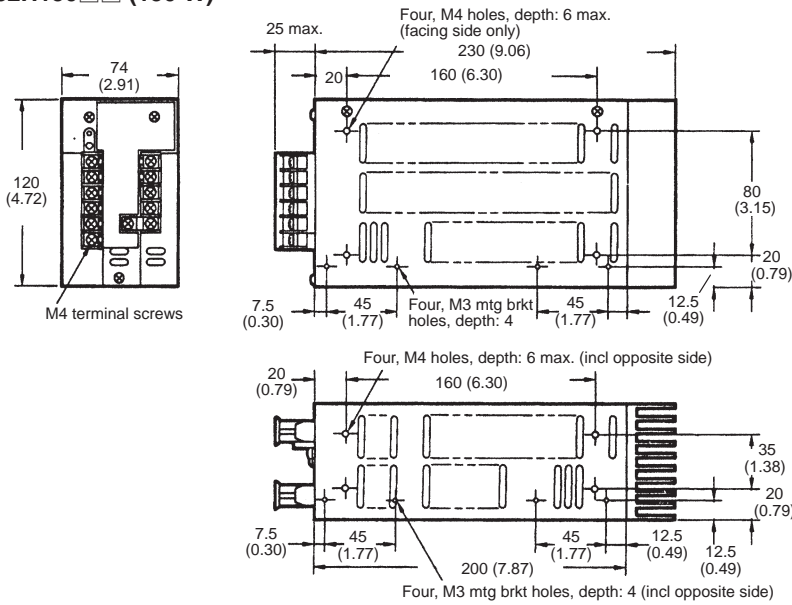


**Mounting Holes**



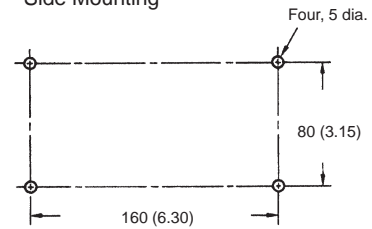
(A): Compatible with conventional S82H (100 W) models  
 (B): Compatible with S82P (100 W) discontinued models

**S82H150□□ (150 W)**

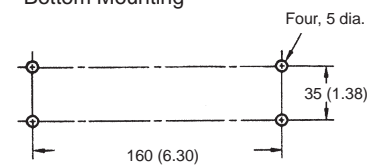


**Mounting Holes**

**Side Mounting**



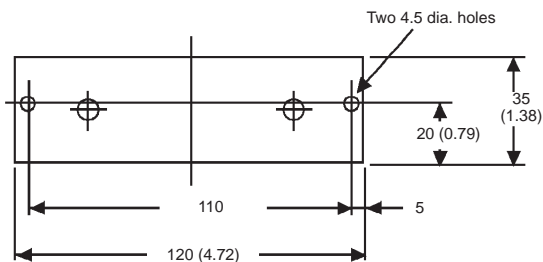
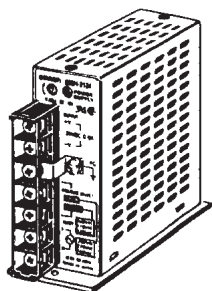
**Bottom Mounting**



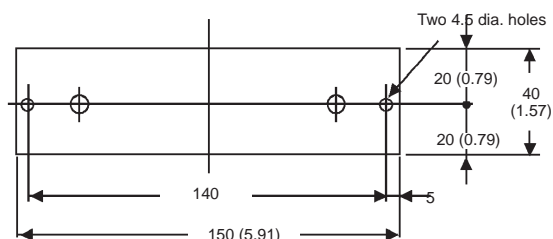
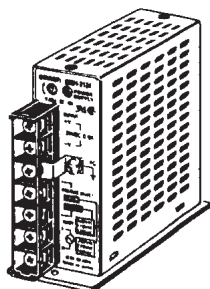
■ MOUNTING BRACKET

Bottom-Mounting Bracket

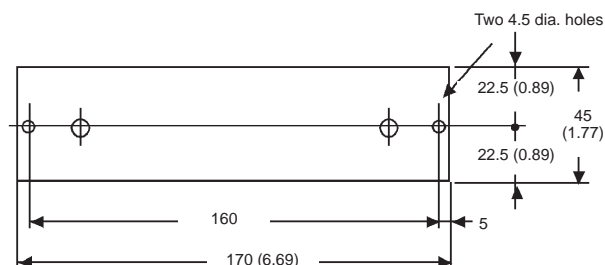
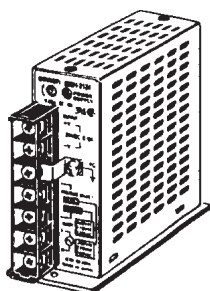
S82Y-H01B (15 W)



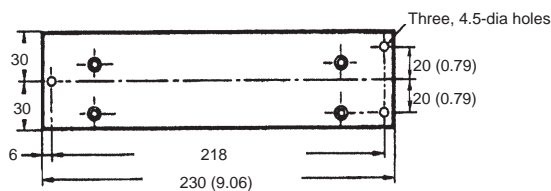
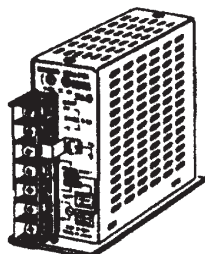
S82Y-H03B (30 W)



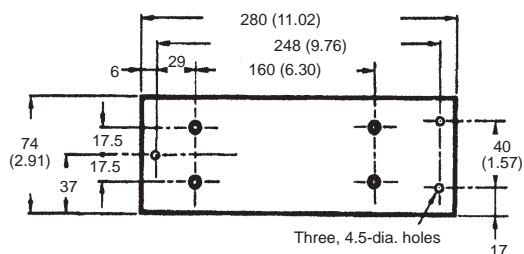
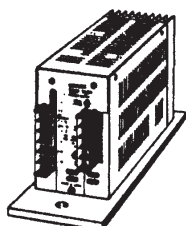
S82Y-H05B (50 W)



S82Y-H10B (100 W)



S82Y-F15B (150 W)

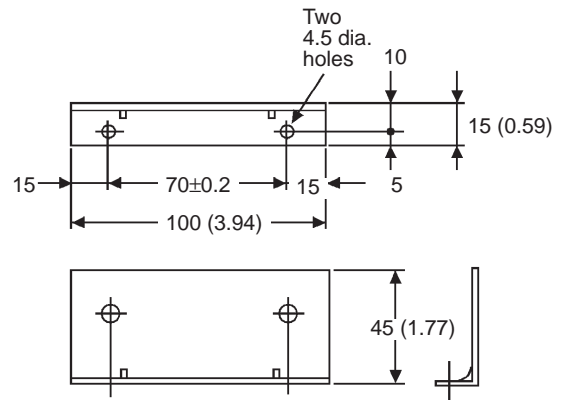
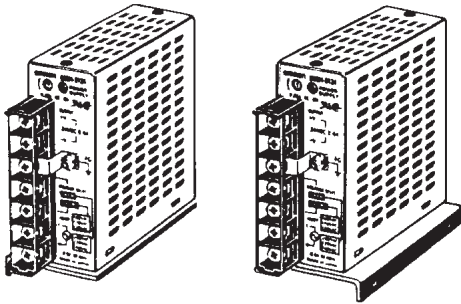


Note: Use countersink screws of M4 x 8 max. when attaching to the unit.

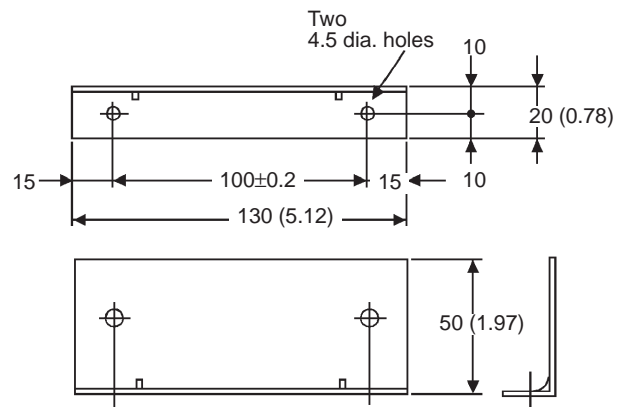
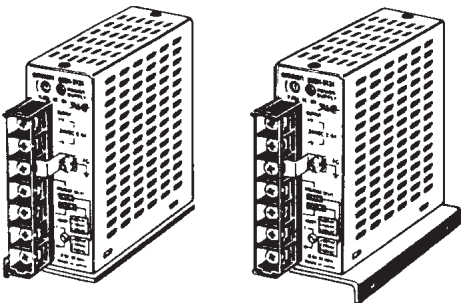
Unit: mm (inch)

Side-Mounting Bracket

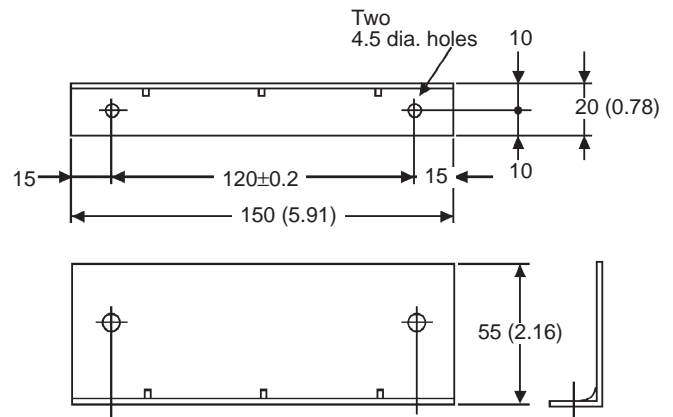
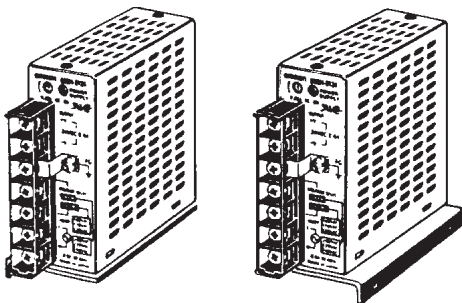
S82Y-H01S (15 W)



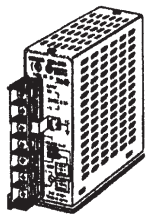
S82Y-H03S (30 W)



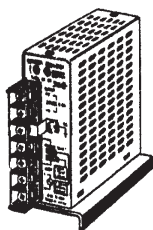
S82Y-H05S (50 W)



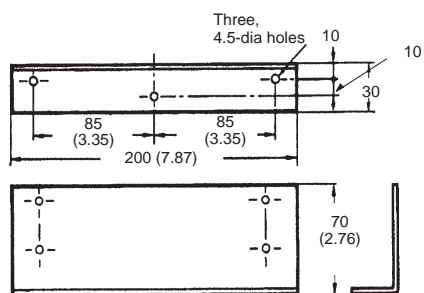
S82Y-H10S (100 W)



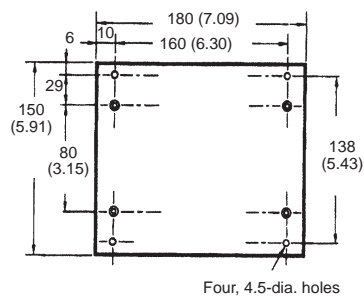
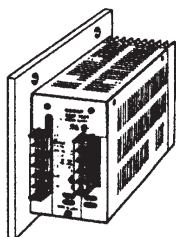
Left-side mounting



Right-side mounting



S82Y-F15S (150 W)



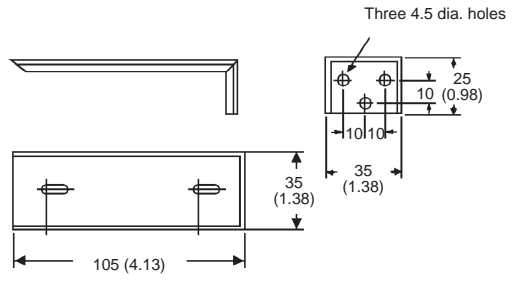
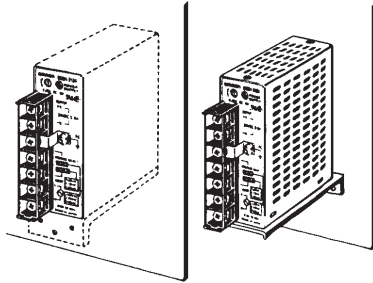
Four, 4.5-dia. holes

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

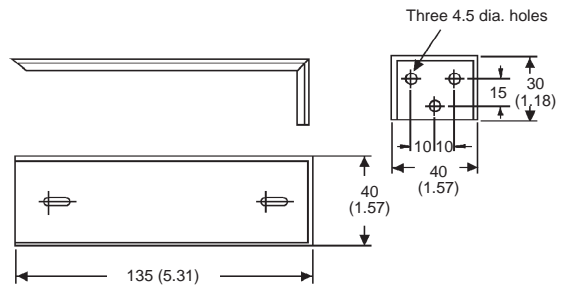
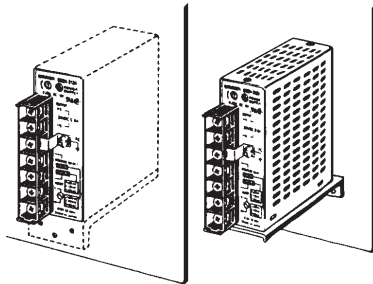


Front/Flush Mounting Bracket

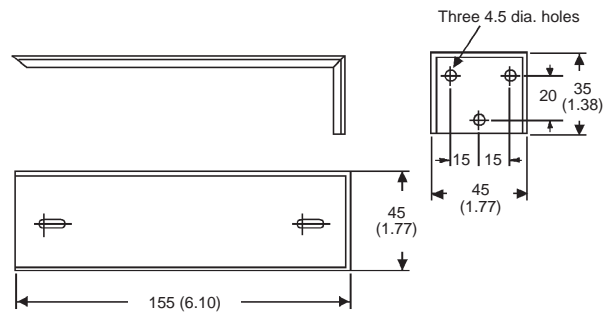
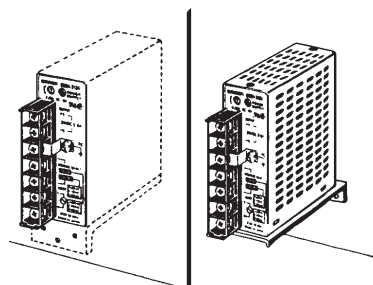
S82Y-H01F (15 W)



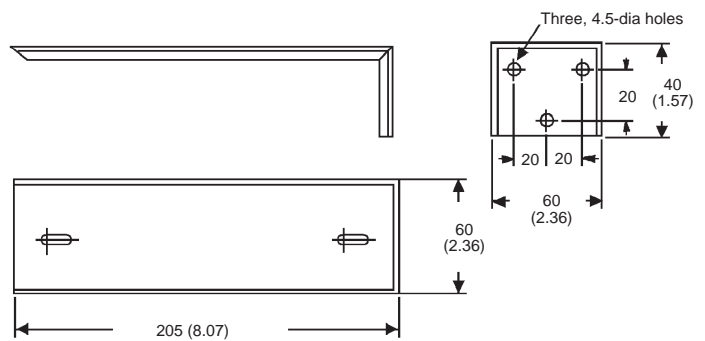
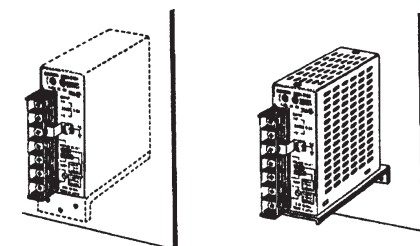
S82H-H03F (30 W)



S82H-H05F (50 W)



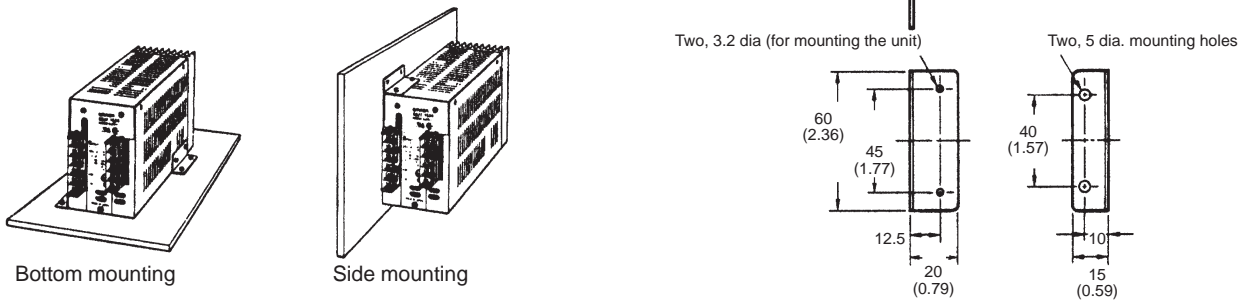
S82Y-H10F (100 W)



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

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

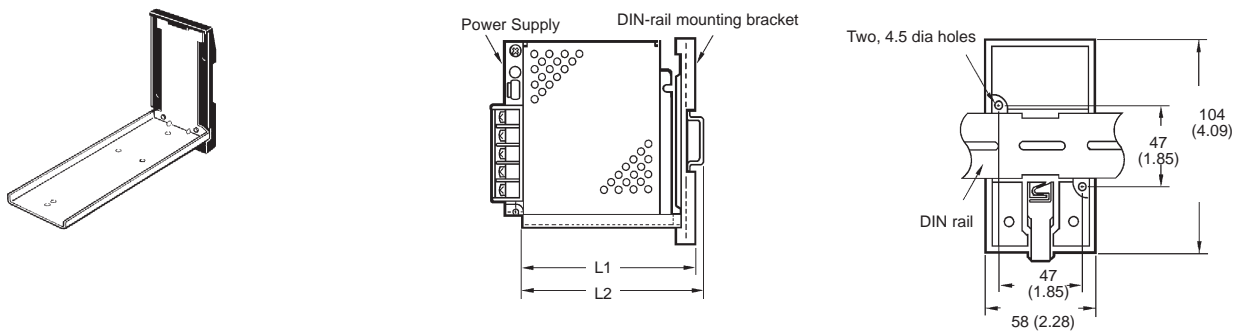
Bottom or Side Mounting Bracket (Included as an Attachment)



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)



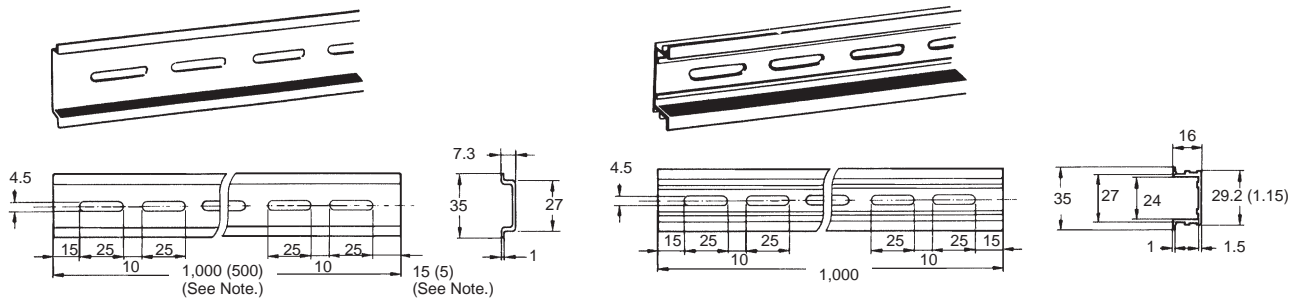
Item	S82Y-01N	S82Y-03N	S82Y-05N
Applicable power supply	S82H-31	S82H-33	S82H-35
Dimensions L1	113 mm (4.45)	143 mm (5.63)	163 mm (6.42)
Dimensions L2	114.8 mm (4.52)	144.8 mm (5.70)	164.8 mm (6.49)

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



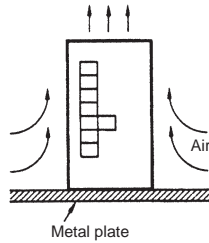
Note: The values shown in parentheses are for the PFP-50N.

# Precautions

## ■ MOUNTING

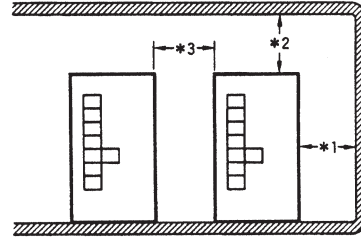
Note: Be careful not to impose any excessive vibration or impact when installing.

- 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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  - c. All sales and shipments of Goods shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Goods shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Goods until the full purchase price is paid by Buyer;
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