

# Switching Power Supply

## S82G

### Dependable Power Supply for Demanding Industrial Applications

- Power rating range from 30 to 150 W
- Wide range of output voltage: 5, 12, 15, and 24 V
- Field-selectable input voltage 120 or 240 VAC
- Equipped with overvoltage and overload protection
- Remote sensing and remote control functions (some models)
- 3-Year warranty



## Ordering Information

**Stock Note:** Shaded models are normally stocked.

### ■ SWITCHING POWER SUPPLIES

| Rated input voltage    | Power ratings | Output voltage | Output current | Part number |
|------------------------|---------------|----------------|----------------|-------------|
| 120/240 VAC selectable | 30W           | 5 V            | 6 A            | S82G-0305   |
|                        |               | 12 V           | 2.5 A          | S82G-0312   |
|                        |               | 15 V           | 2 A            | S82G-0315   |
|                        |               | 24 V           | 1.3 A          | S82G-0324   |
|                        | 60 W          | 5 V            | 12 A           | S82G-0605   |
|                        |               | 12 V           | 5 A            | S82G-0612   |
|                        |               | 15 V           | 4 A            | S82G-0615   |
|                        |               | 24 V           | 2.5 A          | S82G-0624   |
|                        | 100 W         | 5 V            | 20 A           | S82G-1005   |
|                        |               | 12 V           | 9 A            | S82G-1012   |
|                        |               | 15 V           | 7.2 A          | S82G-1015   |
|                        |               | 24 V           | 4.6 A          | S82G-1024   |
|                        | 150 W         | 5 V            | 30 A           | S82G-1505   |
|                        |               | 12 V           | 13.5 A         | S82G-1512   |
|                        |               | 15 V           | 10.8 A         | S82G-1515   |
|                        |               | 24 V           | 7 A            | S82G-1524   |

Note: For mounting brackets and other accessories refer to the *Accessories* Section on the next page.

### ■ MODEL NUMBER LEGEND

S82G - 

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

  
1
2

#### 1. Power ratings

03: 30 W  
06: 60 W  
10: 100W  
15: 150 W

#### 2. Output voltage

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

## ■ ACCESSORIES (ORDER SEPARATELY)

**Stock Note:** Shaded models are normally stocked.

| Description             | Applicable power supply | Part number |
|-------------------------|-------------------------|-------------|
| Bottom-mounting bracket | S82G-03□□               | S82Y-G03B   |
|                         | S82G-06□□               | S82Y-G06B   |
|                         | S82G-10□□               | S82Y-CM1B   |
|                         | S82G-15□□               | S82Y-C15B   |
| Side-mounting bracket   | S82G-15□□               | S82Y-CM1S   |

## Specifications

|                                                                         |                |                                                                                               |                               |            |            |
|-------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------|-------------------------------|------------|------------|
| Power ratings                                                           |                | 30 W                                                                                          | 60 W                          | 100 W      | 150 W      |
| Efficiency (typ.)                                                       |                | 71% (at 5 V ) to 74% (at 24 V)                                                                | 75% (at 5 V) to 82% (at 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 | 0.95 A max.                                                                                   | 1.7 A max.                    | 2.7 A max. | 4 A max.   |
|                                                                         | At 200-V input | 0.6 A max.                                                                                    | 0.9 A max.                    | 1.4 A max. | 2.1 A max. |
| Leakage current at rated input voltage and output voltage current       | 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 | At 100-V input | 15 A max.                                                                                     |                               |            |            |
|                                                                         | At 200-V input | 30 A max.                                                                                     |                               |            |            |
| Noise filter                                                            |                | Provided                                                                                      |                               |            |            |
| Output                                                                  |                |                                                                                               |                               |            |            |
| Voltage adjustment                                                      |                | ±10% (adjustable by adjuster)                                                                 |                               |            |            |
| Ripple and noise                                                        |                | 5 V: 50 mV p-p max., 12 V: 120 mV p-p max., 15 V: 150 mV p-p max., 24 V: 240 mV p-p max.      |                               |            |            |
| Regulation, line                                                        |                | 0.5% max. (at 85 to 132/170 to 264 V input, 100% load)                                        |                               |            |            |
| Regulation, load                                                        |                | 0.8% max. (at rated input, 10 to 100% load)                                                   |                               |            |            |
| Temperature coefficient                                                 |                | 0.03%/°C max. ( at rated input/output)                                                        |                               |            |            |
| Rise time                                                               |                | 300 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                                                     |                | 105% of rated output current typ., trailing, automatic reset                                  |                               |            |            |
| Overvoltage protection                                                  |                | 120% of rated output voltage typ., shut off, reset by reapplication of input                  |                               |            |            |
| Remote sensing                                                          |                | Yes                                                                                           |                               |            |            |
| Remote control                                                          |                | No                                                                                            |                               |            | Yes        |

(This table continues on the next page.)

Specifications Table – continued from previous page

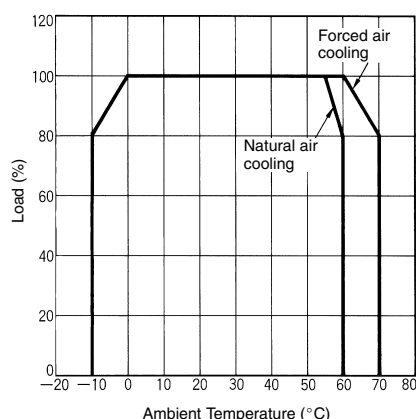
| Power ratings                 | 30 W                                                                                                                                                                   | 60 W       | 100 W        | 150 W        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|--------------|
| <b>Characteristics</b>        |                                                                                                                                                                        |            |              |              |
| Operating temperature         | See Derating Curve in <i>Engineering Data</i>                                                                                                                          |            |              |              |
| Storage temperature           | -20° to 85°C (-4° to 185°F)                                                                                                                                            |            |              |              |
| Humidity                      | 30 to 90% (storage humidity: 20 to 95%)                                                                                                                                |            |              |              |
| Dielectric strength           | 2200 VAC, 50/60 Hz, for 1 minute (between input terminals and output terminals/housing)<br>500 VDC for 1 minute (between output terminals and input terminals/housing) |            |              |              |
| 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> 294 m/s <sup>2</sup> (30 G) in 6 directions, respectively 3 times                                                                                 |            |              |              |
| Output indicator              | Red LED                                                                                                                                                                |            |              |              |
| Electro Magnetic Interference | FCC Class B                                                                                                                                                            |            |              |              |
| Mean Time Between Failures    | 100,000 hours min.                                                                                                                                                     |            |              |              |
| Approved standards            | UL (E105544), CSA (LR63986), VDE 0160                                                                                                                                  |            |              |              |
| Weight                        | 750 g max.                                                                                                                                                             | 850 g max. | 1,100 g max. | 2,000 g max. |

Note: A surge absorber is provided for the input circuit. To test the dielectric strength and insulation resistance of the power supply, remove the short bar attached across the FG and ACG terminals.

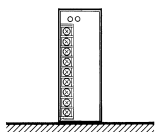
## Engineering Data

### DERATING CURVE

Note: The derating curve differs depending on the mounting position of the Power Supply. The curve shown here was obtained with the Power Supply mounted in the standard position.

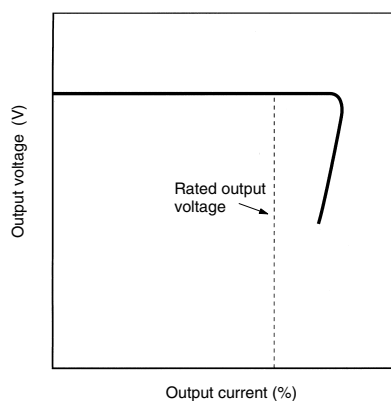


### Mounting Position – Standard Installation



### OVERLOAD PROTECTION

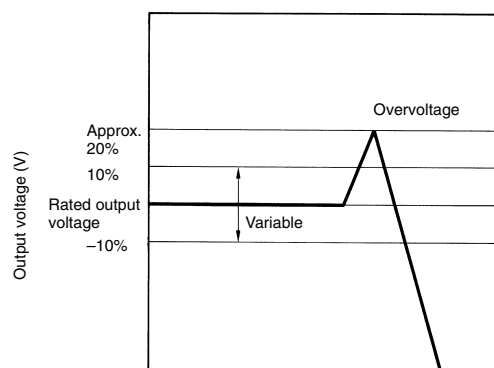
The power supply is provided with an overload protection function that protects the load and the power supply from possible damages by overcurrent. When the output current rises above a set value (105 to 135% of the rated output current), the protection function is effected, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.



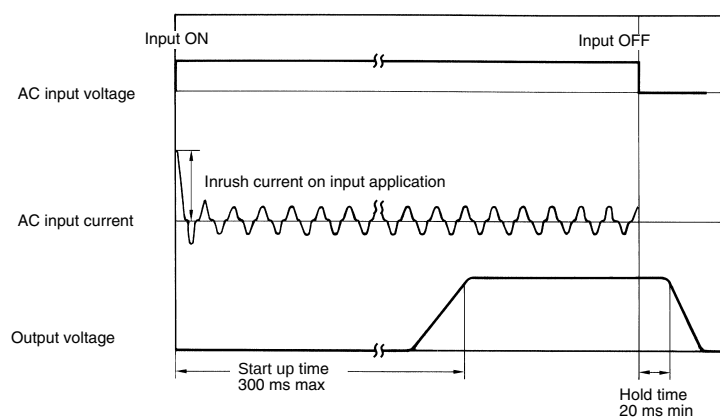
## OVERVOLTAGE PROTECTION

The power supply is also provided with an overvoltage protection function that protects the load from possible damage by overvoltage. When the output voltage of the power supply rises to about 120% of the rated value, this function is effected and the output voltage is shut off. To clear the protection function, turn off the input voltage once, wait for at least 20 seconds, and then turn on the input voltage.

Note: The output voltage can be varied by the V. ADJ adjuster of the front panel. When it is set to a value 10% higher than the rated value, the overvoltage protection function may be effected.

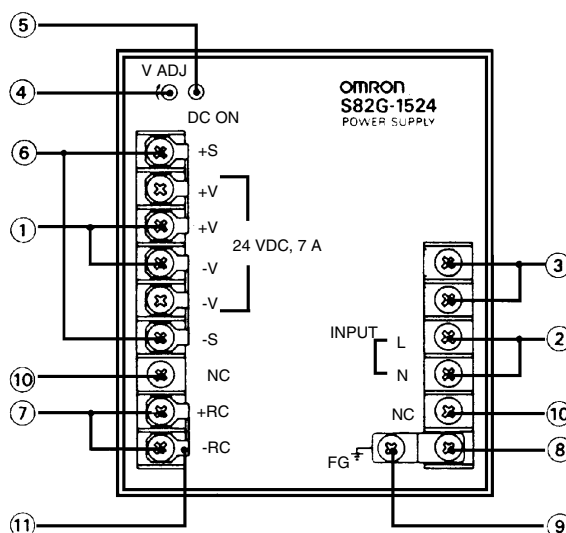
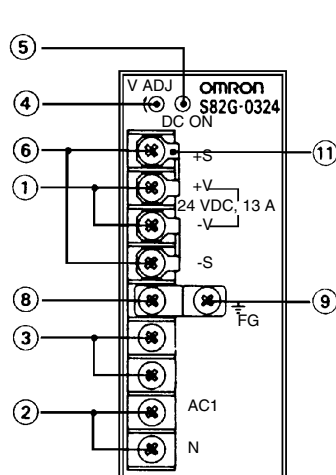


## INRUSH CURRENT, START TIME, HOLD TIME



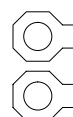
# Nomenclature

- S82G-03□□
- S82G-06□□
- S82G-10□□
- S82G-15□□



1. **DC Output Terminals:** Connect load wiring.
2. **Input Terminals:** Connect input wiring.
3. **Input Voltage Selector Terminals:** Switch the input voltage by connecting or removing the short bar. (short circuited: 100 to 120 V; open: 200 to 240 V).
4. **V. ADJ Adjuster:** Use to adjust the output voltage.
5. **Output LED Indicator:** Lights when DC current is being output.
6. **Remote Sensing Terminals:** Correct the voltage drop in the load lines. Shorted for normal operation.
7. **Remote Control Terminals:** Turn the output ON or OFF, by using an external signal, with the input voltage applied.

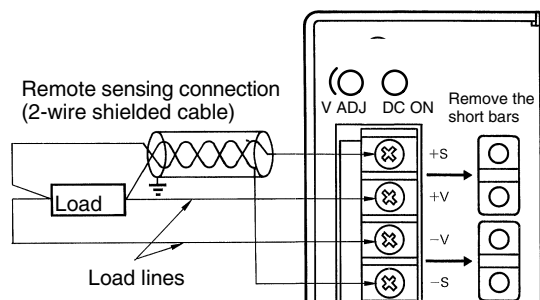
8. **ACG Terminal:** Input filter neutral terminal, which is usually short-circuited to the FG terminal.
9. **FG Terminal:** Short-circuited to the housing and is connected to a ground line.
10. **NC Terminal:** Vacant terminals.
11. **Short Bars:**



# Operation

## REMOTE SENSING FUNCTION

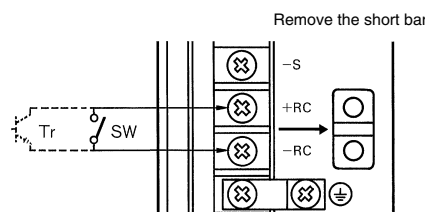
This function corrects a voltage drop in the load lines. When using the remote sensing function, remove the short bars from the remote sensing terminals as shown in the following diagram.



- Note:
1. When a high voltage drops occur on the load lines, the output voltage across the power terminals rises by the amount of the dropped voltage, causing the overvoltage protection function to be effected. To prevent this, use as thick a wire as possible.
  2. When the +S and +V terminals, or -V and -S terminals are opened with the short bar removed, the overvoltage protection function is effected and, as a result, no output voltage is produced.

## REMOTE CONTROL FUNCTION

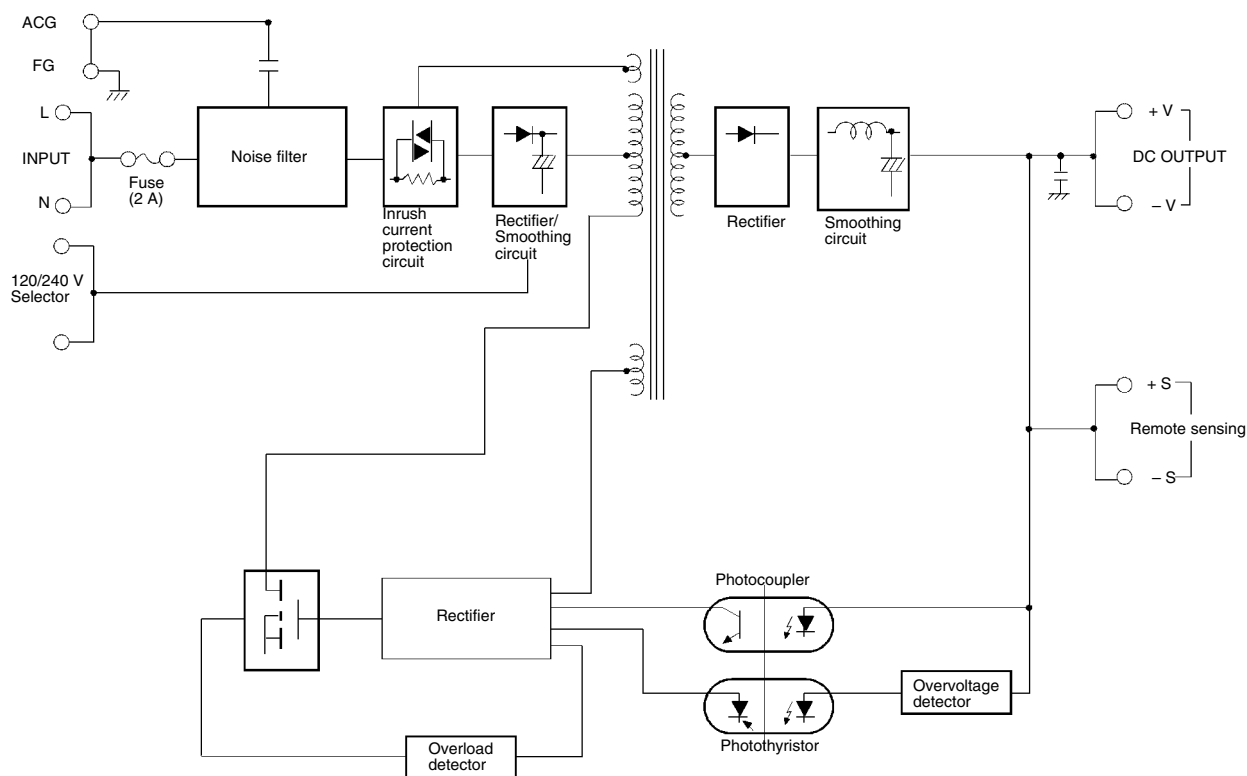
This function allows the output voltage to be turned on and off with an external signal (as long as the input voltage is being applied). When using the remote control function, remove the short bar (as set by the factory) from the remote control terminals and connect a switch or transistor, across those terminals, as shown in the diagram below



| Switch or Transistor | Output voltage |
|----------------------|----------------|
| ON                   | ON             |
| OFF                  | OFF            |

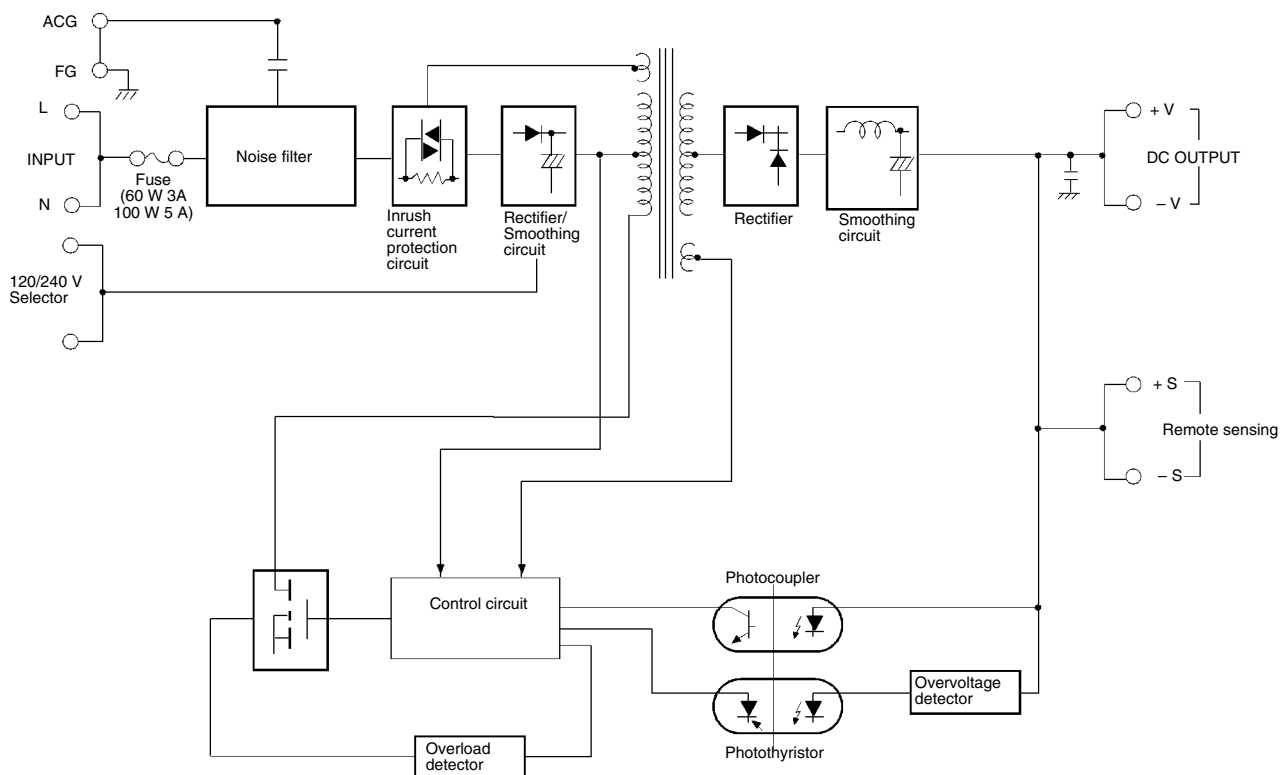
# ■ BLOCK DIAGRAM

## S82G-03□□

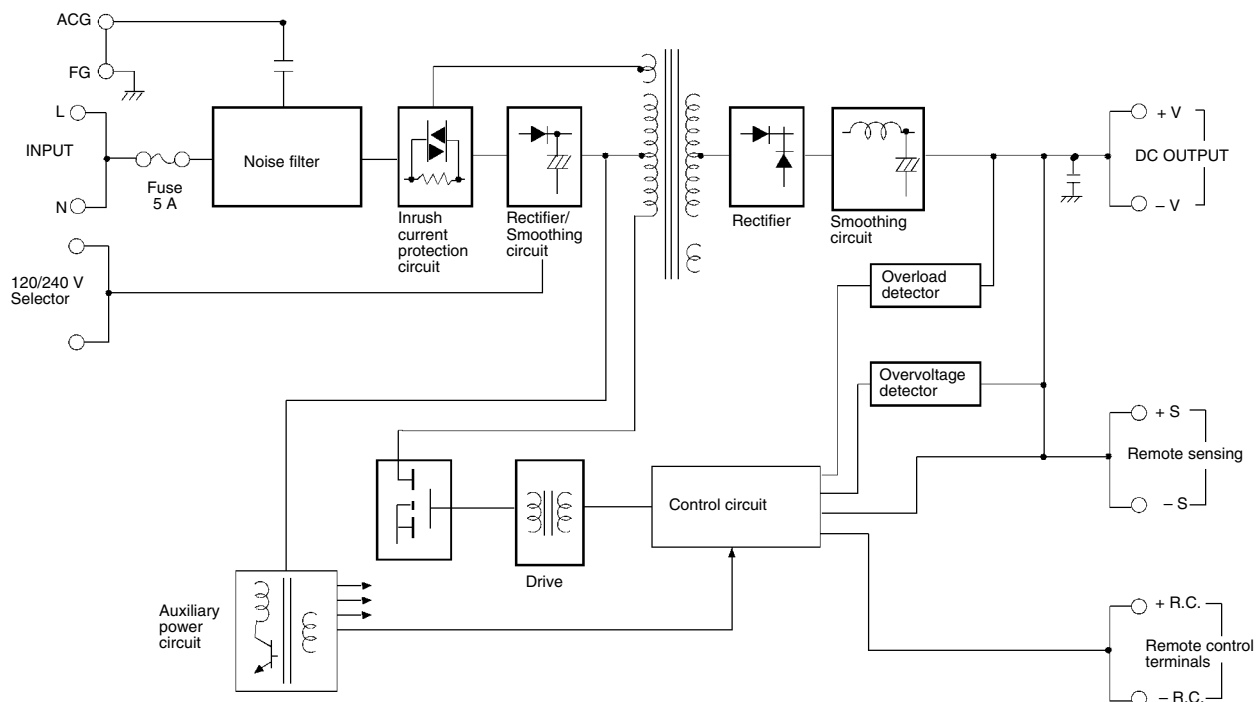


## S82G-06□□

## S82G-10□□

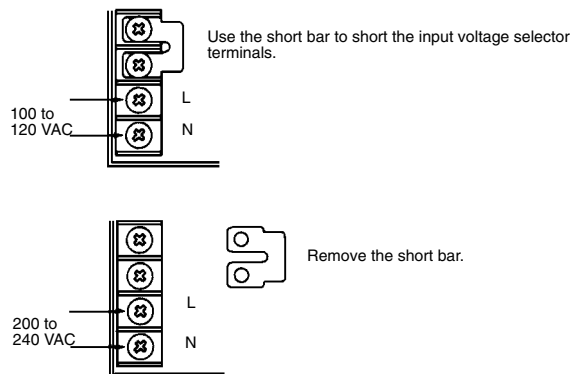


**S82G-15□□**



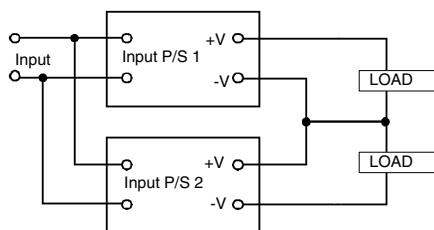
## ■ SWITCHING THE INPUT VOLTAGE BETWEEN 100 TO 120 V AND 200 TO 240 V

Select 120 and 240 V input voltage by shorting or opening the input voltage selector terminals, as shown in the diagram below. (Factory set to 240 V operation.)



## ■ GENERATING OUTPUT VOLTAGES (±)

S82G power supplies may be connected to provide (±) output voltages since the power supply produces floating output. See diagram below.

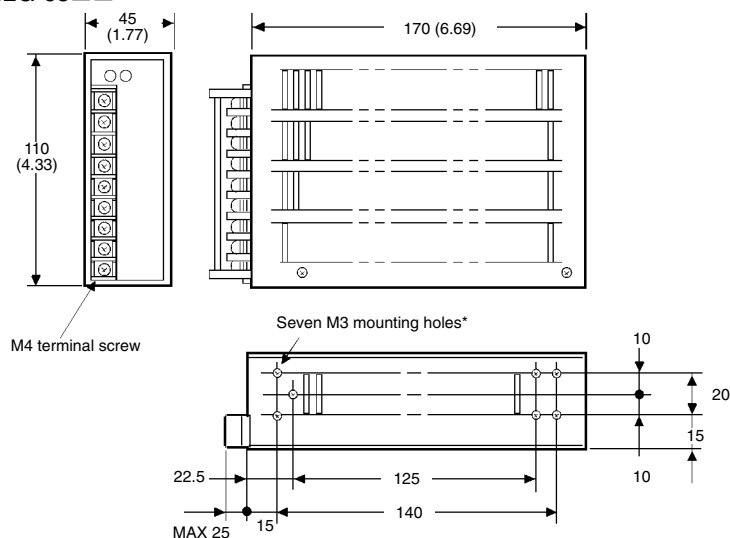


# Dimensions

Unit: mm (inch)

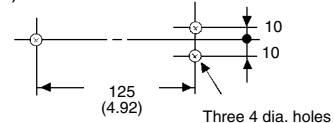
## SWITCHING POWER SUPPLIES

### S82G-03

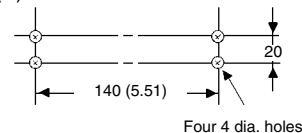


Mounting holes  
(Bottom mounting)

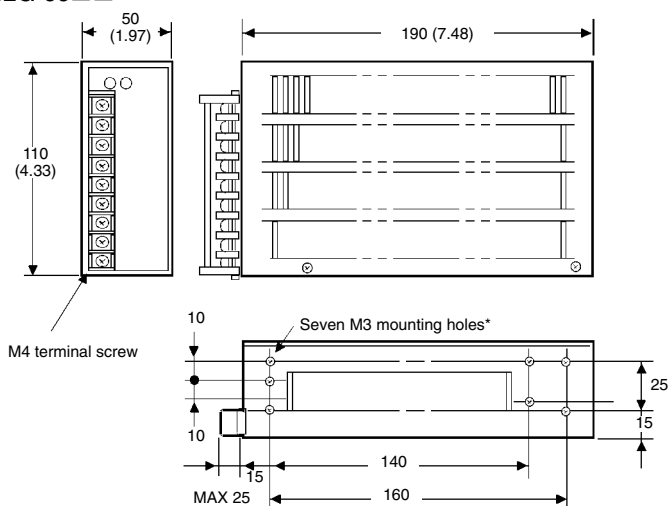
(A) When three holes are made



(B) When four holes are made

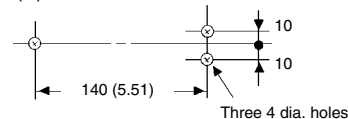


### S82G-06

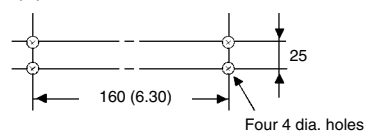


Mounting holes  
(Bottom mounting)

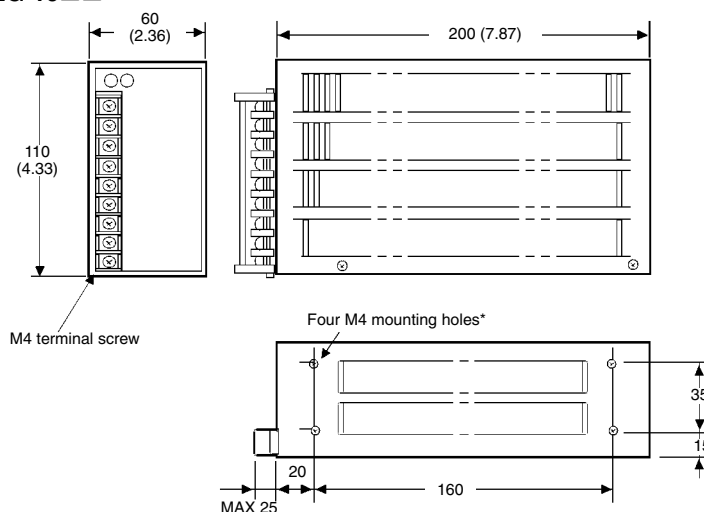
(A). When three holes are made



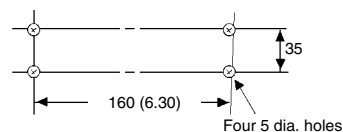
(B) When four holes are made



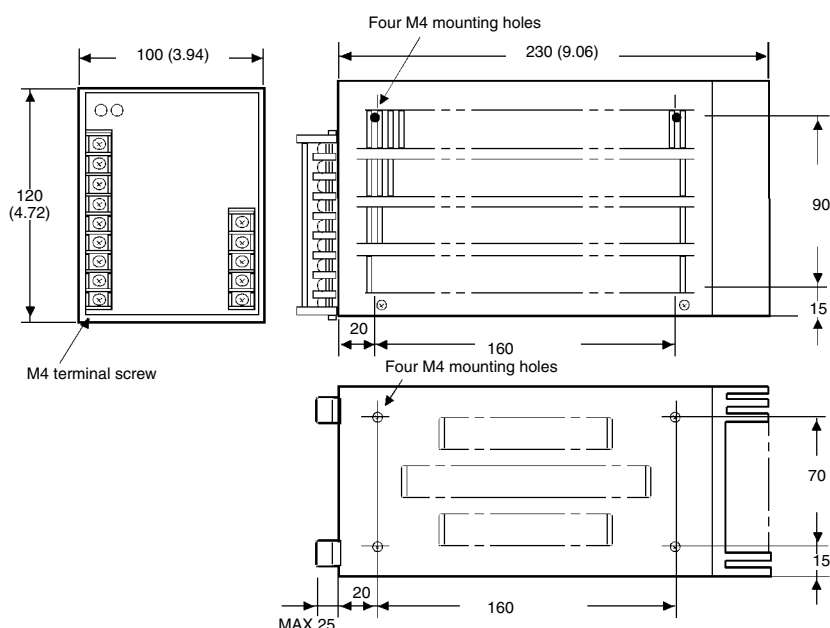
**S82G-10□□**



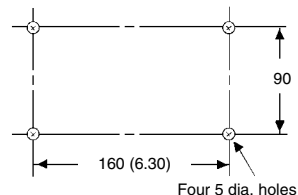
Mounting holes  
Bottom mounting



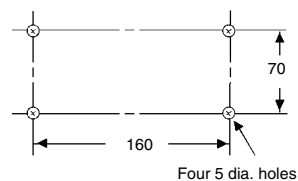
**S82G-15□□**



Mounting holes  
Bottom mounting



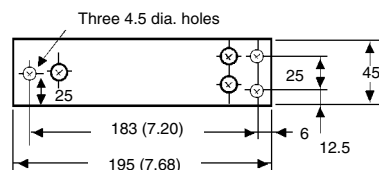
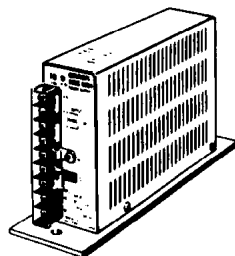
Mounting holes  
Side mounting



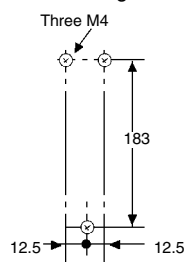
Note: Length of screw: 6 mm (excluding thickness of mounting plate)

**■ MOUNTING BRACKET (SOLD SEPARATELY)**

**Bottom mounting  
S82Y-G03B (30 W)**



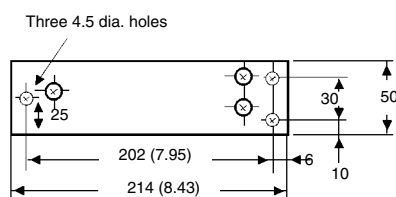
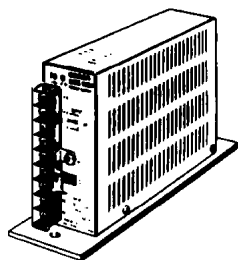
Mounting holes



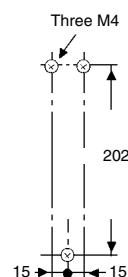
Note: To attach the mounting bracket to the power supply, use M3 x 6 flat head screws.

Unit: mm (inch)

### S82Y-G06B (60 W)

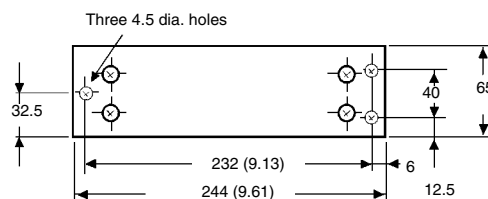
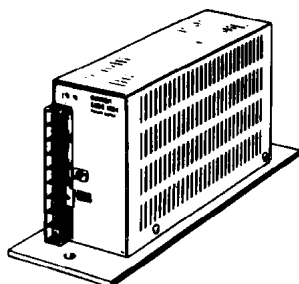


### Mounting holes

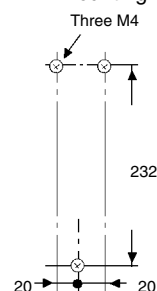


Note: To attach the mounting bracket to the power supply, use M3 x 6 flat head screws.

### S82Y-CM1B (100W)

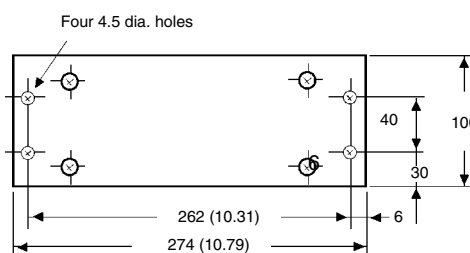
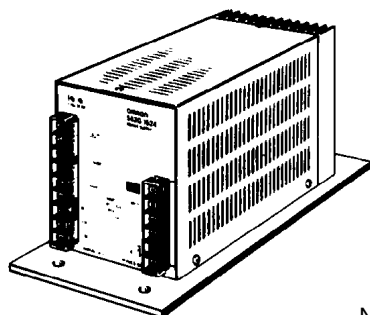


### Mounting Holes

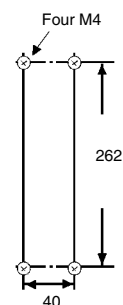


Note: To attach the mounting bracket to the power supply, use M4 x 8 flat head screws.

### S82Y-C15B (150W)



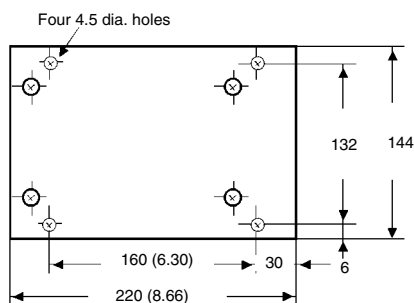
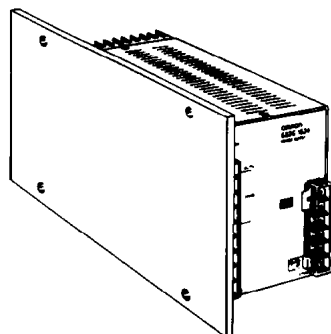
### Mounting Holes



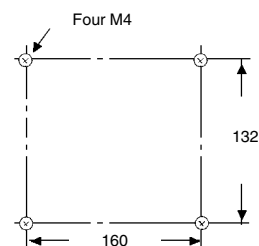
Note: To attach the mounting bracket to the power supply, use M4 x 8 flat head screws.

### Side mounting

### S82Y-CM1S (150W)



### Mounting Holes



Note: To attach the mounting bracket to the power supply, use M4 x 8 flat head screws.

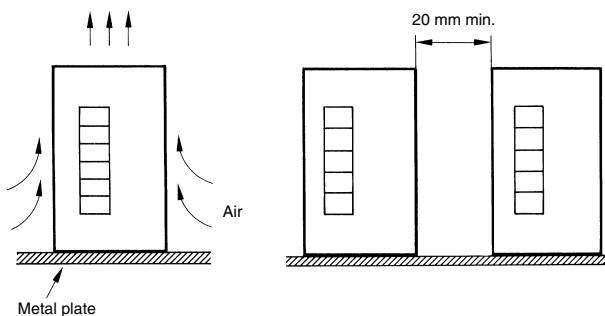
# Precautions

## ■ MOUNTING

Providing adequate cooling when installing the power supply will extend its long-term reliability.

- Install the unit in a location with adequate air flow (as shown in the diagram included here) because the power supply is cooled by natural air flowing around it.
- Install the power supply on a metal plate.
- Use forced-air cooling.

- When installing two or more power supplies side-by-side, allow at least 20 mm (0.79 in) spacing between them, as shown in the diagram provided here.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4

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