

## Switching Power Supply

## S82K

DIN-Rail Mount Power Supply with a Wide Power Range of 3 to 240 W

- Universal voltage range: 100 to 240 VAC
- UL 508 listed on all models
- Class 2 approved on all models below 240-W, except dual-output types
- Undervoltage indicators on all. 90-W, 100-W and 240-W T-Models have indicator and output
- Meets EN61000-3-2 (limits for harmonic current emissions) with PFC on 240-W models
- Parallel operation capability (90-W, 100-W and 240-W)
- Finger-safe terminal block with cover according to VDE0106/P100
- Approvals: UL, CSA, VDE, and CE
- 3-year warranty



## Ordering Information

勝特力材料 886-3-5753170  
 胜特力电子(上海) 86-21-54151736  
 胜特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

### ■ SWITCHING POWER SUPPLIES

| Rated input voltage | Power ratings | Output voltage | Output current | Functional configuration | Part number |
|---------------------|---------------|----------------|----------------|--------------------------|-------------|
| 100 to 240 VAC      | 3 W           | 5 V            | 0.6 A          | Single output            | 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          | Single output            | S82K-00705  |
|                     |               | 12 V           | 0.6 A          |                          | S82K-00712  |
|                     |               | 15 V           | 0.5 A          |                          | S82K-00715  |
|                     |               | 24 V           | 0.3 A          |                          | S82K-00724  |
|                     |               | +12 V/-12 V    | 0.3 A/0.2 A    | Dual output              | S82K-00727  |
|                     |               | +15 V/-15 V    | 0.2 A/0.2 A    |                          | S82K-00728  |
|                     | 15 W          | 5 V            | 2.5 A          | Single output            | S82K-01505  |
|                     |               | 12 V           | 1.2 A          |                          | S82K-01512  |
|                     |               | 24 V           | 0.6 A          |                          | S82K-01524  |
|                     | 30 W          | 5 V            | 5.0 A          | Single output            | S82K-03005  |
|                     |               | 12 V           | 2.5 A          |                          | S82K-03012  |
|                     |               | 24 V           | 1.3 A          |                          | S82K-03024  |
|                     | 50 W          | 24 V           | 2.1 A          |                          | S82K-05024  |

(This table continues on the next page.)

Ordering Information Table – continued from previous page

| Rated input voltage    | Power ratings | Output voltage | Output current | Functional configuration                 | Part number        |
|------------------------|---------------|----------------|----------------|--|--------------------|
| 120/240 VAC selectable | 90 W          | 24 V           | 3.75 A         | Single output                            | <b>S82K-09024</b>  |
|                        | 100 W         | 24 V           | 4.2 A          |  | <b>S82K-10024</b>  |
|                        | 240 W         | 24 V           | 10 A           |  | <b>S82K-24024</b>  |
|                        | 240 W         | 24 V           | 10 A           | With undervoltage alarm indicator/output | <b>S82K-24024T</b> |
| 100 to 240 VAC         | 240 W         | 24 V           | 10 A           | With PFC                                 | <b>S82K-P24024</b> |

## ■ MODEL NUMBER LEGEND

### 3- to 100-W Models

S82K -

1                      2

#### 1. Power Ratings

003: 3 W  
 007: 7.5 W  
 015: 15 W  
 030: 30 W  
 050: 50 W  
 090: 90 W  
 100: 100 W

#### 2. Output Voltage

05: 5 VDC  
 12: 12 VDC  
 15: 15 VDC  
 24: 24 VDC  
 27: Dual output +12/-12 VDC  
 28: Dual output +15/-15 VDC

### 240-W Models

S82K -  24024

1                      2

#### 1. Power Factor Correction

None: No  
 P: Yes

#### 2. Undervoltage alarm indicator/output

None: No  
 T: Yes

## ■ ACCESSORIES (SOLD SEPARATELY)

### DIN Rail

| Item  | Length          | Width            | Part number      |
|---|-----------------|------------------|------------------|
| DIN-rail (See <i>Dimensions</i> section for details.) | 0.5 m (1.64 ft) | 7.3 mm (0.29 in) | <b>PFP-50N</b>   |
|   | 1 m (3.28 ft)   | 7.3 mm (0.29 in) | <b>PFP-100N</b>  |
|   | 1 m (3.28 ft)   | 16 mm (0.63 in)  | <b>PFP-100N2</b> |

### Noise Filter

| Item         | Applicable power supply   | Part number       |
|--------------|---------------------------|-------------------|
| Noise filter | For 3- to 50-W models     | <b>S82Y-JF3-N</b> |
|              | For 90-W and 100-W models | <b>S82Y-JF6-N</b> |

# Specifications

## ■ RATINGS/CHARACTERISTICS

| Item                         |                      |                         | Non-PFC models                                   |       |              |               |              |   |      |   | PFC model                    |       |
|------------------------------|----------------------|-------------------------|--|-------|--------------|---------------|--------------|---|------|---|------------------------------|-------|
|                              |                      |                         | 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                        | 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)/<br>200 V (170 to 264 V) Selectable |      | 100 V (85 to 132 V)/<br>200 V (170 to 253 V) Selectable | 100 to 230 V (85 V to 253 V) |       |
|                              |                      | DC                      | 90 to 350 V (see note 2)                         |       |              |               | Not possible |   |      |   |                              |       |
| Frequency                    |                      | 50/60 Hz (47 to 450 Hz) |  |       |              |               |              |   |      |   | 50/60 Hz (47 to 63 Hz)       |       |
| Current (see note 3)         | 100-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.  | 4 A max.                     |       |
|                              | 200-V input          |                         |  |       | 0.25 A max.  | 0.6 A max.    | 0.8 A max.   | 1.5 A max.  |      | 3.5 A max.  | 2 A max.                     |       |
| Power factor                 |                      | ---                     |  |       |              |               |              |   |      |   | 0.95 min.                    |       |
| 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).

Specifications Table — continued from previous page

| Item                |  | Non-PFC models  |       |  |  |                            |   |      |   |                             | PFC model                                       |  |
|---------------------|--|---|-------|--|--|----------------------------|---|------|---|-----------------------------|---|--|
|                     |  | 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                       | 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 |                            |   |      |   |                             |   |  |
| Output (see note 2) | 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) |                             | 0.5 % max. (at 85 to 253 VAC input, 100 % load) |  |
|                     | Load variation influence                     | 1.5% max. (0 to 100% load)  |       | +V: 1.5% max.<br>-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.   |       |  |  |                            |   |      |   |                             |   |  |
|                     | Rise time                                    | 100 ms max. (up to 90% of output voltage at rated input and output) |       |  |  |                            | 200 ms max.   |      | 300 ms max.   |                             | 1,000 ms max.                                   |  |
|                     | Hold time (see note 1)                       | 20 ms min.  |       |  |  |                            |   |      |   |                             |   |  |

(This table continues on the next page.)

- 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. The settings for the output voltage must be within the following range:  
 +V:  $\pm 1\%$  of the rated value  
 -V:  $\pm 5\%$  of the rated value  
 4. 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.  
 5. When the ambient temperature exceeds 25°C, the overload protection function will operate at a current of 92% to 111% of the rated load current.  
 6. Circuit-breaker type. To reset, turn the input power supply OFF, then after 1 min has elapsed, turn the input power supply ON again.

Specifications Table – continued from previous page

| Item                |   | Non-PFC models   |   |   |               |      |  |   |       |       | PFC model |  |
|---------------------|---|--|---|---|---------------|------|--|---|-------|-------|-----------|--|
|                     |   | 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 | 240 W     |  |
| Additional function | Overload protection                             | 105% to 160% of rated load current, automatic reset (see note 4) | 105% to 250% of rated load current, automatic reset | 105% to 160% of rated load current, automatic reset |               |      | 101% to 111% of rated load current, automatic reset (see note 5) | 105% to 160% of rated load current, automatic reset |       |       |           |  |
|                     | Overvoltage protection (see note 6)             | No   |   |   |               |      |  | S82K-24024T model only                              | No    |       |           |  |
|                     | Undervoltage alarm indicator (DC LOW indicator) | Yes (color: red)   |   |   |               |      |  | S82K-24024T model only                              | No    |       |           |  |
|                     | Undervoltage alarm output (DC LOW output)       | No   |   |   |               |      | Yes  | S82K-24024T model only                              | No    |       |           |  |
|                     | Parallel operation                              | Impossible   |   |   |               |      | Possible (2 units max.)  |   |       |       |           |  |

(This table continues on the next page.)

- 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. The settings for the output voltage must be within the following range:  
 +V:  $\pm 1\%$  of the rated value  
 -V:  $\pm 5\%$  of the rated value
4. 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.
5. When the ambient temperature exceeds 25°C, the overload protection function will operate at a current of 92% to 111% of the rated load current.
6. Circuit-breaker type. To reset, turn the input power supply OFF, then after 1 min has elapsed, turn the input power supply ON again.

Specifications Table – continued from previous page

| Item               |  | Non-PFC models   |            |              |               |            |      |                         |   |   | PFC model |
|--------------------|--|--|------------|--------------|---------------|------------|------|-------------------------|---|---|-----------|
|                    |  | 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   | 240 W     |
| Other              | Ambient temperature  | Operating: See the derating curve in the <i>Engineering Data</i> section (no condensation or icing)<br>Storage: -25°C to 65°C (no condensation or icing)   |            |              |               |            |      |                         |   |   |           |
| Other              | Ambient humidity   | Operating: 25% to 85%<br>Storage: 25% to 90%   |            |              |               |            |      |                         |   |   |           |
|                    | Dielectric strength  | 3,000 VAC at 50/60 Hz for 1 min (between all inputs and outputs)<br>2,000 VAC at 50/60 Hz for 1 min (between all inputs and GR terminal)<br>1,000 VAC at 50/60 Hz for 1 min (between all outputs and GR terminal)<br>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 <sup>2</sup> , 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, 4)  | <u>3 to 100-W Models</u><br>(EMI): EN50081-1<br>Emission Enclosure: EN55022 class B (equivalent to EN55011 class B)<br>Emission AC Mains: EN55022 class B (equivalent to EN55011 class B)<br>Emission Output Ports: EN55022 class A (with a recommended optional filter) (see note 3)<br><u>240-W Models</u><br>(EMI): EN50081-2<br>Emission Enclosure: EN55011 class A (see note 4)<br>Emission AC Mains: EN55011 class A (see note 4)<br>Harmonic Current: EN61000-3-2 (only for S82K-P24024)<br><u>Common to All Models</u><br>(EMS): EN50082-2<br>Immunity ESD: EN61000-4-2: 4-kV contact discharge (level 2)<br>8-kV air discharge (level 3)<br>Immunity Burst: EN61000-4-4: 2-kV power-line (level 3)<br>2-kV output line (level 4)<br>Immunity Surge: EN61000-4-5: between 2-kV lines (except for 240-W models)<br>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 5 and 6)<br>UL 508 (Listing)/1950<br>CSA C22.2 No.14/No.950, EN50178 (VDE0160), EN60950<br>Conforms to VDE0106/P100 |  |            |              |               |            |      |                         | UL 508 (Listing)/1012<br>CSA C22.2 No.14,<br>CSA E.B. 1402C,<br>EN50178 (VDE0160),<br>EN60950<br>Conforms to<br>VDE106/P100 |   |           |
| Weight             | 150 g max.   |  | 260 g max. | 380 g max.   | 400 g max.    | 600 g max. |      | 1,800 g max.            | 2,200 g max.  |   |           |

- Note: 1. Defined with a 100% load and the rated input voltage (100 or 200 VAC).
2. Do not press down on the terminal block with a force exceeding 75 N while tightening the terminals.
3. 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)
4. To ensure the Emission Enclosure rating, a ferrite ring core should be used on all cables (for S82K-P24024).
5. Models other than dual output models satisfy the Class-2 requirements.
6. 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.

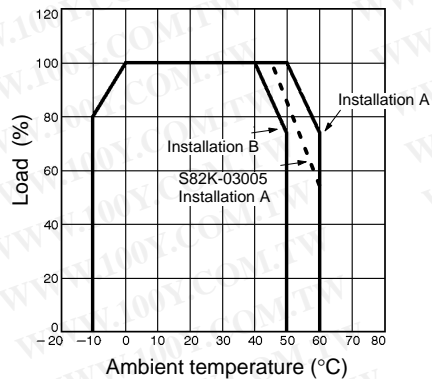
## REFERENCE VALUE

| 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.               |

## Engineering Data

### DERATING CURVE

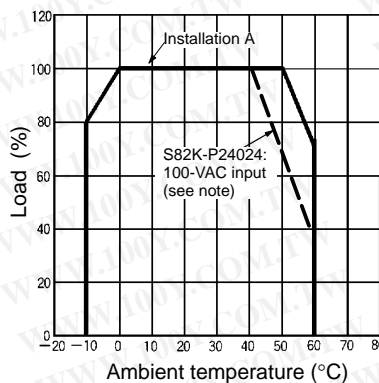
3-/7.5-/15-/30-/50-/90-W/  
100-W Models



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. When using the 90-W model at an ambient temperature exceeding 25°C, the load rate will become 90% or less.

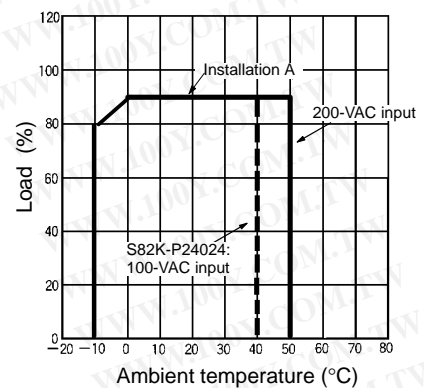
240-W Model

Single-Unit Operation



Note: 100-V input: 85 to 132 VAC

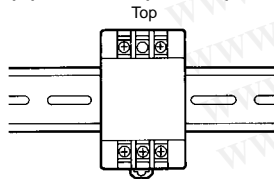
Parallel-Unit Operation



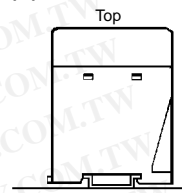
### Mounting Position

The derating curve can be ensured for these two kinds of installations.

(A) Standard (Vertical) Installation



(B) Horizontal Installation



Note: Not permitted for 240-W models.



## OVERLOAD PROTECTION

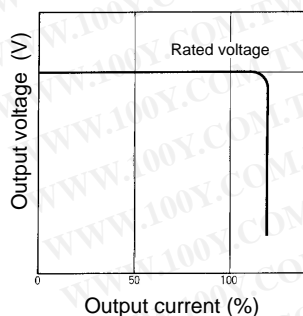
The Power Supply has an overload protection function that protects the load and the power supply from possible damage by overcurrent. When the output current rises above a set value (105% of the rated output current of most models; 101% of the rated output current for 90-W model), the protection function is triggered, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.

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% of the rated load current.

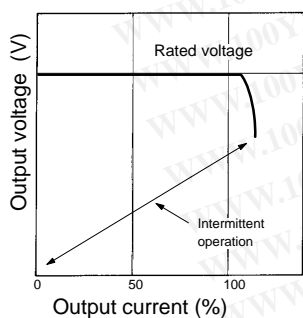
When using the 90-W model at an ambient temperature exceeding 25°C, the protection function will operate at a current of 92% of the rated load current.

**Note:** To avoid damage to the unit or deterioration of the internal circuitry, do not short-circuit the output terminals of the S82K or use the S82K with excessive output current for a long time.

### 3-/7.5-/15-/90-W/100-/240-W Models



### 30-/50-W Models

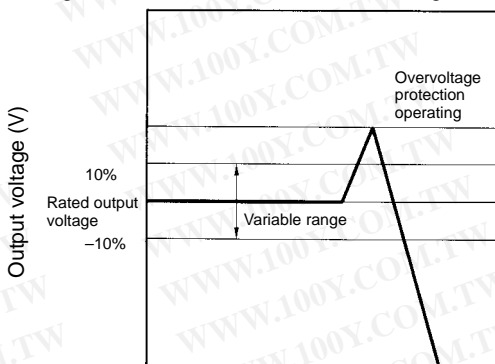


### When Using $\pm$ Output Models

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)

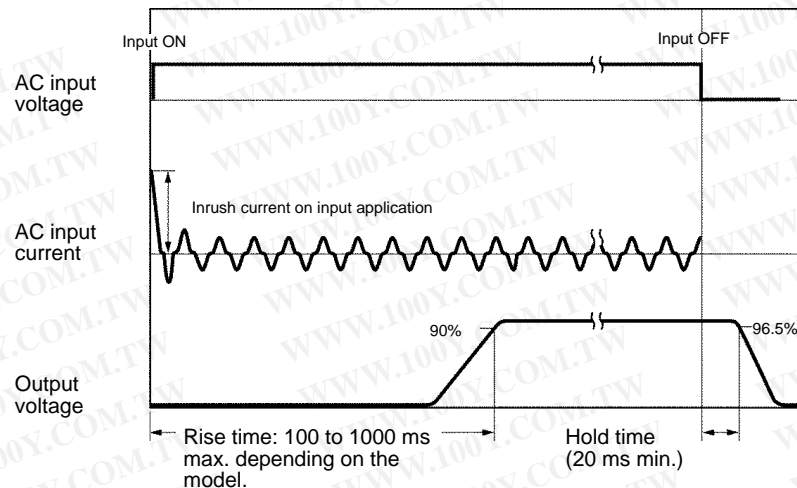
The Power Supply is provided with an overvoltage protection function that protects the load and the Power Supply from possible damage by overvoltage. When the output voltage rises above a set value, the protection function is triggered, shutting off the output voltage. If this occurs, reset the Power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



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## ■ INRUSH CURRENT, RISE TIME, HOLD TIME



## Operation

### ■ UNDERVOLTAGE ALARM INDICATOR AND OUTPUT FUNCTION (ALL MODELS EXCEPT 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-10024/24024T, a voltage drop alarm will be output via the relay available in the models (DC LOW output).

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.

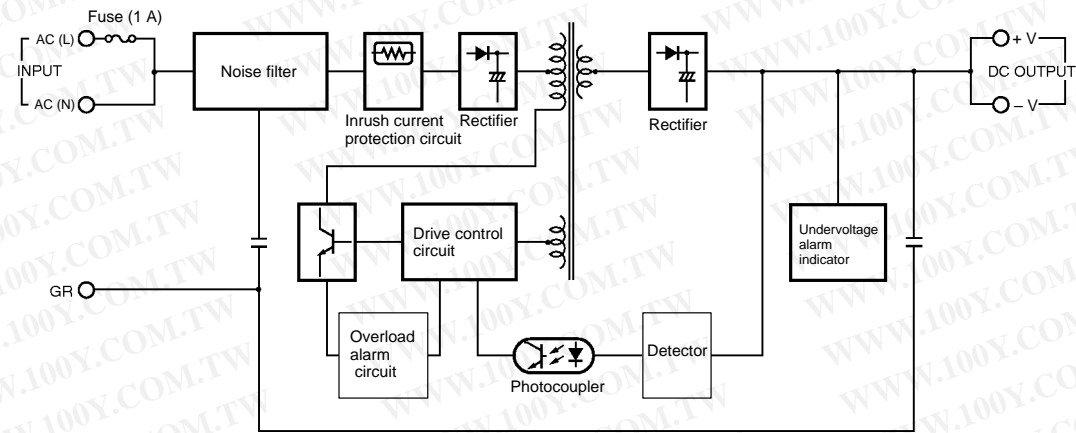
| Indicator                                  | Voltage   | Operation of 09024/10024/24024T's output (DC LOW output) (see note 2) |
|--|---|---|
| Green:  DC ON<br>Red:  DC LOW              | If the voltage at the output terminal is more than 90% of the rated voltage, the green indicator will be lit. |   |
| Green:  DC ON<br>Red:  DC LOW (see note 1) | If the voltage at the output terminal is 75% to 90%, the red indicator will be lit.                           |   |
| Green:  DC ON<br>Red:  DC LOW              | If the voltage at the output terminal is 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.

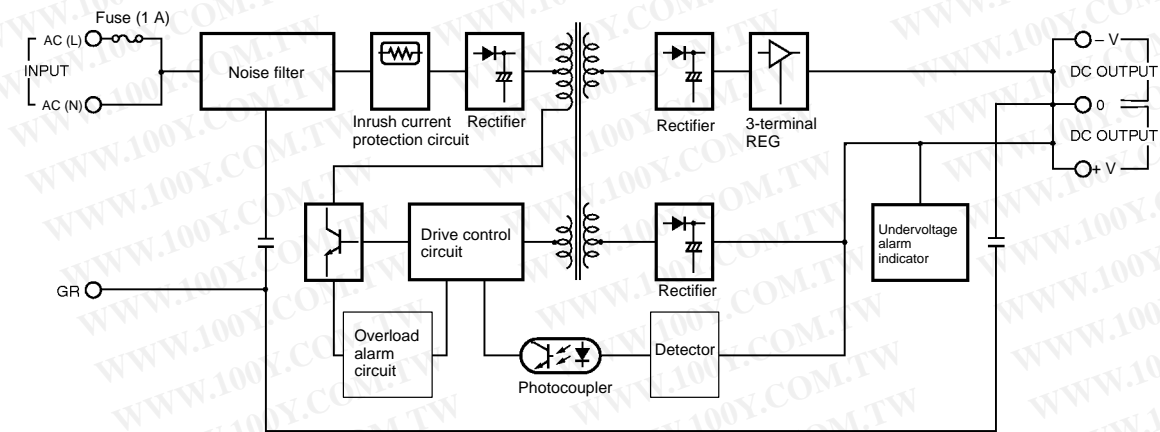
## ■ BLOCK DIAGRAMS

S82K-003□□ (3 W)

S82K-007□□ (7.5 W, Single Output)



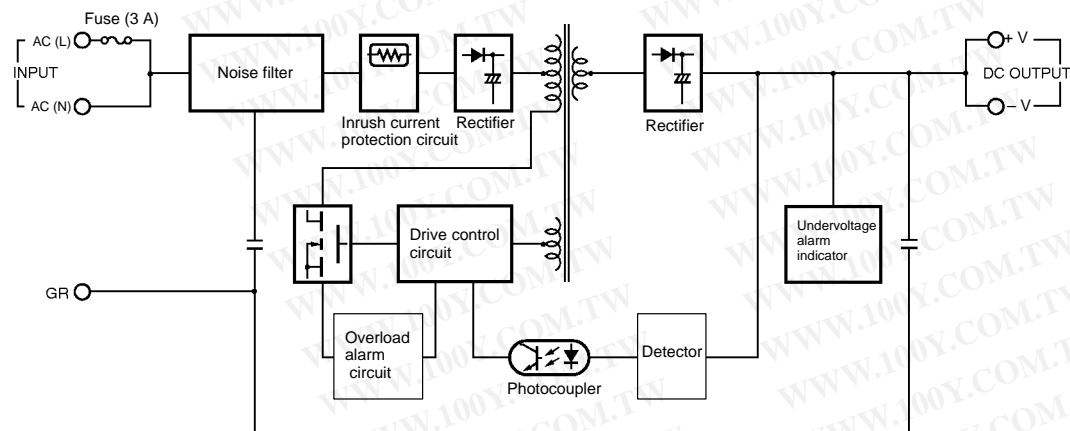
S82K-007□□ (7.5 W, Dual Outputs)

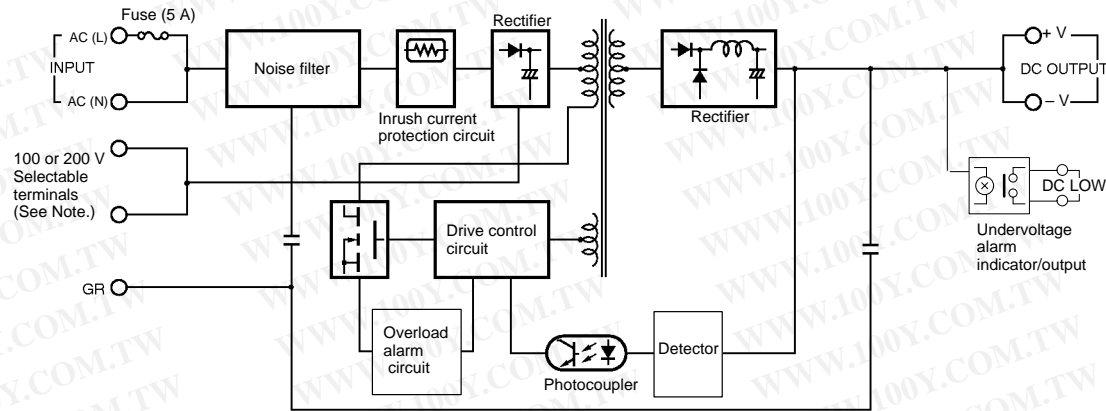


S82K-015□□ (15 W)

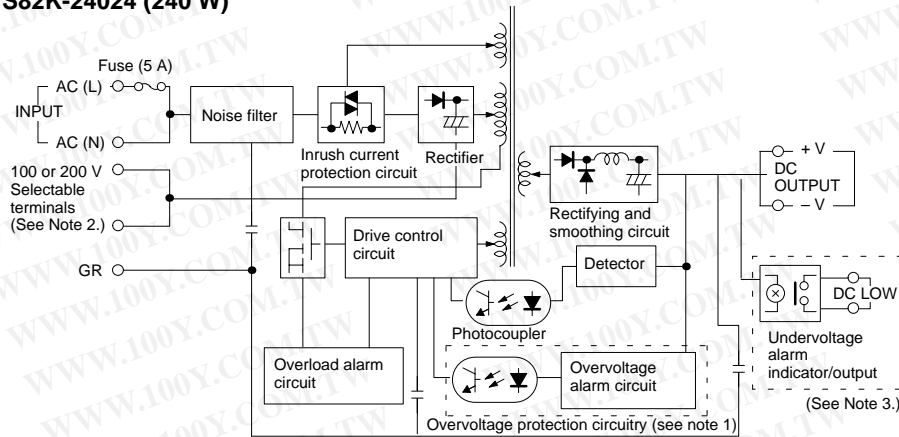
S82K-030□□ (30 W)

S82K-05024 (50 W)

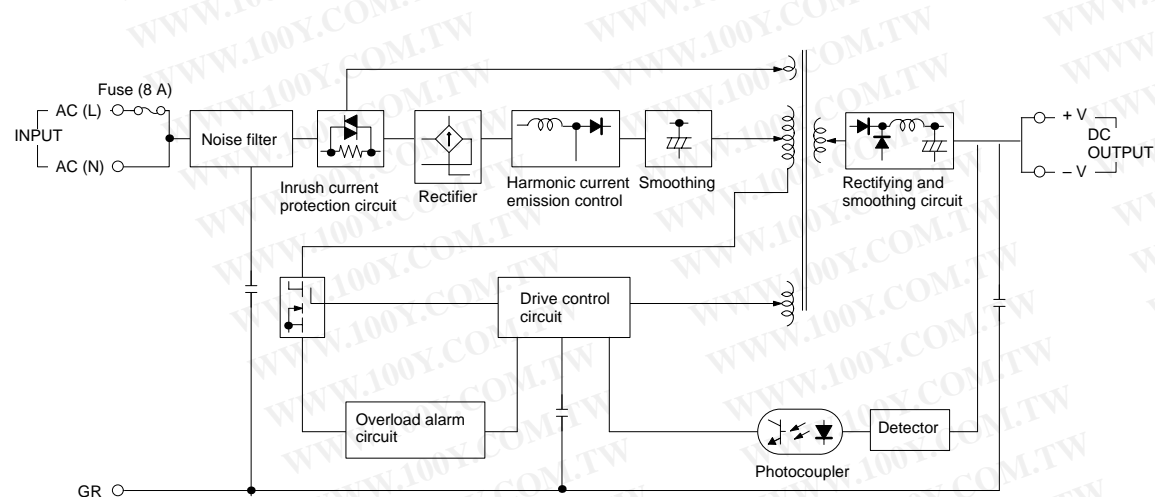


**S82K-09024 (90 W)**  
**S82K-10024 (100 W)**


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-24024 (240 W)**


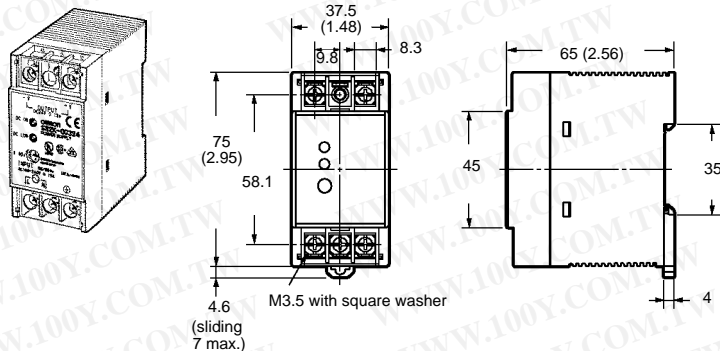
- Note: 1. The overvoltage protection circuitry is available in the S82K-24024T only.  
 2. Use the short bar to short-circuit terminals 7 and 8 to select 100 to 120 VAC and remove the short bar to select 200 to 230 VAC.  
 3. The undervoltage alarm indicator is available in the S82K-24024T.

**S82K-P24024 (240 W)**


# Dimensions

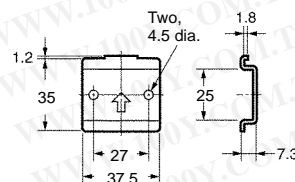
Unit: mm (inch)

## ■ S82K-003□□ (3 W) S82K-007□□ (7.5 W)

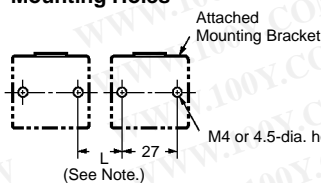


### Mounting Brackets (Supplied with the Power Supply)

Used when not mounting the Power Supply directly on the DIN rail.

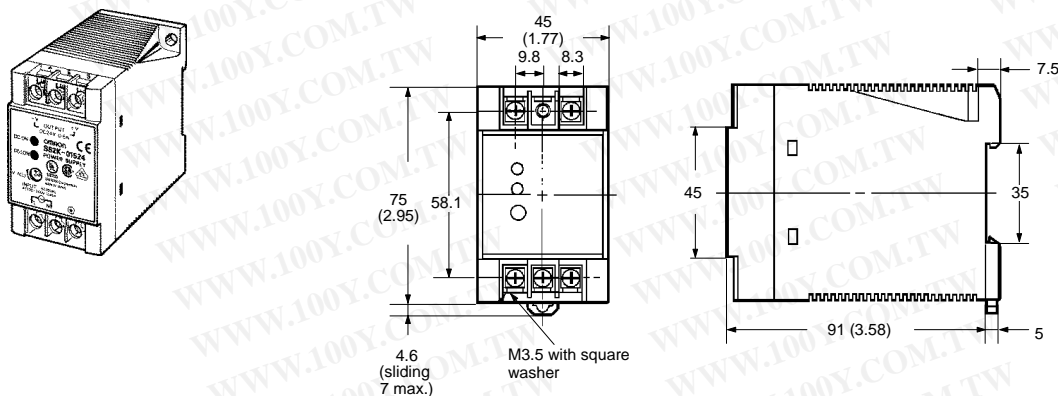


### Mounting Holes



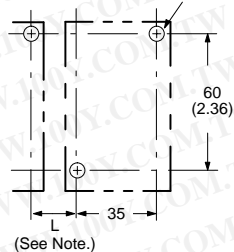
Note: If more than one Power Supply is installed in a row, keep a distance of 20 mm min. (L = 20 mm min.) between each adjacent Power Supply.

## ■ S82K-015□□ (15 W)



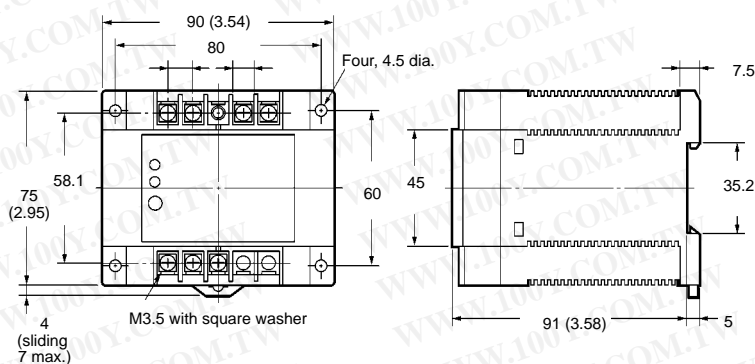
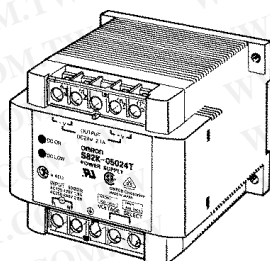
### Mounting Holes

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)



Four, M4 or 4.5-dia. mounting holes

60 (2.36)

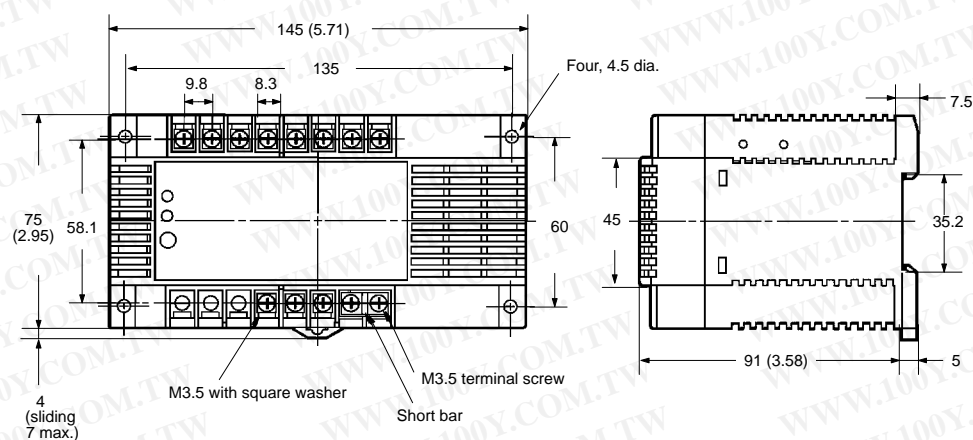
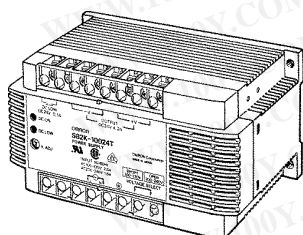
80 (3.15)

L

(See Note.)

**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)



Four, M4 or 4.5-dia. mounting holes

60 (2.36)

135 (5.31)

L (See Note.)

**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.