# Switch Mode Power Supply
# S82K (3/7.5/15/30/50/90/100-W Models)

CSM_S82K_DS_E_3_1

## Ultimate DIN-rail-mounting Power Supply with a Power Range of 3 to 100 W

- EMI: EN 61204-3 class B
- Input: 85 to 264 VAC (except 90-W and 100-W models)
- Safety standards:
  UL 60950-1/508, cUL: CSA C22.2 No. 14 (Class 2: Per No. 223),
  cUR: CSA No. 60950-1, EN50178 (= VDE 0160)
- Undervoltage alarm indication available for standard models.]
- RoHS-compliant

⚠ Refer to *Safety Precautions for All Power Supplies*.

# Model Number Structure

## ■ Model Number Legend

**Note:** Not all combinations are possible. Refer to *List of Models* in *Ordering Information*, below.

**S82K -** □ □□□□ □□
**1 2 3**

**1. Power Factor Correction**
None: No
P: Yes

**2. Power Ratings**
003: 3 W
007: 7.5 W
015: 15 W
030: 30 W
050: 50 W
090: 90 W
100: 100 W

**3. Output Voltage**
05: +5 VDC
12: +12 VDC
15: +15 VDC
24: +24 VDC
27: ±12 VDC
28: ±15 VDC

# Ordering Information

## ■ List of Models

**Note:** For details on normal stock models, contact your nearest OMRON representative.

| Power ratings | Output voltage | Output current | Function Configuration | | | Models |
|---|---|---|---|---|---|---|
| | | | Output | Undervoltage alarm indicator/output | PFC | |
| 3 W | 5 V | 0.6 A | Single output | Yes | No | S82K-00305 |
| | 12 V | 0.25 A | | | | S82K-00312 |
| | 15 V | 0.2 A | | | | S82K-00315 |
| | 24 V | 0.13 A | | | | S82K-00324 |
| 7.5 W | 5 V | 1.5 A | | | | 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 | 0.3 A/0.2 A | Dual output | | | S82K-00727 |
| | ±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 | | | | S82K-03005 (See note 1.) |
| | 12 V | 2.5 A | | | | S82K-03012 |
| | 24 V | 1.3 A | | | | S82K-03024 |
| 50 W | 24 V | 2.1 A | | | | S82K-05024 |
| 90 W | 24 V | 3.75 A | | | No | S82K-09024 |
| | | | | | Yes | S82K-P09024 |
| 100 W | 24 V | 4.2 A (See note 2.) | | | No | S82K-10024 |
| | | | | | Yes | S82K-P10024 |

**Note:1.** The output capacity of the S82K-03005 is 25 W.
**2.** The output current for S82K-P10024 during parallel operation is 3.78 A.

# Specifications

## ■ Ratings/Characteristics

| Item | | | Power ratings (See note 1.) | S82K | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Single output | | Dual output | Single output | |
| | | | | 3 W | 7.5 W | 7.5 W | 15 W | 30 W |
| Efficiency (typical) | | | | 60% min. (Varies depending on specifications) | 64% min. (Varies depending on specifications) | | 66% min. (Varies depending on specifications) | |
| Input | Voltage (See note 2.) | AC | | 100 to 240 VAC (85 to 264 VAC) | | | | |
| | | DC | | 90 to 350 VDC | | | | Not possible |
| | Frequency | | | 50/60 Hz (47 to 450 Hz) | | | | |
| | Current (See note 3.) | 100-V input | | 0.15 A max. | 0.25 A max. | | 0.45 A max. | 0.9 A max. |
| | | 200-V input | | | | | 0.25 A max. | 0.6 A max. |
| | Power Factor | | | --- | | | | |
| | Harmonic current emissions | | | --- | | | | |
| | 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. (for cold start at 25°C) | | | | 25 A max. (for cold start at 25°C) |
| | | 200-V input | | 30 A max. (for cold start at 25°C) | | | | 50 A max. (for cold start at 25°C) |
| | Noise filter | | | Yes | | | | |
| Output (See note 4.) | Voltage Adjustment Range | | | ±10% (with V. ADJ) (See note 5.) | | Not possible (See note 6.) | ±10% (with V. ADJ) (–10% to 15% for S82K-03012/-03024) (See note 5.) | |
| | Ripple (See note 3.) | | | 2% (p-p) max. | | | | |
| | Input variation influence | | | 0.5% max. (at 85 to 264 VAC input, 100% load) | | | | |
| | Load variation influence (rated input voltage) | | | 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) | |
| | Temperature variation influence (See note 3.) | | | 0.05%/°C max. | | | | |
| | Startup time | | | 100 ms max. (up to 90% of output voltage at rated input and output) | | | | |
| | Hold time (See note 3.) | | | 20 ms min. | | | | |
| Additional functions | Overload protection (See note 7.) | | | 105% to 160% of rated load current (105% to 250% of rated load current for dual output models), gradual current/voltage drop, automatic reset (See note 8.) | | | | 105% to 160% of rated load current, gradual current increase, voltage drop intermittent operation, automatic reset |
| | Overvoltage protection | | | No | | | | |
| | Undervoltage alarm indication | | | Yes (color: red) | | | | |
| | Undervoltage alarm output | | | No | | | | |
| | Parallel operation | | | No | | | | |
| Other | Operating ambient temperature | | | Refer to the derating curve in *Engineering Data*. (with no icing or condensation) | | | | |
| | Storage temperature | | | –25 to 65°C (with no icing or condensation) | | | | |
| | Operating ambient humidity | | | 25% to 85% (Storage humidity: 25% to 90%) | | | | |
| | Dielectric strength | | | 3.0 kVAC for 1 min. (between all inputs and all outputs)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals)<br>1.0 kVAC for 1 min. (between all outputs and PE terminals) | | | | |
| | | Detection current | | 10 mA | | | 20 mA | |
| | Insulation resistance | | | 100 MΩ min. (between all outputs and all inputs, PE terminals) at 500 VDC | | | | |
| | Vibration resistance | | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions | | | | |
| | Shock resistance | | | 300 $m/s^2$, 3 times each in ±X, ±Y, ±Z directions | | | | |
| | Output indicator | | | Yes (color: green) | | | | |
| | EMI | Conducted Emissions | | Conforms to EN61204-3 EN55011 Class B and based on FCC Class B | | | | |
| | | Radiated Emissions | | Conforms to EN61204-3 EN55011 Class B | | | | |
| | EMS | | | Conforms to EN61204-3 High severity levels | | | | |
| | Approved standards | UL<br>cUL<br>cUR<br>EN/VDE | | UL 508 (Listing; Class 2: Per UL1310), Class 2 (excluding Dual Output models), UL60950-1<br>CSA C22.2 No.14 (Class 2: Per No. 223, excluding Dual output models)<br>CSA No. 60950-1<br>EN50178 (VDE0160)<br>Based on VDE0160/P100 | | | | |
| | Weight | | | 150 g max. | | | 260 g max. | 380 g max. |

**Note:1.** When a load is connected that has a built-in DC-DC converter, the overload protection may operate at startup and the power supply may not start. Refer to *Overload Protection* on page 8 for details.

**2.** Use with DC voltage input is beyond the conditions of approval or conformance to applicable safety standards. (DC input possible with 15 W max. Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC.
Do not use the Inverter output for the Power Supply. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the Power Supply may result in ignition or burning. There is no polarity.

**3.** Defined with a 100% load and the rated input voltage (100 or 200 VAC.)

**4.** The output specification is defined at the power supply output terminals.

**5.** If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +10% of the voltage adjustment range. (+15% for S82K-03012/-03024) When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.

**6.** The settings for the output voltage must be within the following range:
+V: ±1% of the rated value
–V: ±5% of the rated value

**7.** Refer to *Overload Protection* on page 8 for details.

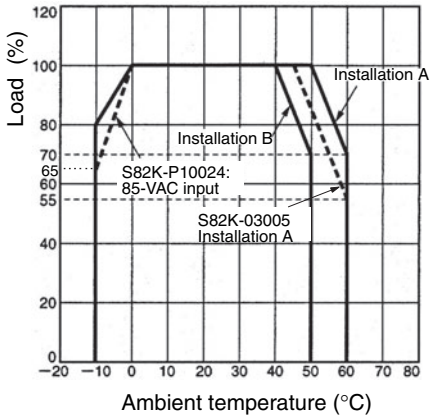
**8.** When using the 7.5-W single-output models within the input voltage range between 90 and 110 VDC, the protection function will operate at a current of 95% to 160% of the rated load current.

# Engineering Data

## ■ Derating Curve (A: Standard mounting, B: Face-up mounting)

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

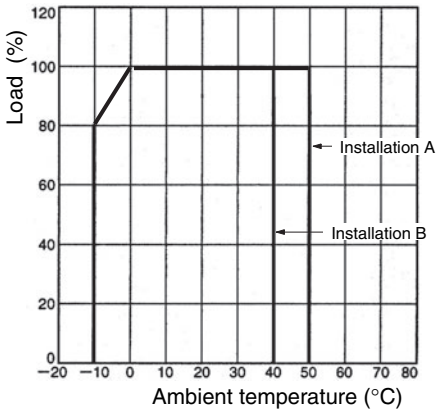
**Single-Unit Operation**




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

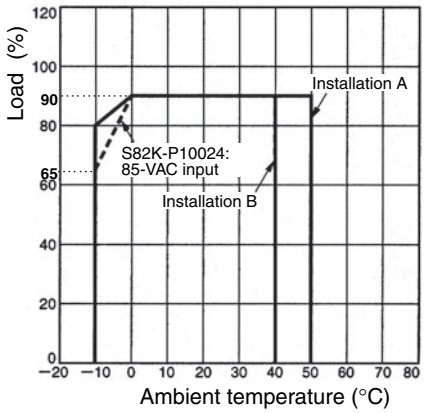
### 100-W Models without PFC (S82K-10024)

**Parallel Operation**



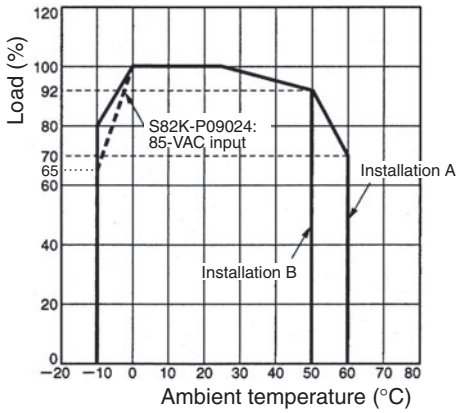

### 100-W Models with PFC (S82K-P10024)

**Parallel Operation**




### 90-W Models

**Single-Unit Operation**



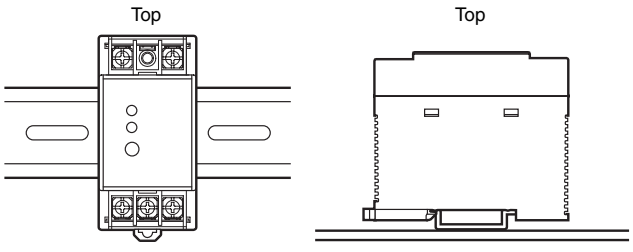

**Note: 1.** The derating curve may vary depending on the installation conditions.

**2.** Multiple units cannot be installed in a configuration where they are lined up vertically.

**3.** Use the 7.5-W single-output models under the load of 90% max. if the voltage range is between 90 and 110 VDC.

**4.** The cold-start time will be longer when using S82K-P09024 or S82K-P10024 with an 85-VAC input.

## ■ Mounting




(A) Standard mounting (B) Face-up mounting

**Note:** Installations other than (A) and (B) are not possible.