

# PS6R



Reduced size and high efficiency cuts operating costs.



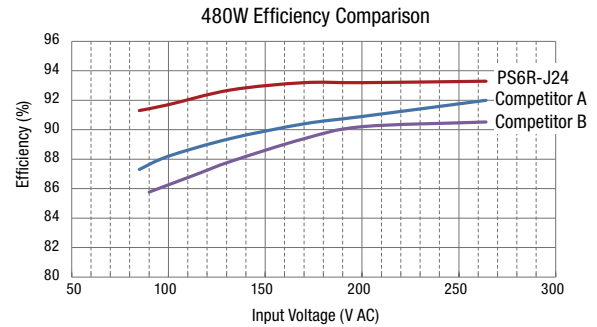
• See website for details on approvals and standards.

## Energy-saving

**93% Efficiency\***

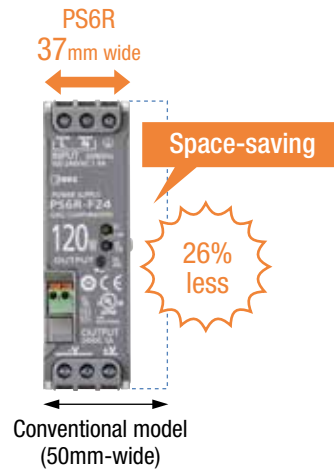
Highly efficient saving energy and cost, improving productivity!

\* When the input is 230V AC.



## Space-saving

The slimmest switching power supplies in their class (37mm-wide, 120W model)

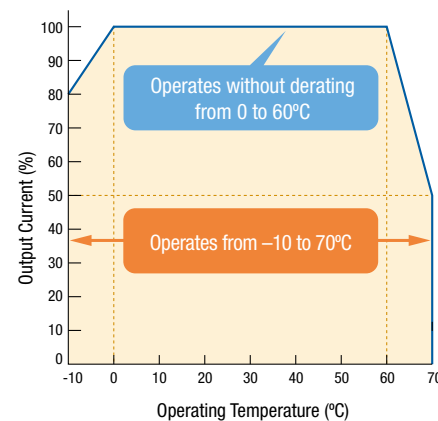


## Highly Reliable

Wide operating temperature range enables stable continuous operation.

Operation without derating from 0 to 60°C.

Wide operating temperature range: -10 to +70°C.



First in the industry

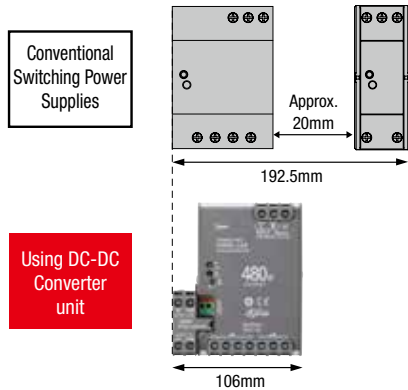
## Convenient – Easily Expandable!

Output voltages can be added or branched easily.  
Less wiring reduces overall cost.

### DC-DC Converter Unit

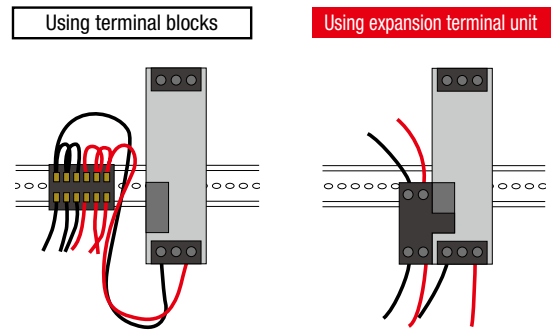
In addition to a single output, an additional 10W output can be provided.

Required space comparison (480W model)



### Expansion Terminal Unit

Two terminals for wiring can be added, reduces wiring and installation space.



## Reduces labor and improves safety

Reduced Wiring



Captive spring-up screws

Captive spring-up screws will not be lost. Ring or fork terminals can be connected quickly and easily.

Fingersafe



Terminals cannot be touched (IP20 construction), preventing electric shocks.

## Easy Maintenance

### LED Indicator

LED indicators make maintenance easy.

| Status             | Normal | Overload or Input Voltage Low (Note) | Output Short-circuit | Output OFF |
|--------------------|--------|--------------------------------------|----------------------|------------|
| DC ON (green LED)  | ●      | ●                                    | ●                    | ●          |
| DC Low (amber LED) | ●      | ●                                    | ●                    | ●          |

Note: The LEDs go on when the input voltage drops.

APEM

Switches & Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

PS5R-V

PS6R




# PS6R Switching Power Supplies

High-power and space-saving switching power supplies.  
93% efficiency reduces running costs.

## PS6R

Package Quantity: 1

|       |  |          |   |                |
|-------|--|----------|---|----------------|
| Shape |  |          |   |                |
|       | Output Capacity (Note)   | Part No. | Input Voltage   | Output Voltage |
|       | 120W   | PS6R-F24 | 100 to 240V AC<br>(Voltage range: 85 to 264V AC / 110 to 350V DC) | 24V            |
|       | 240W   | PS6R-G24 |   |                |
| 480W  | PS6R-J24   | 10A      |   |                |
|       |  |          |   | 20A            |

Note: Output voltage × output current ≤ output capacity

## Accessories

| Item                                       | Part No.    | Package Quantity | Note  |
|--|-------------|------------------|---|
| DC-DC Converter Unit (Note 1)              | PS9Z-6RM1   | 1                | Output: +5V, 2A, 10W  |
|  | PS9Z-6RM2   |                  | Output: +12V, 1A, 12W   |
|  | PS9Z-6RM3   |                  | Output: +5V, 1A/-5V, 1A, 10W  |
|  | PS9Z-6RM4   |                  | Output: +15V, 0.4A/-15V, 0.4A, 12W  |
|  | PS9Z-6RM5   |                  | Output: +5V, 1A/+12V, 0.5A, 11W   |
|  | PS9Z-6RM6   |                  | Output: +12V, 0.5A/-12V, 0.5A, 12W  |
| Expansion Terminal Unit (Note 2)           | PS9Z-6RS1   | 1                | Additional screw terminals for wiring:<br>2 + terminals / 2 - terminals                     |
| Panel Mounting Bracket                     | PS9Z-6R1F   | 1                |   |
| Side-mount Panel Mounting Bracket (Note 3) | PS9Z-6R2F   | 1                | Supplied with M3 × 6 countersunk mounting screws  |
| Terminal Protection Cap                    | PS9Z-6CPN05 | 5                | Used to cover the connection part of DC-DC converter unit/expansion terminal unit and PS6R. |
| DIN Rail                                   | BAA1000PN10 | 10               | Material: Aluminum, Weight: 200g  |
|  | BAP1000PN10 |                  | Material: Steel plated, Weight: 320g  |
| End Clip                                   | BNL6PN10    | 10               | Applicable rail: BAA,BAP, Weight: approx.15g  |

Note 1: When using a DC-DC converter unit, reduce 1A from the output current of the PS6R.

Note 2: When using a expansion terminal unit, the total voltage/current of PS6R and the expansion terminal unit should not exceed the rated current/voltage of PS6R.

Note 3: Use this mounting bracket when the switching power supply needs to comply with marine certification.

## Specifications

## PS6R

| Part No.                  |   | PS6R-F24 (120W)  | PS6R-G24 (240W)  | PS6R-J24 (480W) |      |
|---------------------------|---|--|--|-----------------|------|
| Input                     | Input Voltage (Note 1) (Note 2)   | 100 to 240V AC (Voltage range: 85 to 264V AC/110 to 350V DC)       |  |                 |      |
|                           | Frequency   | 50/60 Hz   |  |                 |      |
|                           | Input Current (Typical)   | 100V AC  | 1.4A   | 2.7A            | 5.5A |
|                           |   | 230V AC  | 0.7A   | 1.2A            | 2.3A |
|                           | Inrush Current  | 100V AC  | 9A max. (Ta=25°C, at cold start)                       |                 |      |
|                           |   | 230V AC  | 20A max. (Ta=25°C, at cold start)                      |                 |      |
|                           | Leakage Current   | 120V AC  | 0.5mA max.   |                 |      |
|                           |   | 230V AC  | 1mA max.   |                 |      |
|                           | Efficiency (Typical) (Note 3)   | 100V AC  | 90%  | 90%             | 91%  |
|                           |   | 230V AC  | 90%  | 91%             | 93%  |
| Power Factor (Typical)    | 100V AC   | 0.99   | 0.99   | 0.98            |      |
|                           | 230V AC   | 0.96   | 0.97   | 0.97            |      |
| Output                    | Rated Voltage/Current   | 24V/5A   | 24V/10A  | 24V/20A         |      |
|                           | Adjustable Voltage Range  | ±10%   |  |                 |      |
|                           | Output Holding Time   | 20ms min. (at rated input and output)                              |  |                 |      |
|                           | Start Time (Note 4)   | 800ms max. (at rated input and output)                             |  |                 |      |
|                           | Rise Time   | 200ms max. (at rated input and output)                             |  |                 |      |
|                           | Regulation  | Total Fluctuation  | ±5% max.   |                 |      |
|                           |   | Input Fluctuation  | 0.4% max.  |                 |      |
|                           |   | Load Fluctuation   | 0.6% max.  |                 |      |
|                           |   | Temperature Change   | 0.05%/°C max. (-10 to +60°C)                           |                 |      |
|                           |   | Ripple (including noise)   | 1% p-p max. (0 to +60°C)<br>1.5% p-p max. (-10 to 0°C) |                 |      |
| Supplementary Functions   | Overcurrent Protection  | 105 to 120% (auto reset) (output current when voltage drops by 5%) |  |                 |      |
|                           | Overvoltage Protection  | Output off at 120% (Note 5)  |  |                 |      |
|                           | Operation Indicator   | LED (green)  |  |                 |      |
|                           | Voltage Low Indication  | LED (amber)  |  |                 |      |
| Dielectric Strength       | Between input and output terminals  | 3000V AC, 1 minute   |  |                 |      |
|                           | Between input and ground terminals  | 2000V AC, 1 minute   |  |                 |      |
|                           | Between output and ground terminals   | 500V AC, 1 minute  |  |                 |      |
| Insulation Resistance     | 100MΩ min. 500V DC megger (between input and output terminals/between input and ground terminals) (at room temperature and normal humidity)                                     |  |  |                 |      |
| Operating Temperature     | -10 to +70°C (no freezing) (Note 2)   |  |  |                 |      |
| Operating Humidity        | 20 to 90% RH (no condensation)  |  |  |                 |      |
| Storage Temperature       | -25 to +75°C (no freezing)  |  |  |                 |      |
| Storage Humidity          | 20 to 90% RH (no condensation)  |  |  |                 |      |
| Vibration Resistance      | 10 to 55 Hz, amplitude 0.375 mm (using one BNL6 each on the right and left of the PS6R)<br>2 hours each in 3 axes, 6 directions   |  |  |                 |      |
| Shock Resistance          | 300 m/s <sup>2</sup> (150 m/s <sup>2</sup> when using a PS9Z-6R1F panel mounting bracket), 3 times each in 6 directions (using one BNL6 each on the right and left of the PS6R) |  |  |                 |      |
| EMC                       | EMI   | EN61204-3 (Class B)  |  |                 |      |
|                           | EMS   | EN61204-3 (industrial)   |  |                 |      |
| Safety Standards          | UL508 (UL listed), ANSI/ISA 12.12.01, CSA C22.2 No. 107.1, No. 213 (c-UL listed), IEC/EN60950-1, EN62368-1, EN50178, EN62477-1  |  |  |                 |      |
| Marine Standards (Note 6) | ABS, DNV-GL (formerly GL)   |  |  |                 |      |
| Other Standard            | SEMI F47 (208V AC input only)   |  |  |                 |      |
| Degree of Protection      | IP20 (IEC 60529)  |  |  |                 |      |
| Dimensions (mm)           | 125 H × 37 W × 125 D  | 125 H × 60 W × 125 D   | 125 H × 85 W × 125 D                                   |                 |      |
| Weight (approx.)          | 630g  | 960g   | 1400g  |                 |      |
| Terminal Screw            | M3.5  |  |  |                 |      |

Note 1: Input voltage approved by safety standards is 100 to 240V AC. DC input is not approved by safety standards.

Note 2: For output derating curves and operating temperature approved by safety standards, see **J-020**.

Note 3: Under stable state.

Note 4: At light load, electric charge may remain inside the power supply after the power has turned off. Turn on the power after sufficient interval.

Note 5: Turn on the power 1 minute after the AC input is shut down.

Note 6: Use a side-mount panel mounting bracket (PS9Z-6R2F).

PS6R-J24 switching power supply needs a noise filter at the input (FN2070-10-06 made by SCHAFFNER)



## PS6R Switching Power Supplies

## Accessories (For use with PS6R)

| Part No.                 |                             | DC-DC Converter Unit (Note 5)  |                           |            |                           |                    |           | Expansion Terminal Unit  |   |
|--------------------------|-----------------------------|--|---------------------------|------------|---------------------------|--------------------|-----------|--------------------------|---|
|                          |                             | PS9Z-6RM1  | PS9Z-6RM2                 | PS9Z-6RM3  | PS9Z-6RM4                 | PS9Z-6RM5          | PS9Z-6RM6 | PS9Z-6RS1                |   |
| Output Capacity          |                             | 10W max.   | 12W max.                  | 10W max.   | 12W max.                  | 11W max.           | 12W max.  | —                        |   |
| Output                   | Rated Voltage/Current       | 5V/2A  | 12V/1A                    | ±5V/1A     | ±15V/0.4A                 | 5V/1A,<br>12V/0.5A | ±12V/0.5A | 24V/10A max.<br>(Note 1) |   |
|                          | Adjustable Voltage Range    | Not available  |                           |            |                           |                    |           |                          |   |
|                          | Voltage Accuracy            | ±5% max.   |                           |            |                           |                    |           | —                        |   |
|                          | Start Time (Note 6)         | 200 ms max. (at rated output)  |                           |            |                           |                    |           | —                        |   |
|                          | Regulation                  | Input Fluctuation  | 0.5% max.                 |            |                           |                    |           |                          | — |
|                          |                             | Load Fluctuation   | 1.0% max.                 |            |                           |                    |           |                          |   |
|                          |                             | Temperature Change   | 0.05%/max. (−10 to +60°C) |            |                           |                    |           |                          |   |
| Ripple (including noise) | 100mV max.                  | 150mV max.   | 100mV max.                | 150mV max. | 100mV max.,<br>150mV max. | 150mV max.         |           |                          |   |
|                          | Supplementary Functions     | Overcurrent Protection   | 105% (auto reset)         |            |                           |                    |           | —                        |   |
| Overvoltage Protection   | Output off at 120% (Note 2) |  |                           |            |                           |                    |           |                          |   |
| Operating Temperature    |                             | −10 to +70°C (no freezing) (Note 3)  |                           |            |                           |                    |           |                          |   |
| Operating Humidity       |                             | 20 to 90%RH (no condensation)  |                           |            |                           |                    |           |                          |   |
| Storage Temperature      |                             | −25 to +75°C (no freezing)   |                           |            |                           |                    |           |                          |   |
| Storage Humidity         |                             | 20 to 90% RH (no condensation)   |                           |            |                           |                    |           |                          |   |
| Vibration Resistance     |                             | 10 to 55 Hz, amplitude 0.375 mm, 2 hours each in 3 axes, 6 directions (in combination with PS6R-F24/G24/J24)   |                           |            |                           |                    |           |                          |   |
| Shock Resistance         |                             | 300 m/s <sup>2</sup> (150 m/s <sup>2</sup> when using a PS9Z-6R1F panel mounting bracket), 3 times each in 6 directions (in combination with PS6R-F24/G24/J24)     |                           |            |                           |                    |           |                          |   |
| EMC                      | EMI                         | EN61204-3 (Class B) (in combination with PS6R-F24/G24/J24) (Note 4)  |                           |            |                           |                    |           | —                        |   |
|                          | EMS                         | EN61204-3 (industrial) (in combination with PS6R-F24/G24/J24) (Note 4)   |                           |            |                           |                    |           |                          |   |
| Safety Standards         |                             | UL508 (Listing), ANSI/ISA 12.12.01, CSA C22.2 No.107.1, No. 213 (c-UL listed), IEC/EN60950-1, EN62368-1, EN50178, EN62477-1 (in combination with PS6R-F24/G24/J24) |                           |            |                           |                    |           |                          |   |
| Marine Standards         |                             | ABS, DNV-GL (formerly GL) (in combination with PS6R-F24/G24/J24)   |                           |            |                           |                    |           |                          |   |
| Degree of Protection     |                             | IP20 (IEC 60529)   |                           |            |                           |                    |           |                          |   |
| Weight (approx.)         |                             | 90g  |                           |            |                           |                    |           | 30g                      |   |
| Terminal Screw           |                             | M3.5   |                           |            |                           |                    |           |                          |   |

Note 1: Ensure that the current does not exceed the rated current of the PS6R.

Note 2: Repair is needed when output drops due to overvoltage protection. Contact IDEC.

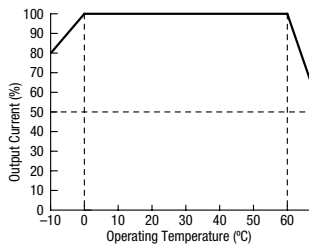
Note 3: For output derating curves and operating temperature approved by safety standards, see **J-020**.

Note 4: When using PS6R-F24/G24 with PS9Z-6RM3/6RM4/6RM6, coil each output lines of PS9Z-\* around a ferrite core for one turn.

Note 5: DC-DC converter unit is non-isolated and cannot be used when insulation against PS6R output is required.

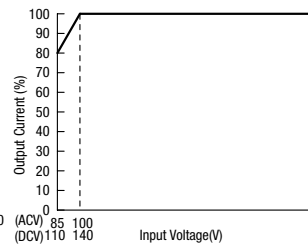
Note 6: Because each output has different start time on multi-output models, make sure of the correct operation before installation.

**Operating Temperature vs. Output Current (Derating Curves)**  
PS6R-F24/G24/J24  
PS9Z-6R\*\*  
(natural air cooling)

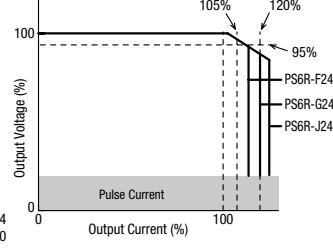


Operating temperature is the temperature around the switching power supply.

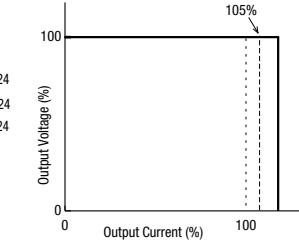
**Output Current vs. Input Voltage (Derating Curves)**  
PS6R-F24/G24/J24  
(Ta=25°C)



**Overcurrent Protection Characteristics**  
PS6R-F24/G24/J24



**Overcurrent Protection Characteristics**  
PS9Z-6RM\*

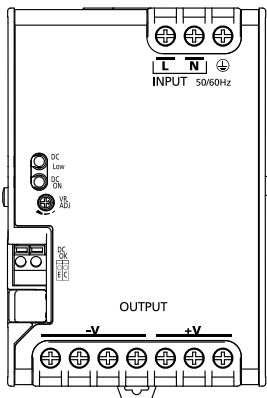


**Operating Temperature approved by Safety Standards**

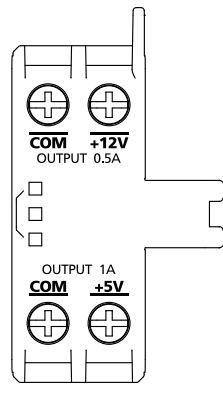
| Part No.  | UL508, CSA C22.2 No. 107. 1 | EN60950-1, EN62368-1, EN50178, EN62477-1 |
|-----------|-----------------------------|--|
| PS6R-F24  | 60°C                        | 60°C                                     |
| PS6R-G24  | 60°C                        | 60°C                                     |
| PS6R-J24  | 55°C                        | 60°C                                     |
| PS9Z-6R** | 60°C                        | 60°C                                     |

**Parts Description**

PS6R-F24/G24/J24  
Switching Power Supply

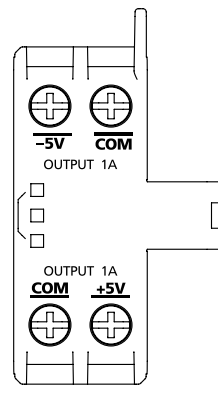


PS9Z-6RM1/M2/M5  
DC-DC Converter Unit



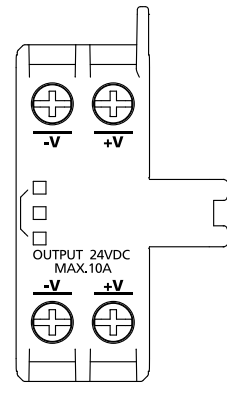
(PS6R-6RM5 shown)

PS9Z-6RM3/M4/M6  
DC-DC Converter Unit



(PS6R-6RM3 shown)

PS9Z-6RS1  
Expansion Terminal Unit



**PS6R-F24/G4/J24/PS9Z-6RS1**

| Marking | Name                         | Description   |
|---------|------------------------------|---|
| L, N    | Input Terminal               | Voltage range: 85 to 264V AC/110 to 350V DC   |
| ⊕       | Ground Terminal              | Be sure to connect this terminal to a proper ground.  |
| +V, -V  | DC Output Terminals          | +V: Positive output terminal<br>-V: Negative output terminal  |
| VR.ADJ  | Output Voltage Adjustment    | Allows adjustment within ±10%. Turning clockwise increases the output voltage.  |
| DC ON   | Operation Indicator (green)  | Lights on when the output voltage is on.  |
| DC LOW  | Output Low Indicator (Amber) | Lights on when the output voltage drops approximately 80% of the rated value.   |
| DC OK   | DC OK Output                 | Lights on when the output voltage is more than 80% of the rated value.<br>NPN transistor output (50V DC max., 50 mA max.) |

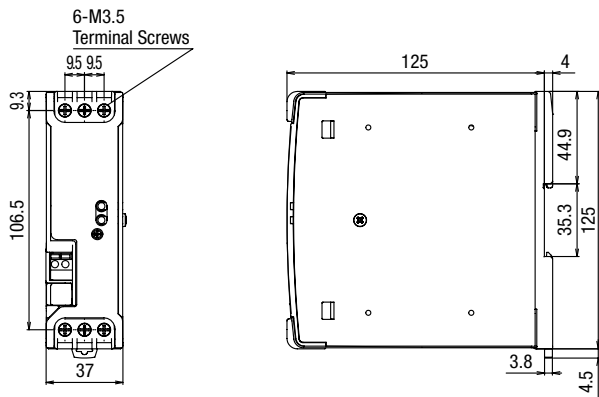
**PS9Z-6RM\***

| Marking         | Name               | Description  |
|-----------------|--------------------|--|
| +5V, +12V, +15V | DC Output Terminal | +5V side, +12V side, +15V side: +output side         |
| -5V, -12V, -15V | DC Output Terminal | -5V side, -12V side, -15V side: -output side         |
| COM             | DC Output Terminal | 0V side (wired internally to -V of PR6R-F24/G24/J24) |

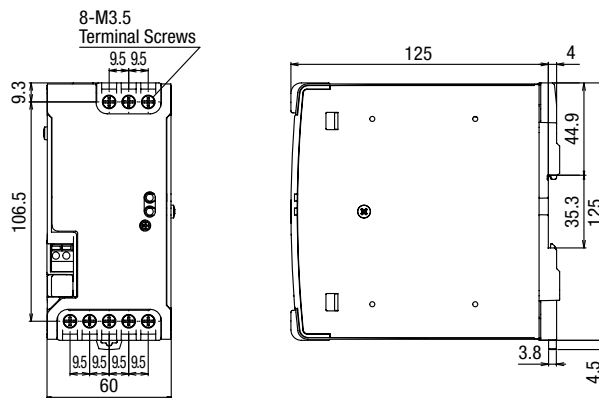
- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID
- PS5R-V
- PS6R

Dimensions

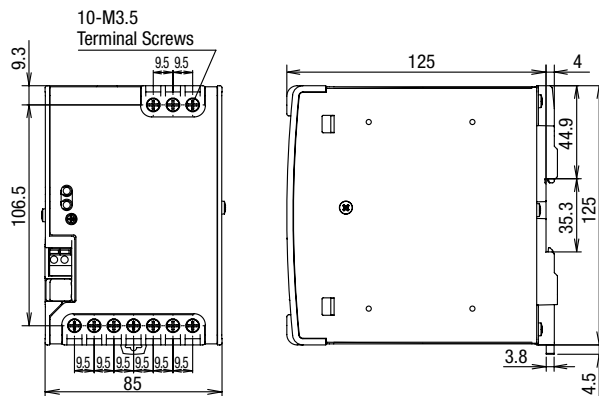
PS6R-F24 (120W)



PS6R-G24 (240W)



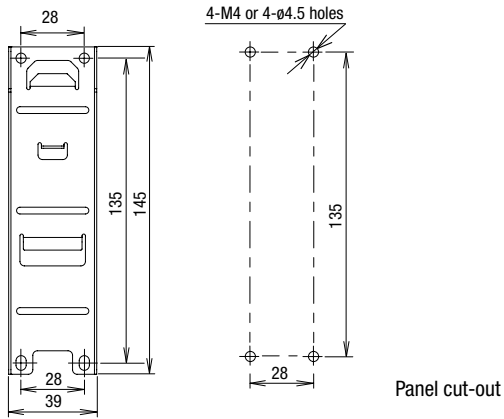
PS6R-J24 (480W)



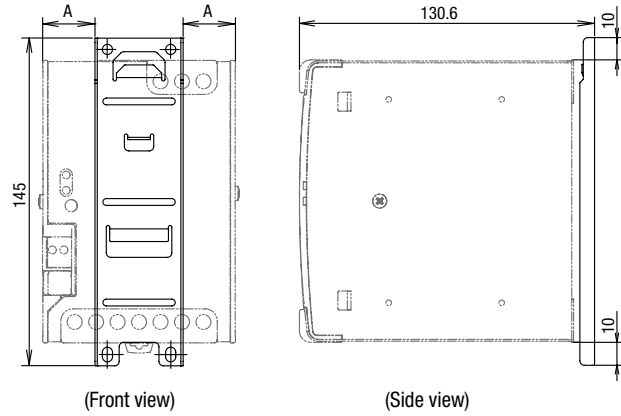
All dimensions in mm.  
Tolerance: ±1 mm

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
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- LED Illumination
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- Operator Interfaces
- Sensors
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- PS5R-V
- PS6R

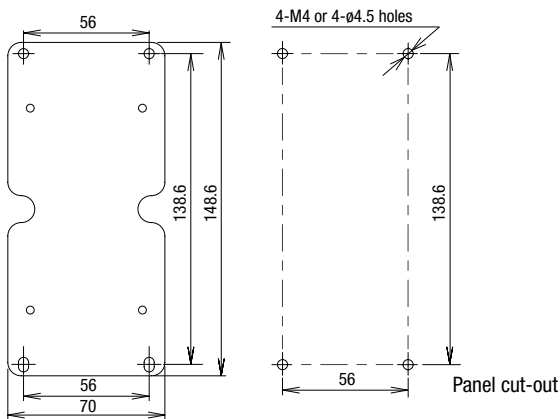
**PS9Z-6R1F Panel Mounting Bracket**



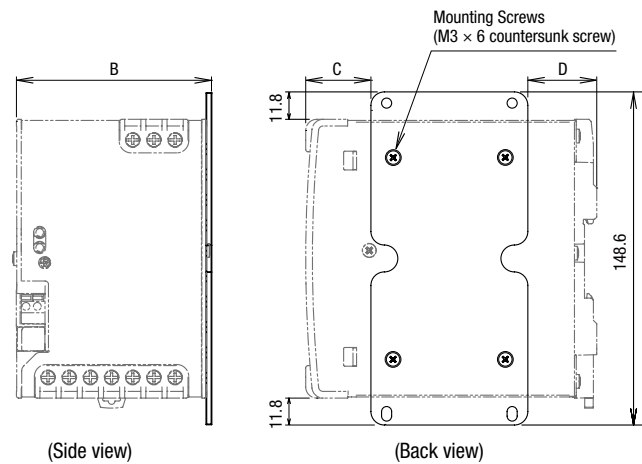
**When a PS9Z-6R1F is installed on PS6R**



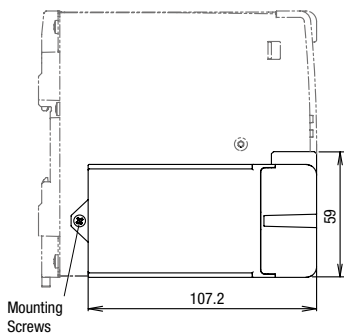
**PS9Z-6R2F Side-mount Panel Mounting Bracket**



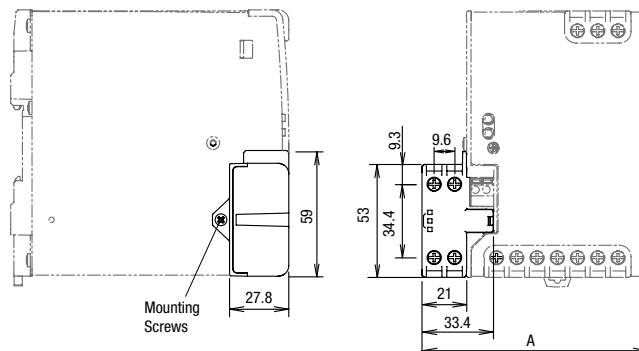
**When a PS9Z-6R2F is installed on PS6R**



**When using a PS9Z-6RM\* DC-DC Converter Unit**



**When using a PS9Z-6RS1 Expansion Terminal Unit**



All dimensions in mm.  
Tolerance: ±1mm

|   | PS6R-F24 | PS6R-G24 | PS6R-J24 |
|---|----------|----------|----------|
| A | —        | 10.5     | 23       |
| B | 39.3     | 62.3     | 87.3     |
| C | 29.5     | 29.5     | 29.5     |
| D | 29.5     | 31       | 31       |
| E | 58       | 81       | 106      |

|   | PS6R-F24 | PS6R-G24 | PS6R-J24 |
|---|----------|----------|----------|
| A | 58       | 81       | 106      |

- APEM
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- AUTO-ID
- PS5R-V
- PS6R



**⚠ Safety Precautions**

**Mount the PS6R in an enclosure. Do not use the PS6R alone as an Electric Facilities for General Use.**  
**Use the PS6R for electric facilities for business use only.**

- Do not use switching power supplies with electric equipment whose malfunction or inadvertent operation may damage the human body or life directly.
- Make sure that the input voltage and output current do not exceed the ratings. If the input voltage and output current exceed the ratings, electric shock, fire, or malfunction may occur.
- Do not touch the terminals of the switching power supply while input voltage is applied, otherwise electric shock may occur.
- Provide the final product with protection against malfunction or damage that may be caused by malfunction of the switching power supply.
- Operating temperatures should not exceed the ratings. Be sure to note the derating characteristics. If the operating temperature exceeds the ratings,

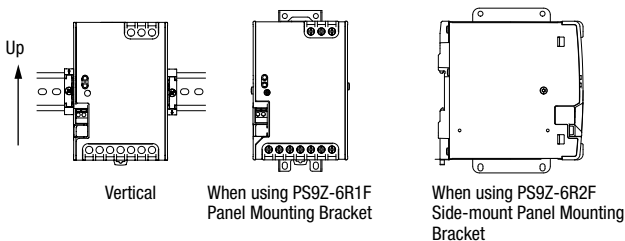
electric shock, fire, or malfunction may occur.

- Blown fuses indicate that the internal circuits are damaged. Contact IDEC for repair. Do not just replace the fuse and reoperate, otherwise electric shock, fire, or malfunction may occur.
- Do not use the switching power supplies to charge rechargeable batteries.
- Do not overload or short-circuit the switching power supply for a long period of time, otherwise the internal elements may be damaged.
- Do not disassemble, repair, or modify the power supplies, otherwise the high voltage internal part may cause electric shock, fire, or malfunction.
- The fuse inside the PS6R switching power supply is for AC input. Use DC fuse for DC input.

**Operating Instructions**

**Notes for Installation**

- The PS6R can be installed in the direction shown below only.



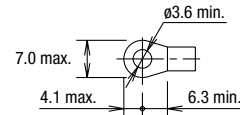
Do not close the top and bottom openings of the PS6R to allow for heat radiation by convection.

- Maintain a minimum of 20 mm clearance around the PS6R, except for the top and bottom openings.
- When derating of the output does not work, provide forced air-cooling.
- Make sure to wire the ground terminal correctly.
- Recommended tightening torque of the input and output terminals is 1.0 to 1.3 N·m (UL compliant: 0.8 N·m).
- The output voltage can be adjusted within ±10% of the rated output voltage by using the V.ADJ control. Note that overvoltage protection may work when increasing the output voltage.
- When large shocks or heavy vibrations on the PS6R are expected, the use of DIN rail or PS9Z-6R2F side-mount panel mounting bracket is recommended.
- For wiring, use wires with heat resistance of 60°C or higher. Use copper wire of the following sizes. Wires of the following size must be used to comply with UL508, CSA C22.2 No. 107.1.

| Model                | Terminal     | Wire Size/No. of Wire   | Wire Type  | Torque, in-ibs (N·m) |
|----------------------|--------------|---|--|----------------------|
| PS6R-F24<br>PS6R-G24 | Input        | 18-14 AWG, 1-wire   | Copper<br>Solid/Stranded   | 7.0 (0.8)            |
|                      | Output       | 18-14 AWG, 1-wire, (18 AWG - 7A, 16 AWG - 10A, 14 AWG - 15A)  |  |                      |
|                      | DC OK Output | 22-14 AWG, 1-wire (stripped wire length: 6 to 7mm)  |  | —                    |
| PS6R-J24             | Input        | 18-14 AWG, 1-wire   | Copper<br>Solid/Stranded<br>Use with UL-listed ring/folk crimp terminal. | 7.0 (0.8)            |
|                      | Output       | 18-14 AWG, 1-wire, 2-wire<br>When using 2-wire, use the wire of the same size for each terminal (18 AWG - 7A, 16 AWG - 10A, 14 AWG - 15A) |  |                      |
|                      | DC OK Output | 22-14 AWG, 1-wire (stripped wire length: 6 to 7mm)  | Copper   | —                    |
| PS9Z-6R*             | Output       | 18-14 AWG, 1-wire (18 AWG - 7A, 16 AWG - 10A, 14 AWG - 15A)   | Copper<br>Solid/Stranded   | 7.0 (0.8)            |

Cross section:  
 AWG22: 0.33mm<sup>2</sup>, AWG20: 0.52mm<sup>2</sup>, AWG18: 0.82mm<sup>2</sup>  
 AWG16: 1.31mm<sup>2</sup>, AWG14: 2.0mm<sup>2</sup>, AWG12: 3.3mm<sup>2</sup>

**Applicable Crimp Terminal (reference)**

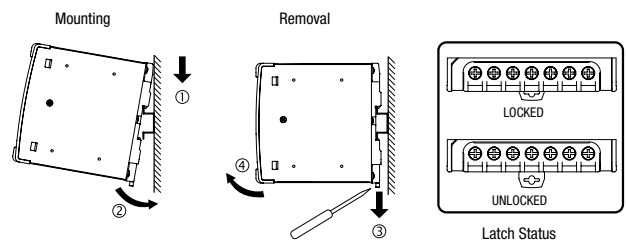


**Mounting on DIN Rails**

- Fasten the DIN rail to a mounting plate using screws.
- When mounting the PS6R on a DIN rail, place the PS6R as shown. With the clamp inserted, press the PS6R towards the DIN rail.
- Use end clips BNL6 for fastening the PS6R on the DIN rail. When using with a PS9Z-6RM\* DC-DC converter unit, install the BNL6 on the left side of the PS6R first.

**Removal**

- Insert a flat screwdriver into the slot in the clamp, and pull out the clamp until it clicks. Turn the PS6R bottom out. When mounting the PS6R again, push in the latch first.

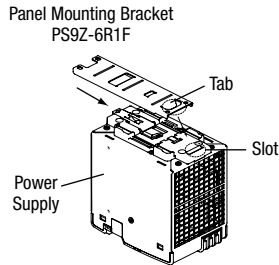


## Operating Instructions

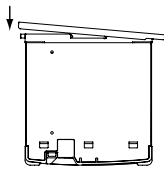
### Installing the PS9Z-6R1F Panel Mounting Bracket

When excessive vibration or shock is anticipated, use the PS9Z-6R2F side-mount panel mounting bracket.

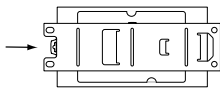
1. Push in the latch on the PS6R and insert the tab on the panel mounting bracket into the slot on the PS6R.



2. Install the bracket as shown below.



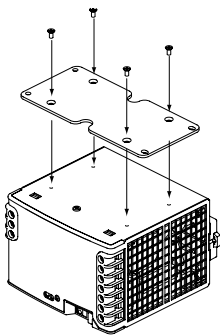
3. Ensure that the panel mounting bracket is locked by the latch.



### Installing the PS9Z-6R2F Panel Mounting Bracket

Install the bracket on the PS6R using the M3 × 6 countersunk mounting screws supplied with the bracket.

Recommended tightening torque: 0.5 to 0.6 N·m



### Adjustment of Output Voltage

The output voltage can be adjusted within  $\pm 10\%$  of the rated output voltage by using the VR.ADJ control on the front. Turning the VR.ADJ clockwise increases the output voltage. When using a higher output voltage, reduce the output current to make sure that the output capacity is within the rating. Note that overvoltage protection may work when increasing the output voltage.

### Overcurrent Protection

The output voltage drops automatically when an overcurrent flows due to an overload or short circuit. Normal voltage is automatically restored when the load returns to normal conditions.

### Overvoltage Protection (OVP)

#### PS6R-F24/G24/J24 Power Supplies

When the output voltage has dropped due to an overvoltage, turn the input off, and after one minute, turn the input on again.

#### PS9Z-6RM\* DC-DC Converter Unit

Internal parts are damaged when the output voltage had dropped due to overvoltage. Contact IDEC.

### Insulation/Dielectric Test

When performing an insulation/dielectric test, short-circuit the input (between L and N) and output (between +V and -V). Do not apply or interrupt the voltage quickly, otherwise surge voltages may be generated and the PS6R may be damaged.

### Notes for Operation

1. Output interruption may indicate blown fuses. Contact IDEC.
2. The PS6R contains an internal fuse for AC input. When using DC input, install an external fuse or DC input. To avoid blown fuses, select a fuse in consideration of the rated current of the internal fuse.

#### Rated Current of Internal Fuses

| Part No. | Internal Fuse Rated Current |
|----------|-----------------------------|
| PS6R-F24 | 4A                          |
| PS6R-G24 | 6.3A                        |
| PS6R-J24 | 10A                         |

- Avoid overloads and short-circuits for a long period of time, otherwise internal elements may be damaged.
- DC input operation is not subjected to safety standards.

### Rust and Scratches on Housing, Frame, and Metal

Parts Bonded steel plates and hot-dip galvanized steel plates are used for the PS6R switching power supplies, and may develop scratches on the surface on the edge depending on the storage condition.

### Noise

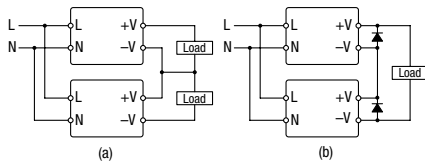
Small acoustic noise inside the power supply may be heard depending on the input voltage and load, but the performance of the PS6R is not affected.



## Operating Instructions

### Series Operation

The following series operation is allowed. Connect Schottky barrier diodes D as shown below. DC-DC converter unit cannot be connected in series.

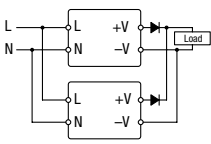


Select a Schottky diode in consideration of the rated current. The diode's reverse voltage must be higher than the PS6R's output voltage.

### Parallel Operation

Parallel operation is possible to increase the output capacity.

DC-DC converter unit cannot be connected in parallel.



When increasing the capacity, observe the followings.

1. Maintain the operating temperature below 40°C.
2. Output cannot be connected directly in parallel operation. Connect a diode to the output of each PS6R.
3. Output terminal voltage of both power supplies must be the same. Also, maintain the voltage difference between the power supplies below 30mV.
4. Use load lines of the same diameter and length.
5. Set the output voltage higher for the amount of diode forward voltage drop.
6. Turn on the inputs at the same time.
7. Select a diode in consideration of:
  - Diode's reverse voltage must be higher than the PS6R's output voltage.
  - Diode's current must be three times as the PS6R's output current.
  - Provide a heat sink for heat dissipation.

### Backup Operation

Backup operation is a connection method of two switching power supplies in parallel for emergency. Normally one switching power supply has a sufficient output. If one switching power supply fails, another one operates to continue the output. Make sure that the sum of power consumption by load and diode is not greater than the rated wattage (rated voltage × rated current) of one switching power supply.

## Operating Instructions

### Warranty

IDEC warrants the PS6R switching power supply for a period of three years from the date of shipment.

### Scope

IDEC agrees to free repair or replacement of the PS6R switching power supply if the product has been operated under the following conditions. The maximum value of output capacity is within the range shown in "Operating Temperature vs. Output Current on J-020.

1. Average operating temperature (ambient temperature of switching power supply) is 40°C at maximum.
2. The load is 80% at maximum.
3. Input voltage is the rated input voltage.
4. Standard mounting style

IDEC shall not be liable for other damages including consequential, contingent or incidental damages. Warranty does not apply if the PS6R switching power supply was subject to:

1. Inappropriate handling, or operation beyond the specifications.
2. Modification or repair by other than IDEC.
3. Failure caused by other than the PS6R switching power supply.
4. Failure caused by natural disasters.

# Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

## 1. Notes on contents of Catalogs

- (1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.  
Also, durability varies depending on the usage environment and usage conditions.
- (2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (4) The content of Catalogs is subject to change without notice.

## 2. Note on applications

- (1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.  
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.
- (2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.
- (3) When using IDEC products, be cautious when implementing the following.
  - i. Use of IDEC products with sufficient allowance for rating and performance
  - ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails
  - iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications
- (4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.
- (5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.
  - i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health
  - ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems
  - iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference  
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

## 3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

## 4. Warranty

- (1) Warranty period  
The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.
- (2) Warranty scope  
Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.
  - i. The product was handled or used deviating from the conditions / environment listed in the Catalogs
  - ii. The failure was caused by reasons other than an IDEC product
  - iii. Modification or repair was performed by a party other than IDEC
  - iv. The failure was caused by a software program of a party other than IDEC
  - v. The product was used outside of its original purpose
  - vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs
  - vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC
  - viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

## 5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

## 6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

- (1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
- (2) Maintenance inspections, adjustments, and repairs
- (3) Technical instructions and technical training
- (4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

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| <b>Australia</b> | IDEC Australia Pty. Ltd.            | Tel: +61-3-8523-5900   | sales@au.idec.com    |
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