

● Before operating the switching power supply, read this instruction sheet and keep it for future reference.

1. Safety Standard Conditions

Applicable standard : UL 508, CSA C22.2 No. 14, EN 60950
 Pollution degree : 2
 Leakage current : 0.75 mA Max.

2. Type No. Development



① : Output Power ② : Output Voltage
 Q : 75W 24: 24V DC
 F : 120W
 G : 240W

3. Rating

Use the switching power supply with the output capacity within the values shown below.

PS5R-Q□

Input : 100-240V AC, 1A, 50-60Hz

Output :

Type	Output Voltage V DC	Output Current Max.A	Output Capacity Max.W
24	21.6-26.4	3.1	75

PS5R-F□

Input : 100-240V AC, 1.5A, 50-60Hz

Output :

Type	Output Voltage V DC	Output Current Max.A	Output Capacity Max.W
24	21.6-26.4	5	120

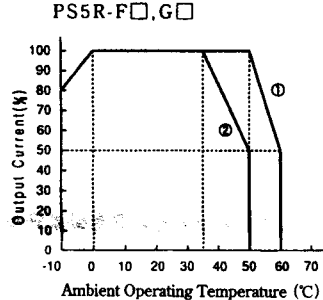
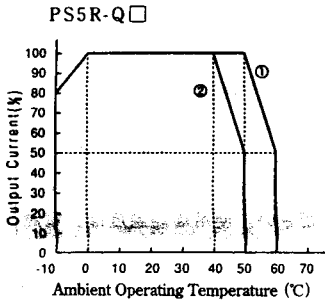
PS5R-G□

Input : 100-240V AC, 4A, 50-60Hz

Output :

Type	Output Voltage V DC	Output Current Max.A	Output Capacity Max.W
24	21.6-26.4	10	240

4. Output Derating

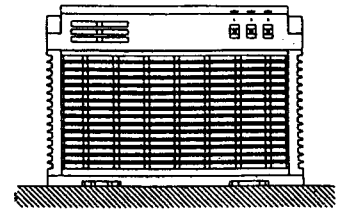
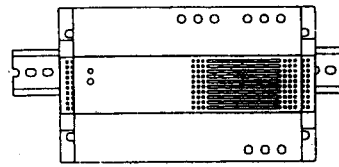


①: Mounting A
 ②: Mounting B

Note: In order to comply with UL 508, CSA C22.2 No. 14, and EN 60950, The ambient operating temperature is as follows.

Type No.	Ambient Operating Temperature UL, CSA (EN60950) (°C)	
	① : Mounting A	② : Mounting B
PS5R-Q□	50	40
PS5R-F□	45(50)	35
PS5R-G□	50	35

(Mounting Direction)



Mounting A

Mounting B

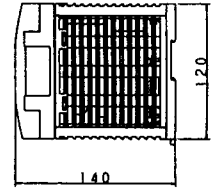
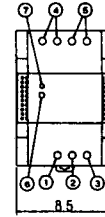
Mounting A : Standard Mounting on Vertical Plane

Mounting B : Mounting on Horizontal Plane

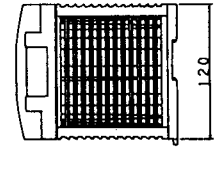
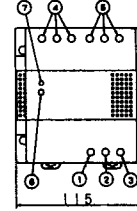
5. Terminal Marking and Description

- ① (L) AC Input Terminal
- ② (N) AC Input Terminal
- ③ (⊕) Ground Terminal (Protective Earthing Terminal)
- ④ (-V) DC Output Terminal
- ⑤ (+V) DC Output Terminal
- ⑥ (V. A D J) Output Voltage Adjustment
- ⑦ (D C O N) Operation Indicator

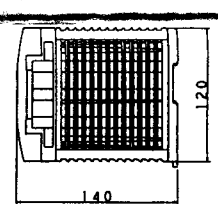
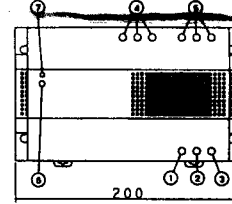
PS5R-Q□



PS5R-F□



PS5R-G□

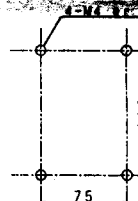


6. Power Supply Installation

- ① Make sure of convection in consideration of sufficient heat radiation. Do not block the opening of the switching power supply.
- ② Keep at least 30mm clearance around the switching power supply, except for the opening.
- ③ When the derating is in question provide forced air-cooling.
- ④ Use minimum 60°C wire.
- ⑤ Terminal torque 0.8 N · m.
- ⑥ Use copper wire only.
- ⑦ When mounting the switching power supply directly on a panel surface, see the mounting hole layout shown below.

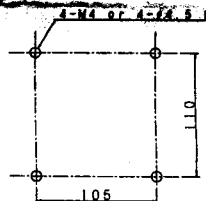
PS5R-Q□

Mounting Hole Layout



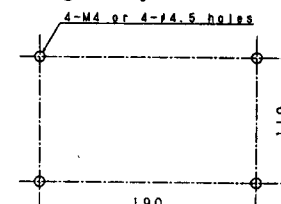
PS5R-F□

Mounting Hole Layout



PS5R-G□

Mounting Hole Layout



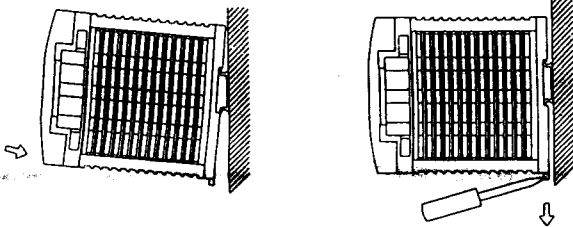
⑧ Mounting on 35-mm-wide DIN Rail

〈Mounting on DIN Rail〉

- (1) Fasten the DIN Rail to a panel firmly.
- (2) Put the groove of the switching power supply on the DIN Rail, with the output terminal side up, press the switching power supply to the panel.
- (3) Use BNL5P mounting clips on both the sides of the switching power supply to prevent from moving sideways.

〈Removing from DIN Rail〉

Insert a flat screwdriver into the slot in the clamp. Pull the clamp out until the clamp clicks, and turn the switching power supply bottom out.



"Caution on DIN Rail Mounting"

No other mounting directions than specified are allowed.

Also observe the specified mounting directions during Transportation. When PS5R series are mounted on the DIN rail in other directions than specified, clamps may break or PS5R series may fall off the DIN rail due to shocks.

⑨ Adjusting the Output Voltage

The output voltage can be adjusted within $\pm 10\%$ of the rated output voltage using the V.ADJ (output voltage adjustment). Note that the overvoltage protection may work when the output voltage is raised.

⑩ Overcurrent Protection

When an overcurrent flows due to an overload, the output voltage drops. When the load is reduced to a normal level, the normal output voltage is restored. Note that an overload or short-circuit condition continuing for an extended period of time will deteriorate or damage internal elements.

⑪ Overvoltage Protection

These models use a manual reset method after power shutdown. To recover from output voltage drop due to an overvoltage, turn off the AC input, and turn on the AC input after approximately 1 minute.

⑫ Series Operation

Two PS5R switching power supplies can be connected in series. When connecting the switching power supplies in series, insert a Schottky diode in the output line of each switching power supply.

⑬ Insulation Resistance and Dielectric Strength Tests

When making these tests, connect the AC input terminals together and the output + and - terminals together. Rapid application and interruption of the test voltage will generate a surge voltage, which may damage the switching power supply.

⑭ Parallel Operation

The PS5R switching power supplies can be connected in parallel. When using PS5R series for parallel operation, observe the following precautions.

- (1) When connecting two through five units in parallel, connect a diode to the output of each unit. Outputs of PS5R units can not be connected directly. (Fig.1)
- (2) Adjust the output of each unit to the same voltage within a tolerance of 50 mV.
- (3) Turn on inputs to all units at the same time.
- (4) Use the same wires for connecting outputs of all units.
- (5) When connecting diodes to the output, raise the output voltage to compensate for the voltage drop due to the diode forward voltage (VF).
- (6) Recommended diodes for outputs are listed below.
BYV54V-50, BYV54V-100, BYV54V-150, BYV54V-200, BYV541V-200 (ST Microelectronics) When using diodes, provide a proper heat sink in consideration of diode heating.

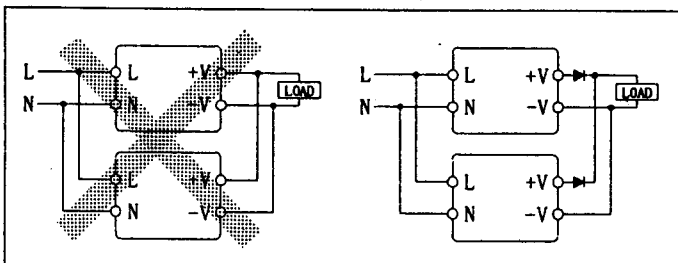


Fig.1

SAFETY PRECAUTIONS

- Read the following safety precautions to make sure of correct operation before starting installation, wiring, and operation.
- In this instruction sheet, safety precautions are categorized in order of importance to Warning and Caution:



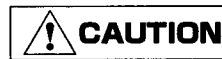
WARNING

Warning notices are used to emphasize that improper operation may cause severe personal injury or death.



WARNING

- Do not use the switching power supply on control equipments in aircrafts, trains, and atomic equipments where malfunction of the switching power supply may cause severe personal injury or threaten human life. These switching power supplies are designed for use on general electronic equipment such as office equipment, communication equipment, instrumentation equipment, and industrial control equipment. The power supply is a unit of Class A. This means, that they can be used in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies building used for domestic purposes.
- Make sure that the operating conditions satisfy the values described in the catalog. Confirm the specification values before designing the equipment to use the switching power supply and before supplying power. Contact IDEC if you have any question.
- Do not modify or repair the switching power supply. Modification or repairing of the switching power supply by users may cause electrical shocks, damage, fire hazards, and other heavy accidents.
- Do not install the switching power supply where a human body may come into contact while power is supplied to the switching power supply. Do not touch the switching power supply during operation or immediately after turning off because some parts are heated and at a high voltage, causing burns or electrical shocks. The standard switching power supplies are designed for installation in equipment.
- Do not connect the output terminals or output lead wire together. Fire hazards or damage may result.
- Include a protection in the equipment using the switching power supply in consideration of malfunction or damage of the load in case the switching power supply should fail. If the switching power supply should fail, a very high voltage or voltage drop may occur at the output terminals.
- Turn power off before wiring the switching power supply. Make sure of correct wiring. Incorrect wiring may cause electrical shocks or damage.



CAUTION

Caution notices are used where inattention might cause personal injury or damage to equipment.



CAUTION

- Make sure of the correct input voltage. Incorrect input voltage may cause blown fuses, fuming, or fire hazards. Make sure of correct polarity of input and output terminals before supplying power to the switching power supply.
- Do not touch any part inside the switching power supply. Prevent foreign objects from entering into the housing of the switching power supply. If the internal parts are touched by hand, or foreign objects such as paper clips or screws enter into the housing, accidents or damage may occur.
- Observe the temperature derating. The operating temperature is the temperature around the switching power supply. Use the switching power supply within the temperature derating curve. Otherwise, the internal temperature will rise and damage may be caused.
- Do not turn the output voltage adjustment beyond the limits. Otherwise, the switching power supply may be deteriorated and damage may be caused.
- When damage or malfunction should occur during operation, immediately turn power off and stop the switching power supply. Contact IDEC.
- Do not use or store the switching power supply in environments subjected to a large amount of vibrations or shocks. Otherwise, damage may be caused.
- Do not install the switching power supply in environments exposed to direct sunlight, iron particles, oil splashes, chemicals, and hydrogen sulfide. Do not use the switching power supply in humid places such as basements or greenhouses, or in low-temperature places such as in freezers or in front of cooler outlet.