Autonics SP Series Switching Mode Power Supply Instruction Manual

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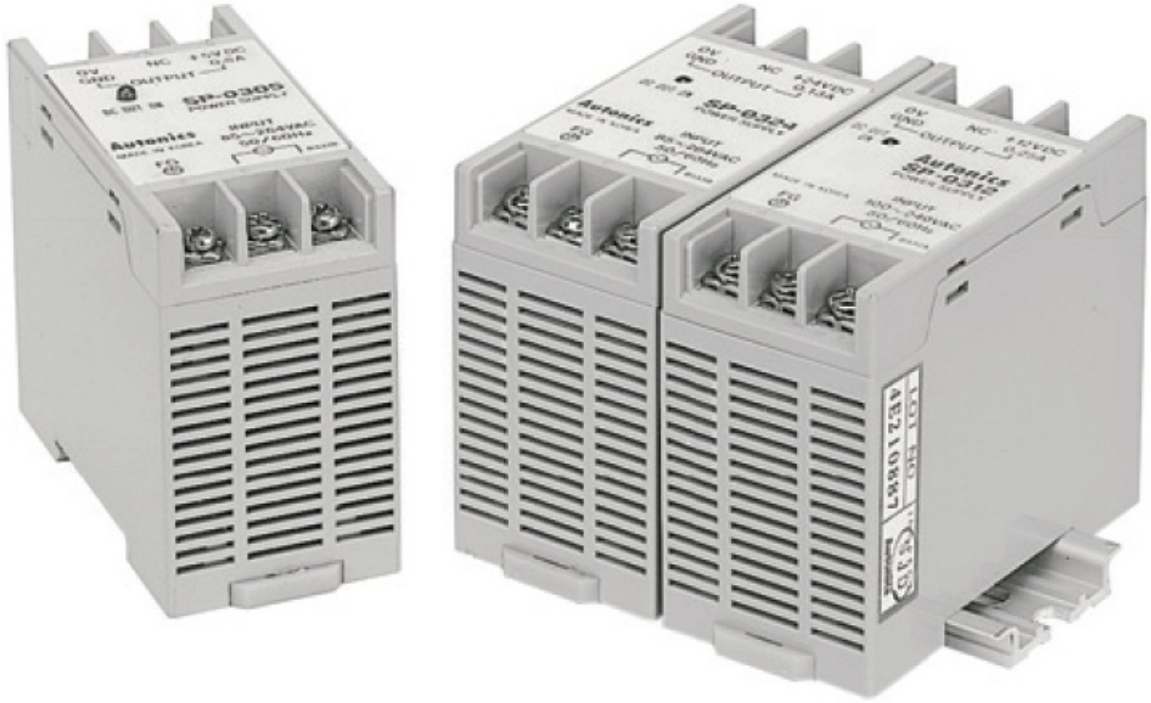
Autonics

SP Series Switching Mode Power Supply



Instruction Manual

Thank you for choosing our Autonics product. Please read the following safety considerations before use.

Safety Consideration

Please observe all safety considerations for safe and proper product operation to avoid hazards. The symbol represents caution due to special circumstances in which hazards may occur.

Warning

1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.) Failure to follow this instruction may result in personal injury, economic loss or fire.
2. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in explosion or fire.
3. Install on the device panel or DIN rail, and ground to the F.G. terminal separately. Failure to follow this instruction may result in fire or electric shock.
4. Do not connect, repair, or inspect the unit while connected to a power source. Failure to follow this instruction may result in fire or electric shock.
5. Check ‘Wiring Diagram’ before wiring. Failure to follow this instruction may result in fire.
6. Do not disassemble or modify the unit. Failure to follow this instruction may result in fire or electric shock.

Caution

1. When connecting the F.G. terminal, use AWG 14 (2.1mm2) cable or over and tighten the terminal screw with a

tightening torque of 0.7 to 0.9N.m. Failure to follow this instruction may result in fire or malfunction due to contact failure.
2. Use the unit within the rated specifications. Failure to follow this instruction may result in fire, product damage or shortening the life cycle of the product.
3. Use dry cloth to clean the unit, and do not use water or organic solvent. Failure to follow this instruction may result in fire or electric shock.
4. Keep the product away from metal chip, dust, and wire residue which flow into the unit. Failure to follow this instruction may result in fire or product damage.
5. Do not touch the product during operation or for a certain period of time after stopping. Failure to follow this instruction may result in burns.
6. Upon occurrence of an error, disconnect the power source. Failure to follow this instruction may result in fire or product damage.

Ordering Information

Item	Description
Output voltage	5VDC or 12VDC
Output power	3W

The above specifications are subject to change and some models may be discontinued without notice. Be sure to follow caution written in the instruction manual and the technical descriptions (catalog, homepage).

Dimensions

(unit: mm)

Specifications

Model	Output Voltage	Output Power
SP-0305	5VDC	3W
SP-0312	12VDC	3W
SP-0324	24VDC	3W

Product Usage Instructions

1. Install a fail-safe device when using the unit with machinery that may cause serious injury or substantial

economic loss. Examples of such machinery include nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.
2. Avoid using the product in places where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present to prevent explosion or fire.
3. Install the product on the device panel or DIN rail and ground it to the F.G. terminal separately to avoid fire or electric shock.
4. Do not connect, repair or inspect the unit while connected to a power source to prevent fire or electric shock.
5. Check the wiring diagram before wiring to avoid fire.
6. Do not disassemble or modify the unit as it may result in fire or electric shock.
7. When connecting the F.G. terminal, use AWG 14 (2.1mm2) cable or over and tighten the terminal screw with a tightening torque of 0.7 to 0.9N.m to avoid fire or malfunction due to contact failure.
8. Use the unit within the rated specifications to prevent fire, product damage or shortening the life cycle of the product.
9. Clean the unit with a dry cloth and do not use water or organic solvent to avoid fire or electric shock.
10. Keep the product away from metal chip, dust, and wire residue which flow into the unit to prevent fire or product damage.
11. Do not touch the product during operation or for a certain period of time after stopping to prevent burns.
12. Upon occurrence of an error, disconnect the power source to prevent fire or product damage.

Be sure to follow all safety considerations and usage instructions for safe and proper product operation to avoid hazards.

Safety Consideration

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
- symbol represents caution due to special circumstances in which hazards may occur.
- **Warning:** Failure to follow these instructions may result in serious injury or death.
- **Caution:** Failure to follow these instructions may result in personal injury or product damage.

Warning

1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.) Failure to follow this instruction may result in personal injury, economic loss or fire.
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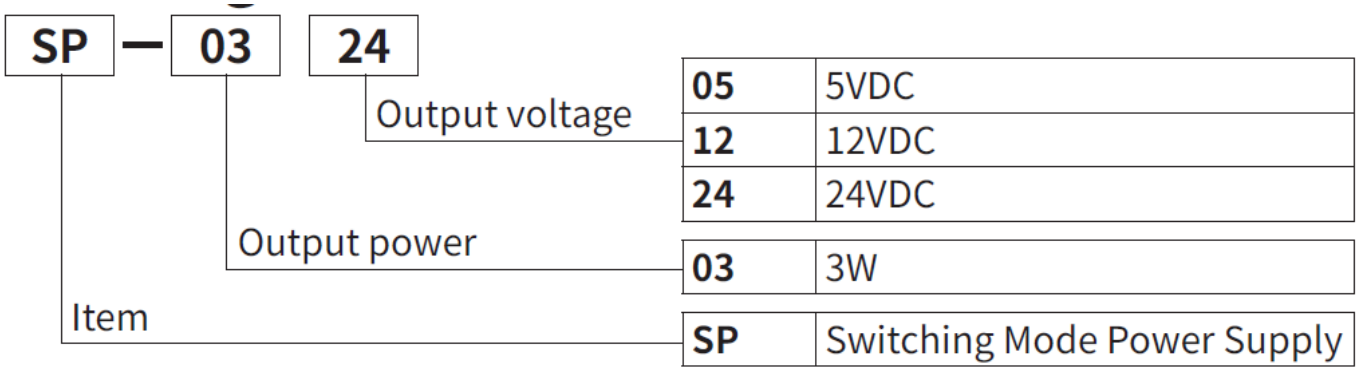
Ordering Information



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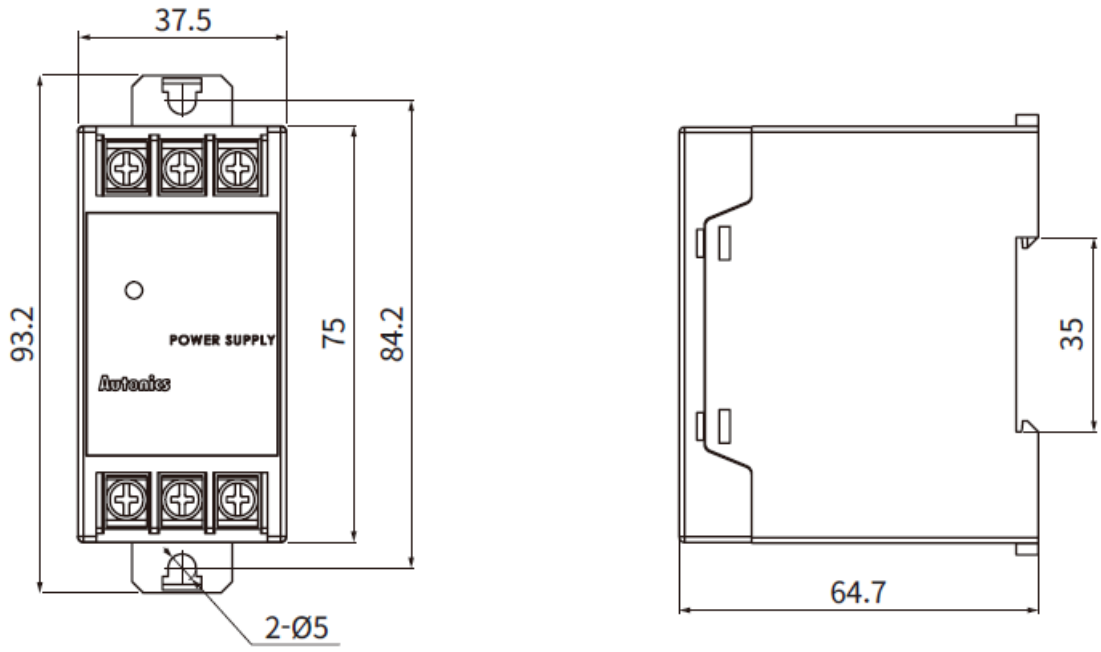
- Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

Dimensions



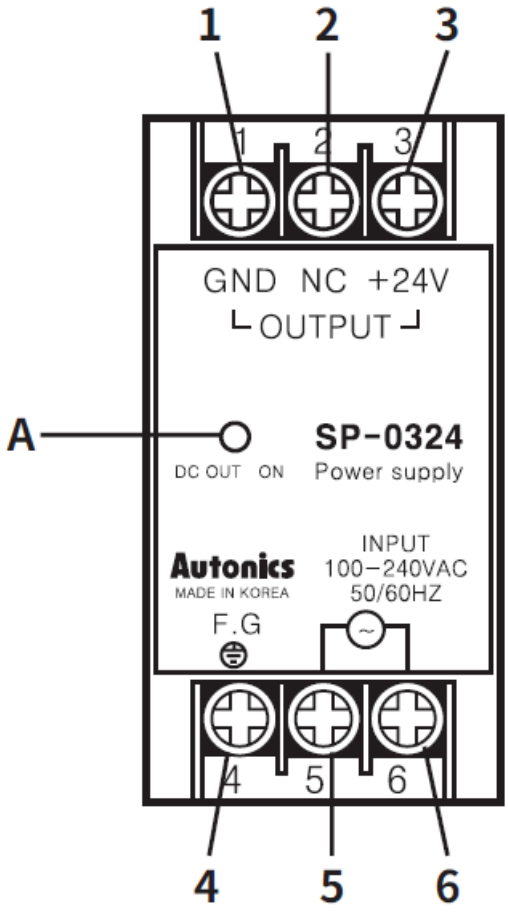
Specifications

Model		SP-0305	SP-0312	SP-0324
Output power		3W		
Input	Voltage	100-240VAC~ (permissible voltage: 85-264VAC~)		
	Frequency	50/60Hz		
	Efficiency	67 to 74%		
	Current consumption	Max. 0.15A		
Output	Voltage	5VDC⎓	12VDC⎓	24VDC⎓
	Current	0.6A	0.25A	0.13A
	Allowable voltage range	Max. ±5%		
	Ripple	Max. 5%		
	Voltage fluctuation ratio	Max. 0.5% (at 85-264VAC~ 100% load)		
Over-current protection		Min. 110%		
Series / Parallel operation		Not available		
Indicator		Output indicator: Red LED		
Insulation resistance		Over 100MΩ (at 500VDC megger)		
Dielectric strength		2,000VAC 50/60Hz for 1 minute		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes		
Shock	Mechanical	300m/s² (approx. 30G) in each X, Y, Z direction for 3 times		
	Malfunction	100m/s² (approx. 10G) in each X, Y, Z direction for 3 times		
Environ-ment	Ambient temp.	-10 to 50°C, storage: -20 to 70°C		
	Ambient humi.	35 to 85%RH		
Specification of Input cable		AWG 22 to 16		
Tightening torque		0.7 to 0.9N·m		
Unit weight		Approx. 100g		

Cautions during Use

1. Follow instructions in ‘Cautions during Use’. Otherwise, it may cause unexpected accidents.
2. Do not connect the output voltage neither in serial nor in parallel.
3. Since there is no harmonic suppression or power factor correction circuit, install the circuit separately if necessary.
4. Since using the condenser input method, power factor is in the range of 0.4 to 0.6. When using distribution board or transformer, check the capacity of the input voltage.
    - Input apparent power[VA] = Output active power[W] / Power factor×Efficiency
5. Even though a noise filter is installed inside the product, the product can be affected by noise depending on the installation location or wiring
6. If the internal fuse is damaged, please contact our A/S center.
7. To ensure the reliability of the product, install the product on the panel or metal surface vertically to the ground.
8. Install the unit in the well ventilated place.
9. Do not use near the equipment which generates strong magnetic force or high frequency noise.
10. This unit may be used in the following environments.
    - Indoors (in the environment condition rated in ‘Specifications’)
    - Altitude max. 2,000m
    - Pollution degree 2
    - Installation category II

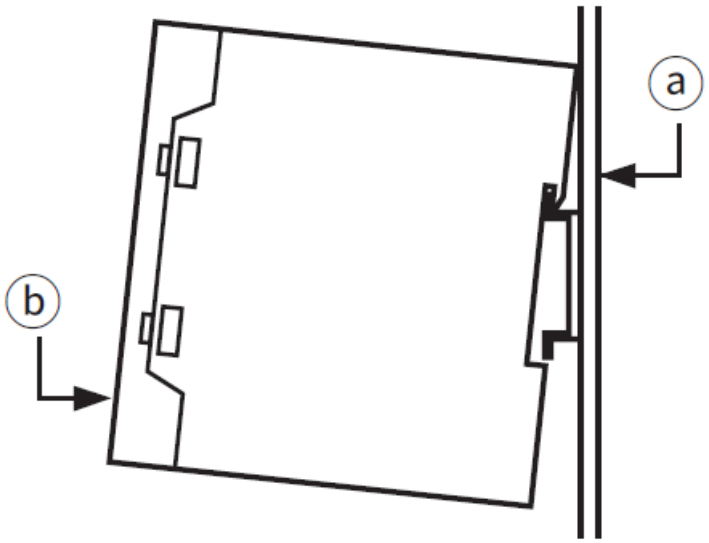
Wiring Diagram/Unit Description



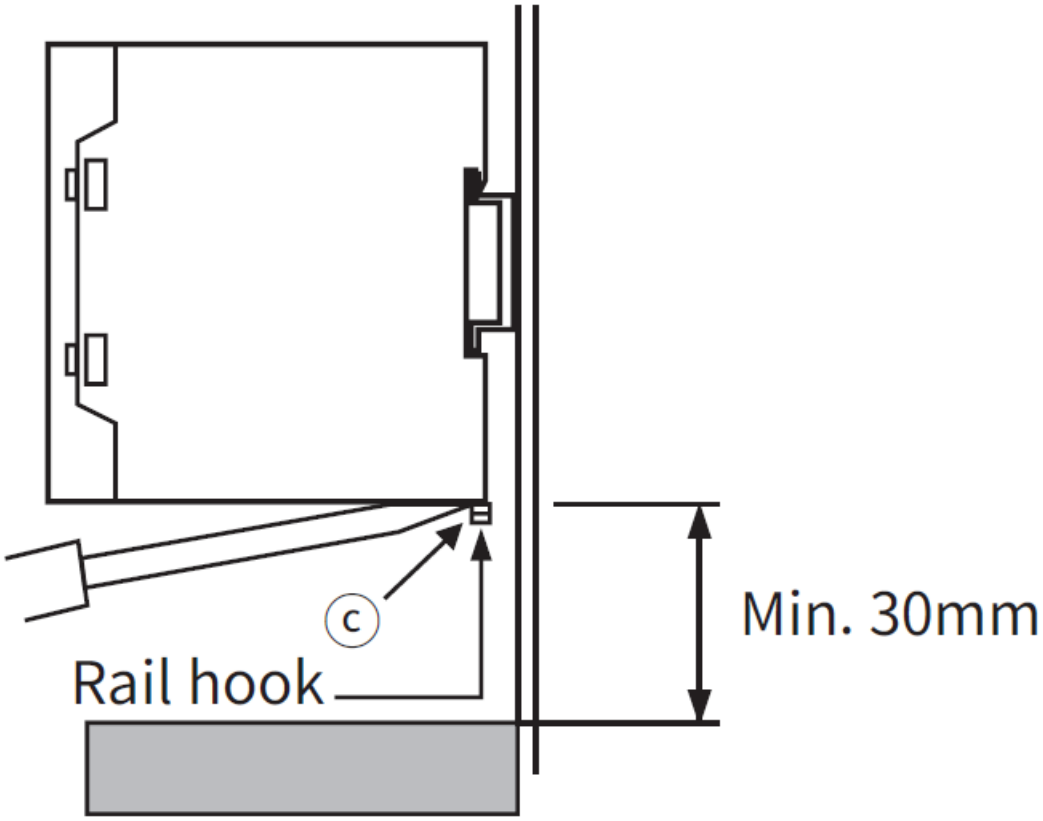
Installation

Mounting on DIN rail and removing

- **To mount the power supply on DIN rail**
  First put the power supply on the part of the rail and then press it for the direction .

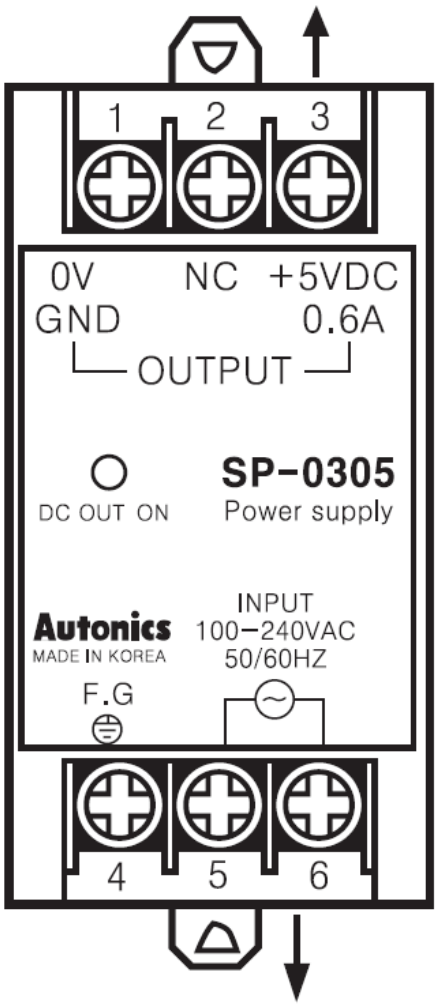


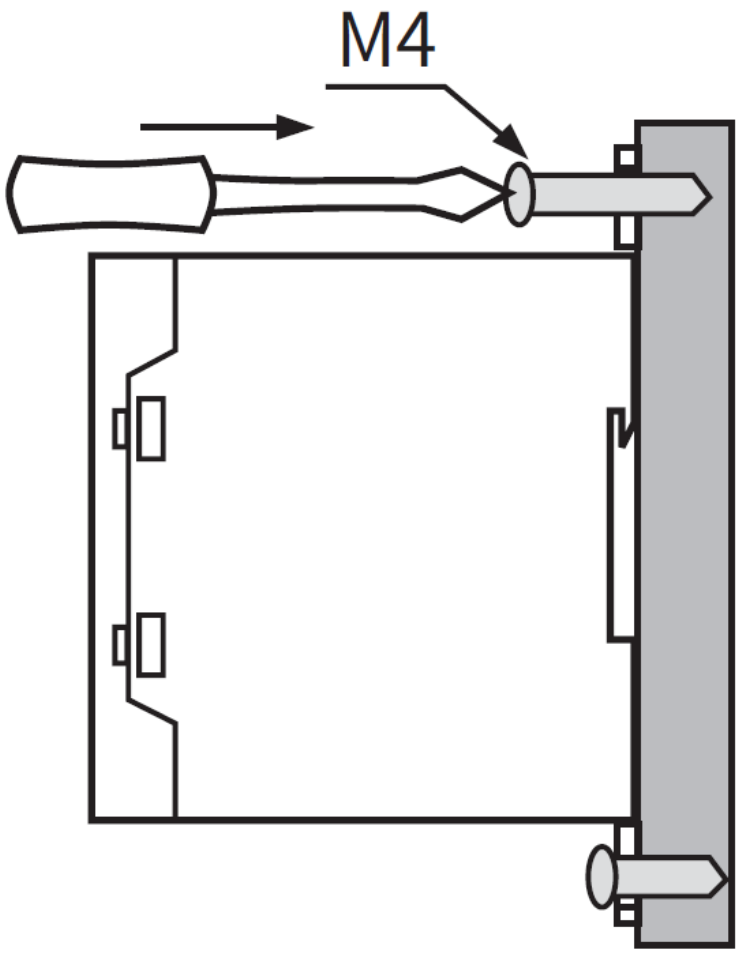
- To remove the power supply from DIN rail Firstly put a screw driver into the part and push it downward.
  - When mounting the power supply on the rail, place the item Min. 30mm above from the floor to remove easily.



Mounting on Panel

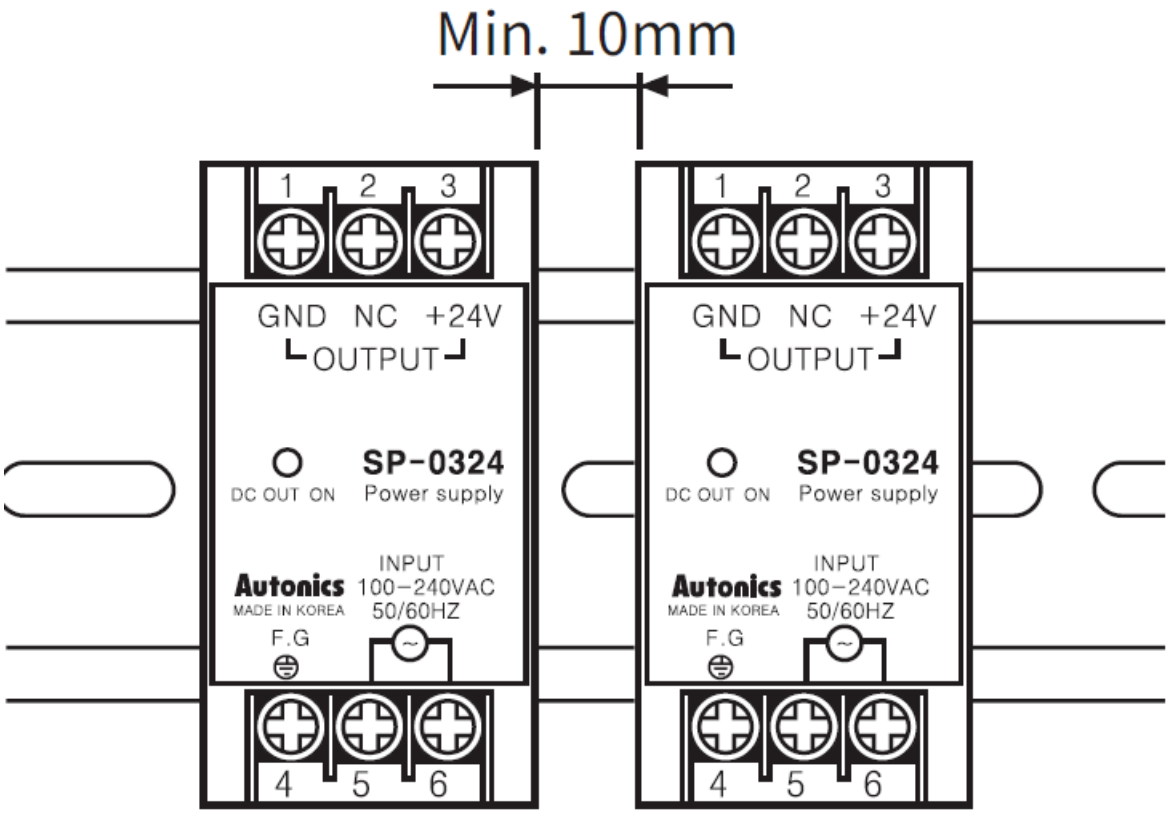
- When there is no DIN rail





If there is no rail, it is able to mount by screwing a bolt at the hook on the body as following figure.

Installation interval



When installing multiple SMPSs, please keep space at least 10mm between SMPSs for heat radiation.

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Documents / Resources

	Autonics SP Series Switching Mode Power Supply [pdf] Instruction Manual SP Series Switching Mode Power Supply, SP Series, Switching Mode Power Supply, Mode Power Supply, Power Supply, Supply