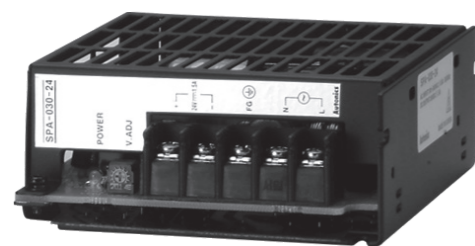


Autonics

**SWITCHING MODE POWER SUPPLY
SPA SERIES**

INSTRUCTION MANUAL



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

■ Safety Considerations

※ 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.

2. Do not use the unit in the place where flammable/explosive/corrosive gas, high 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, 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 electric shock or fire.

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

| | | | | | |
|-----|-----|----|----------------|-----|-----------------------------|
| SPA | 030 | 05 | Output voltage | 05 | 5VDC |
| | | 12 | | 12 | 12VDC |
| | | 24 | | 24 | 24VDC |
| | 030 | | Output power | 030 | 30W |
| | 050 | | | 050 | 50W |
| | 075 | | | 075 | 75W |
| | 100 | | | 100 | 100W |
| | SPA | | Item | | Switching mode power supply |

※ The above specifications are subject to change and some models may be discontinued without notice.

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

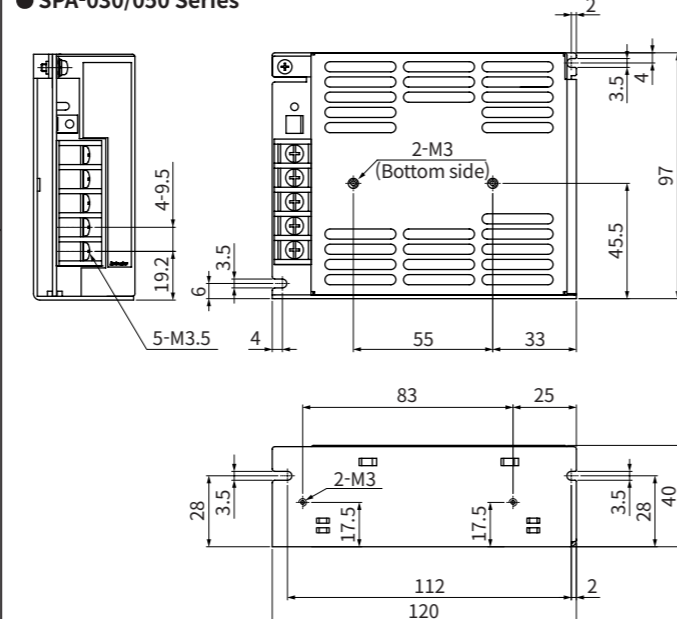
■ Specifications

| Model | SPA-030-05 | SPA-050-05 | SPA-030-12 | SPA-050-12 | SPA-030-24 | SPA-050-24 | SPA-075-05 | SPA-100-05 | SPA-075-12 | SPA-100-12 | SPA-075-24 | SPA-100-24 | | | | | | | | | | | | | | |
|---------------------------------|----------------------------|---|--|------------|------------|------------|---|--------------|------------|------------|--|------------|--|-----------|--|-----------|--|-----------|----------|-----------|------|-----------|------|--|------|--|
| Output power | 30W | 50W | 30W | 50W | 30W | 50W | 75W | 100W | 75W | 100W | 75W | 100W | | | | | | | | | | | | | | |
| Input | Voltage*1,2 | | | | | | 100-240VAC~ (permissible voltage: 85-264VAC~) | | | | | | 100-120/200-240VAC~ (permissible voltage: 85-132/170-264VAC~) switching type | | | | | | | | | | | | | |
| | Frequency | | | | | | 50/60Hz | | | | | | | | | | | | | | | | | | | |
| | Efficiency*3 | | Min. 60% | | Min. 67% | | Min. 74% | | Min. 80% | | Min. 70% | | Min. 78% | | Min. 72% | | Min. 78% | | Min. 80% | | | | | | | |
| Current consumption*3 | | Max. 1.2A | | Max. 1.6A | | Max. 1.0A | | Max. 1.4A | | Max. 0.8A | | Max. 1.1A | | Max. 3.0A | | Max. 2.0A | | Max. 3.0A | | Max. 2.0A | | Max. 2.5A | | | | |
| Output | Voltage | | 5VDC= | | 12VDC= | | 24VDC= | | 5VDC= | | 12VDC= | | 24VDC= | | | | | | | | | | | | | |
| | Current | | 6A | | 10A | | 2.5A | | 4.2A | | 1.5A | | 2.1A | | 15A | | 20A | | 6.3A | | 8.5A | | 3.2A | | 4.2A | |
| | Voltage adjustment range*4 | | ±5% | | | | | | | | | | | | | | | | | | | | | | | |
| | Input fluctuation*5 | | Max. ±0.5% | | | | | | | | | | | | | | | | | | | | | | | |
| | Load fluctuation*3 | | Max. ±2% | | | | Max. ±1% | | | | Max. ±2% | | | | Max. ±1% | | | | | | | | | | | |
| | Ripple*3 | | Max. ±1% | | | | | | | | | | | | | | | | | | | | | | | |
| | Start-up time*3 | | Max. 200ms | | | | Max. 150ms | | | | Max. 250ms | | | | | | | | | | | | | | | |
| Protection | Hold time*3 | | Min. 10ms | | | | Min. 5ms | | | | Min. 10ms | | Min. 5ms | | Min. 10ms | | | | | | | | | | | |
| | Inrush current protection | | Max. 30A (100VAC~) /Max. 40A (200VAC~) | | | | Max. 20A (100VAC~) | | | | Max. 45A (100VAC~) /Max. 50A (240VAC~) | | Max. 35A (100VAC~) /Max. 40A (240VAC~) | | Max. 45A (100VAC~) /Max. 50A (240VAC~) | | Max. 35A (100VAC~) /Max. 40A (240VAC~) | | | | | | | | | |
| | Over-current protection*6 | | Min. 110% | | | | Min. 105% | | | | Min. 110% | | | | | | | | | | | | | | | |
| | Over-voltage protection*4 | | — | | | | 6.5V ±10% | | | | 16V ±10% | | 30V ±10% | | | | | | | | | | | | | |
| Output short-circuit protection | | Max. 5ms | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicator | | Output indicator: Green LED | | | | | | | | | | | | | | | | | | | | | | | | |
| Insulation resistance | | Over 100MΩ (at 500VDC megger between all inputs and F.G.) | | | | | | | | | | | | | | | | | | | | | | | | |
| Dielectric strength | | 3000VAC 50/60Hz for 1min (between all inputs and outputs) | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1500VAC 50/60Hz for 1min (between all inputs and F.G.) | | | | | | | | | | | | | | | | | | | | | | | | |
| Vibration | | 0.75mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 2 hours | | | | | | | | | | | | | | | | | | | | | | | | |
| Shock | | 300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times | | | | | | | | | | | | | | | | | | | | | | | | |
| EMS | | Conforms to EN61000-6-2 | | | | | | | | | | | | | | | | | | | | | | | | |
| EMI | | Conforms to EN61000-6-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| Safety standards | | EN60950, EN50178 | | | | | | | | | | | | | | | | | | | | | | | | |
| Environment | Ambient temperature | | -10 to 50°C | | | | -10 to 40°C | | | | -10 to 50°C | | | | | | | | | | | | | | | |
| | Storage temperature | | -25 to 65°C | | | | | | | | | | | | | | | | | | | | | | | |
| | Ambient humidity | | 25 to 85%RH, storage: 25 to 90%RH | | | | | | | | | | | | | | | | | | | | | | | |
| Tightening torque | | 0.7 to 0.9N·m | | | | | | | | | | | | | | | | | | | | | | | | |
| Approval | | CE | | | | | | CE | | | | | | | | | | | | | | | | | | |
| Unit weight | | Approx. 350g | | | | | | Approx. 400g | | | | | | | | | | | | | | | | | | |

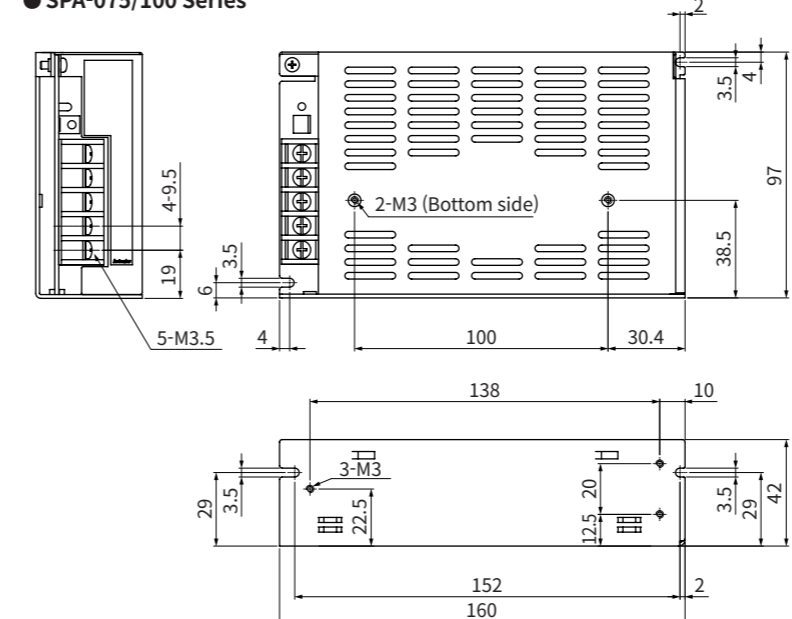
※1: The rated input voltage of SPA-100-05 is 100-120/200-240VAC(100-132/190-264VAC).
 ※2: Since there is no separate input overvoltage protection for the voltage over the rated input voltage range, supplying overvoltage may result in product damage.
 ※3: 100% load for rated input voltage(100VAC).
 ※4: Use the output voltage adjusting volume within the voltage variable range. If the voltage exceeds the output voltage range, overvoltage protection function is activated and the output is cut off.
 ※5: Rated input voltage [SPA-030/050 Series : 100-240VAC(85-264VAC)]
 [SPA-075/100 Series : 100-120/200-240(85-132/170-264VAC)] at 100VAC.
 SPA-100-05 is under 100% of load for [100-120/200-240VAC(100-132/190-264VAC)].
 ※6: Rated input voltage(100VAC).
 ※Environment resistance is rated at no freezing or condensation.

■ Dimensions

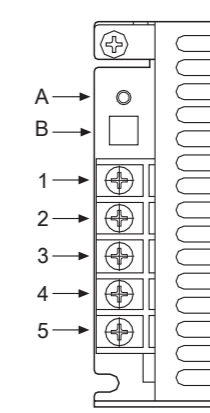
● SPA-030/050 Series



● SPA-075/100 Series



■ Wiring Diagram/Unit Description



● Wiring Diagram

1. Output voltage [+] terminal
2. Output voltage [-] terminal
3. Frame ground [F.G.] terminal
4. Input power [N] terminal
5. Input power [L] terminal

● Unit Description

- A. Output indicator (green)
- B. Output voltage adjuster (V.ADJ)

■ Specification of Input Cable

| Specification of input cable | AWG21 to 19 | AWG18 to 16 |
|------------------------------|--|--|
| Model | SPA-030-05, SPA-030-12 SPA-030-24, SPA-050-12 SPA-050-24, SPA-075-12 SPA-075-24, SPA-100-24 | SPA-050-05, SPA-075-05 SPA-100-05, SPA-100-12 |

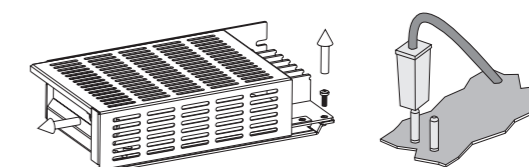
■ Over-Heating Protection

The overheat protection function cuts off the output voltage, when the temperature in an element increases due to overheating.
 This product has the overheat protection function within itself.
 When the overheat protection function is activated and the product does not work properly, please resupply power.

■ 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.

$$\text{Input apparent power[VA]} = \frac{\text{Output active power[W]}}{\text{Power factor} \times \text{Efficiency}}$$
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. In case of models using the user switching method for the input voltage selection, factory default is set to 220V. When switching over to 110V, remove the case of the product as below and select the voltage with the jumper switch within the range of the input voltage.



8. To ensure the reliability of the product, install the product on the panel or metal surface.
9. Install the unit in the well ventilated place.
10. Do not use near the equipment which generates strong magnetic force or high frequency noise.
11. This unit may be used in the following environments.
 - ① Indoors (in the environment condition rated in 'Specifications')
 - ② Altitude max. 2,000m
 - ③ Pollution degree 2
 - ④ Installation category II