Autonics

SWITCHING MODE POWER SUPPLY
SPA-400-24

INSTRUCTION MANUAL

CE

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 fire, personal injury, or economic loss.
2. Install on the device panel, and ground to the F.G. terminal separately.
Failure to follow this instruction may result in electric shock or fire.
3. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in electric shock or fire.
4. Check 'Wiring Diagram' before wiring.
Failure to follow this instruction may result in fire.
5. Do not disassemble or modify the unit.
Failure to follow this instruction may result in electric shock or fire.

⚠ Caution

1. When connecting the F.G. terminal, use AWG 14 (2.1mm^2) 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 shortening the life cycle of the product, fire, or product damage.
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. 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 fire or explosion.
5. Keep metal chip, dust, and wire residue from flowing into the unit.
Failure to follow this instruction may result in fire or product damage.
6. 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.
7. Upon occurrence of an error, disconnect the power source.
Failure to follow this instruction may result in fire or product damage.

※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).

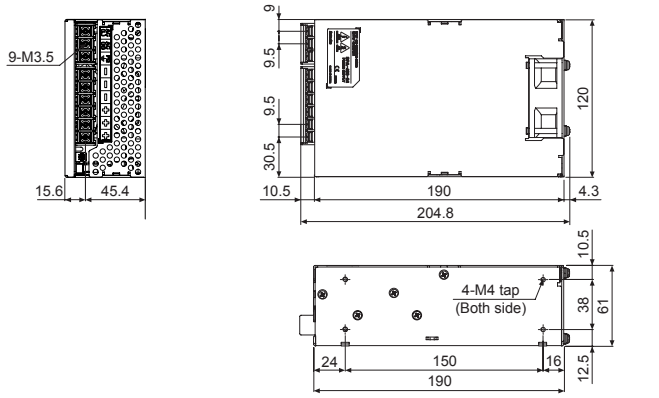
▣ Specifications

Model			**SPA-400-24**
Output power			400.8W
Input condition	Voltage※1		200-240VAC～ (permissible voltage: 190-264VAC～)
	Frequency		50/60Hz
	Efficiency (Typical)※2	220VAC～	85% (after 10min of power ON)
	Current consumption (Typical)	220VAC～	Max. 4.6A
	Leakage current (Typical)	220VAC～	Max. 1mA
Output characteristics	Voltage		24VDC⎓
	Current		16.7A
	Voltage adjustment range※3		22.8-25.2VDC⎓
	Input variation		Max. ±0.5%
	Load variation		Max. ±1%
	Temperature drift		360mV
	Ripple&Ripple noise		Max. 290mV
	Start-up time (Typical)※2	220VAC～	1800-2300ms
	Hold time (Typical)※2	220VAC～	Max. 17ms
Protection	Inrush current protection (Typical)※2	220VAC～	40A
	Over-current protection		110 to 160% (recovers automatically after the cause for over current is removed)
	Over-voltage protection※3		27-33VDC
	Temp. rising limit		Yes
	Remote control		Yes (output voltage ON for shorting, output voltage OFF for open)
Indicator			Output indicator: green LED
Insulation resistance			Min. 100MΩ (at 500VDC megger between all input terminals and F.G.)
Dielectric strength			3000VAC 50/60Hz for 1 min (between all input and output terminals)
			2000VAC 50/60Hz for 1 min (between all input terminals and F.G.)
Vibration			0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
EMS			Conforms to EN61000-6-2
EMI			Conforms to EN61000-6-4
Safety standards			EN60950, EN50178
Environment	Ambient temperature		-10 to 50℃, storage: -20 to 75℃
	Ambient humidity		20 to 90%RH, storage: 20 to 90%RH
Fan life cycle			70,000 hours (based on 40℃ of ambient temperature)
Input cable			AWG18 to 16
Tightening torque			0.7 to 0.9N·m
Approval			CE
Weight※4			Approx. 975g (approx. 885g)

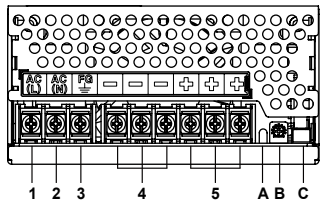
※1: Since there is no separate input overvoltage protection for the voltage over the rated input voltage range, supplying overvoltage may result in product damage.
※2: It is for 100% load.
※3: Use the output voltage adjusting volume within the voltage variable range. If the voltage exceeds the output voltage range, overvoltage protection function is activated and the output is cut off.
※4: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

▣ Dimensions

(unit: mm)



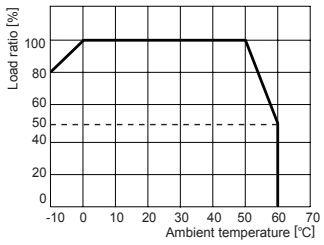
▣ Wiring Diagram/Unit Description



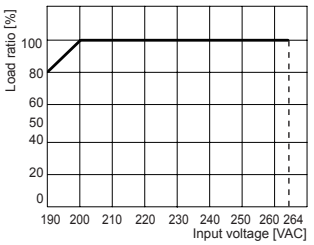
● Wiring Diagram
1. Input power [L] terminal
2. Input power [N] terminal
3. F.G. (Frame Ground) terminal
4. Output power (-V) terminal
5. Output power (+V) terminal

● Unit Description
A. Output indicator (Green)
B. Output voltage adjuster (V.ADJ)
C. Remote control connector

▣ Output Derating Curve by Ambient Temperature



▣ Output Static Characteristics by Input Voltage



▣ 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. To ensure the reliability of the product, install the product on the panel or metal surface.
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.
①Indoors (in the environment condition rated in 'Specifications')
②Altitude max. 2,000m
③Pollution degree 2
④Installation category II

▣ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System(Fiber, Co_2, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse(Rate) Meters
- Display Units
- Sensor Controllers

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