

SPA Series

Switching Mode Power Supply With Minimized Noise And Ripple

■ Features

- Built-in overcurrent protection, output short-circuit protection, overheating and overvoltage protection circuits (SPA-075/100)
- Standard on safety IEC 60950, IEC 50178
- EMS (Electromagnetic susceptibility) EN61000-6-2
- EMI (Electromagnetic interference) EN61000-6-4
- Output voltage: 5VDC, 12VDC, 24VDC
- Output current: 30W, 50W, 75W, 100W



⚠ Please read "Caution for your safety" in operation manual before using.



(except for output voltage 5VDC)

■ Ordering Information

SPA	—	030	—	24	
				Output voltage	
				Output power	
Item					

05	5VDC
12	12VDC
24	24VDC
030	30W
050	50W
075	75W
100	100W
SPA	Switching Mode Power Supply

■ 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		
Capacity	30W	50W	30W	50W	30W	50W	75W	100W	75W	100W	75W	100W		
Power supply ^{※5}	100-240VAC (85-264VAC)													
Input	50/60Hz													
Efficiency ^{※1}	Min. 60%	Min. 67%	Min. 74%		Min. 80%		Min. 70%		Min. 78%	Min. 72%	Min. 78%	Min. 80%		
Current consumption ^{※1}	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		2.5A		4.2A		1.5A		2.1A		15A			
	Voltage adjustment range ^{※4}		±5%											
	Input fluctuation ratio ^{※2}													
	Max. ±0.5%													
	Load fluctuation ratio ^{※1}													
	Max. ±2%		Max. ±1%		Max. ±2%				Max. ±1%					
	Ripple ^{※1}													
	Max. ±1%													
	Starting time ^{※1}													
	Max. 200ms		Max. 150ms				Max. 250ms							
	Holding time ^{※1}													
	Min. 10ms		Min. 5ms				Min. 10ms		Min. 5ms		Min. 10ms			
Protection	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)	
	Output overcurrent protection ^{※3}													
	Min. 110%						Min. 105%		Min. 110%					
	Output overvoltage protection													
	—						6.5V ±10%		16V ±10%		30V ±10%			
	Output short-circuit protection													
	Max. 5ms						Max. 10ms		Max. 5ms		Min. 10ms		Max. 5ms	
Indicator	Output indicator: Green LED													
Insulation resistance	Min. 100MΩ (between all input and output terminals with 500VDC)													
Dielectric strength	3.0kVAC 50/60Hz for 1 min. (between all input and output terminals)													
	1.5kVAC 50/60Hz for 1 min. (between all input terminals F.G)													
Vibration	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min.) 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													
Protection structure	IEC60950, IEC50178 standard													
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													
Approval	CE (except for output voltage 5VDC)													
Unit weight	Approx. 350g						Approx. 400g							

※1: 100% load for rated input voltage (100VAC).

※2: Rated input voltage [SPA-030/050 Series: 100-240VAC (85-264VAC)] under 100% of load.

[SPA-075/100 Series: 100-120/200-240 (85-132/170-264VAC)]

SPA-100-05 is under 100% of load for [100-120/200-240VAC (100-132/190-264VAC)].

※3: Rated input voltage (100VAC). ※4: Vary voltage by output voltage adjuster, it is changed over voltage variation range (±5%).

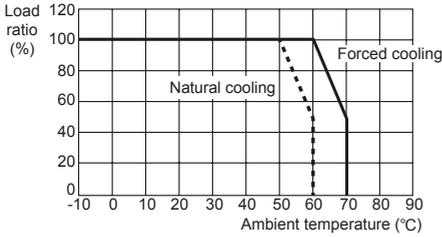
※5: The rated input voltage of SPA-100-05 is 100-120/200-240VAC (100-132/190-264VAC).

※Environment resistance is rated at no freezing or condensation.

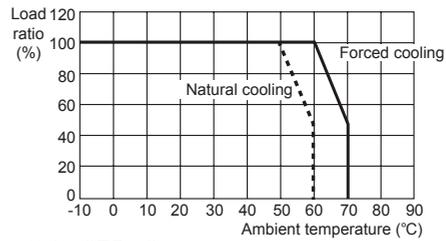
General Purpose Type Switching Mode Power Supply

Output Feature Data For Ambient Temperature

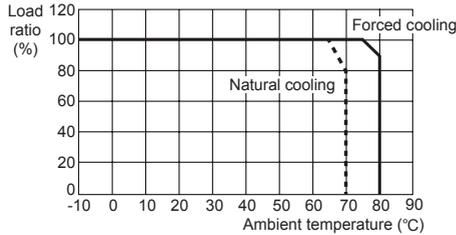
SPA-030-05



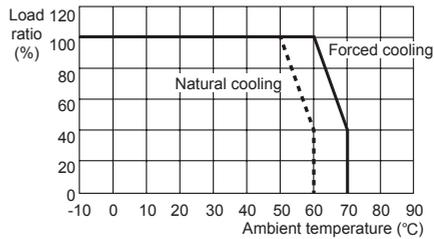
SPA-075-05 • SPA-100-05 • SPA-100-12



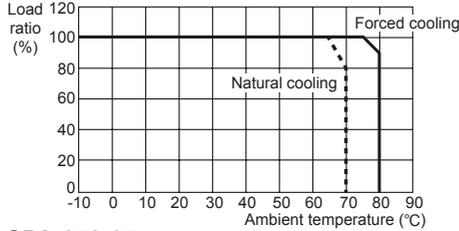
SPA-030-12 • SPA-050-12



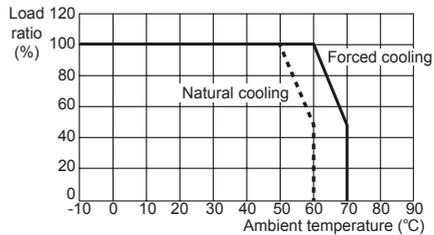
SPA-075-12



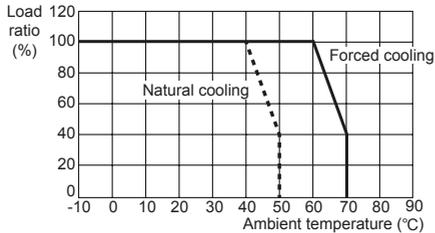
SPA-030-24 • SPA-050-24



SPA-075-24 • SPA-100-24

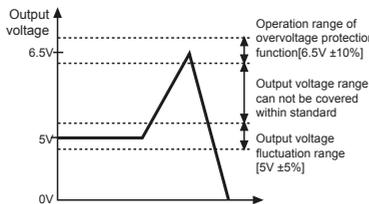


SPA-050-05

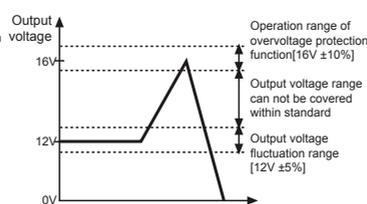


Feature Data For Output Overvoltage Protection

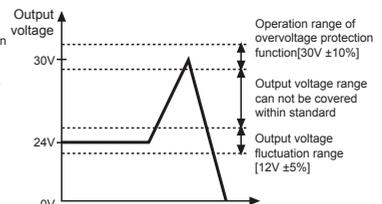
SPA-075-05 / SPA-100-05



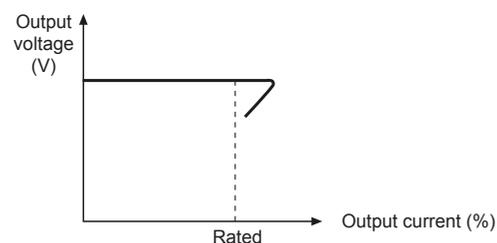
SPA-075-12 / SPA-100-12



SPA-075-24 / SPA-100-24



Feature Data Of Overcurrent Protection



- It is when the rated input voltage is 100VAC, 100%.
- It is able to protect overcurrent by load with built-in overcurrent protection circuit. When the over rated current is flowed, the circuit is operated (output voltage is fallen) and it is cancelled when the load current is under the rated current. (it is returned to the rated output voltage)

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

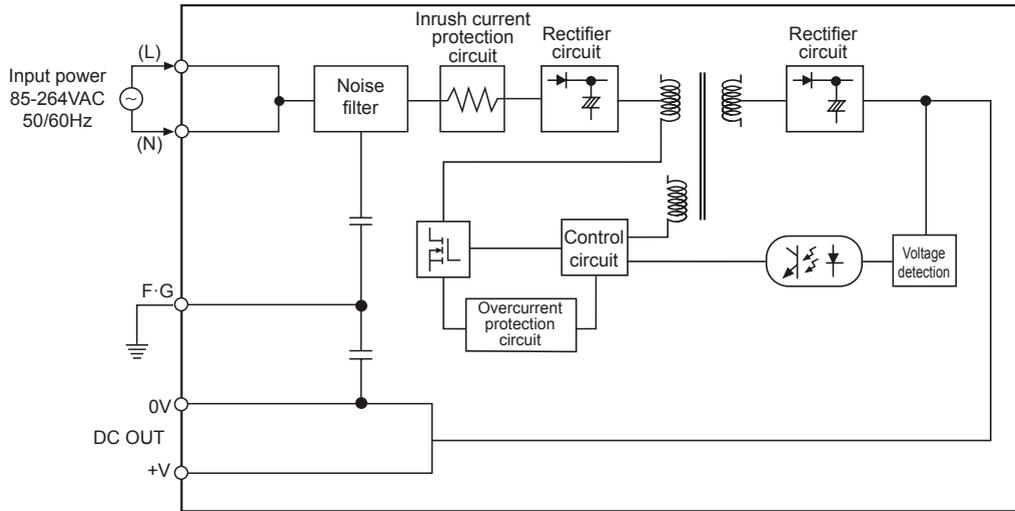
(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software

SPA Series

Block Diagram

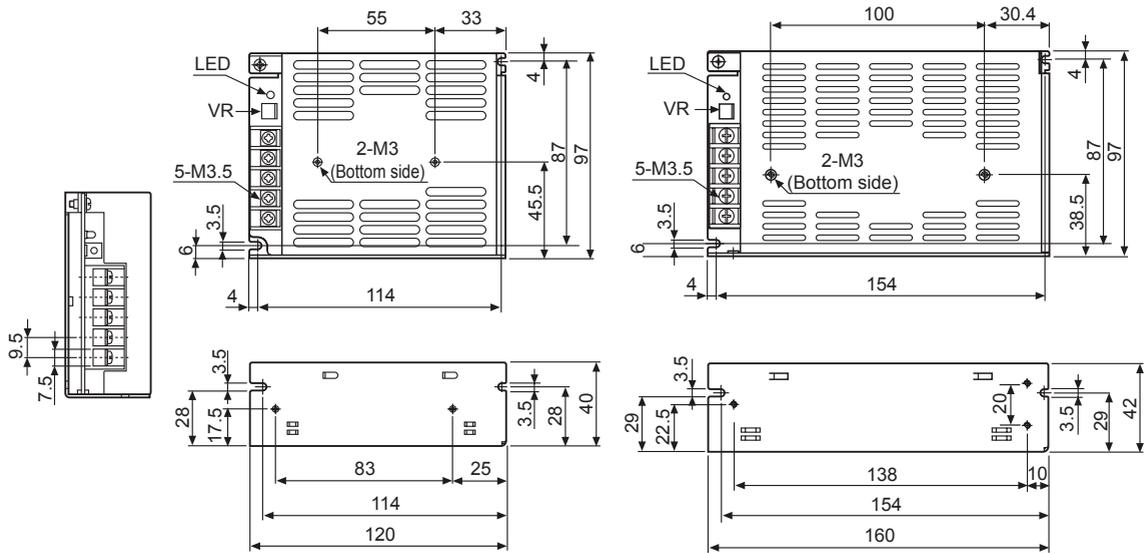


Dimensions

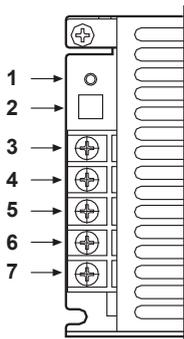
(unit: mm)

SPA-030/050 Series

SPA-075/100 Series



Unit Description

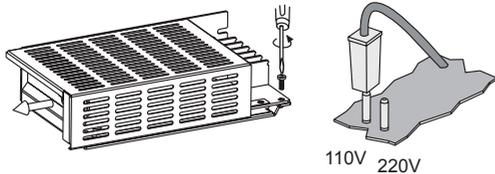


1. Output display LED (green)
2. Output voltage adjuster
※V.ADJ (voltage variable range: $\pm 5\%$ of the rated output voltage)
3. Output power [+] terminal
4. Output power [-] terminal
5. [F.G] terminal
6. Input power [N] terminal
7. Input power [L] terminal

General Purpose Type Switching Mode Power Supply

■ Proper Usage

- For switch input voltage type, input voltage is 220V as factory default. To switch input voltage for 110V, remove the cover then select proper jumper switch as below figures.



110V 220V

- Technical information of operation
- This product is not available to operate of output voltage as parallel and series.
- The output current should be used within the rated range. When it is operated in overcurrent status, the life span of product can be shortened.
- The output voltage should be used within the rated range. When the output overvoltage limit function is operated, the product operated normally with cancellation of input power for few minutes.
- The overvoltage limit function is operated when it is exceeded the rated output voltage range with an output voltage adjuster.
- This product has overheating protection function. It is operated normally when releasing the load connection for few minutes.
- The power factor is within 0.5 to 0.7 using condenser rectified method. Please use the below formula and check the input power capacity when using a cabinet panel or transformer.

$$\text{Apparent power[VA]} = \frac{\text{Active Power [W]}}{\text{Power factor} \times \text{Efficiency}}$$
- This product does not have harmonics suppression and power factor correction circuit. Please mount the device for it.
- This product has a noise filter, it can be changed with the mounting place and connection.
- Please change as a same rated fuse when the inner fuse is broken.

- Caution for mounting
- Please mount the device on metal panel for the reliability.
- Please mount the device in a ventilate place for high radiation of heat.
- Please use the power line as below specification.

Input power line specification	AWG19 to 21	AWG16 to 18
Model	SPA-030-05 SPA-030-12 SPA-050-12 SPA-075-12 SPA-030-24 SPA-050-24 SPA-075-24 SPA-100-24	SPA-050-05 SPA-075-05 SPA-100-05 SPA-100-12

(A) Photoelectric Sensors

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