

Switching Power Supply

Switching Power Supply with minimized noise and ripple

■ Features

- Includes 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.



■ Ordering information

SPA — **030** — **24**

Output voltage	05	5V
	12	12V
	24	24V
Output power	030	30W
	050	50W
	075	75W
	100	100W
	SPA	Series

■ Specifications

※ (★) Model is currently being developed.

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																							
Input	Power supply						100-240VAC (85-264VAC)						100-120/200-240VAC (85-132/170-264VAC)																						
	Frequency												50/60Hz																						
	Efficiency (1)												Min. 60%		Min. 67%		Min. 74%		Min. 80%		Min. 72%		Min. 70%		Min. 78%		Min. 70%		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. 2.7A		Max. 3.0A		Max. 2.0A		Max. 2.5A		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 fluctuation range						Max. ±5%						Max. ±5%																						
	Input fluctuation ratio(2)						Max. ±0.5%						Max. ±0.5%																						
	Load fluctuation ratio(1)			Max. ±2%			Max. ±1%			Max. ±2%			Max. ±1%																						
	Ripple												Max. ±1%																						
	Starting time (1)		Max. 200ms		Max. 150ms				Max. 250ms																										
Holding time (1)		Min. 10ms						Min. 5ms		Min. 10ms		Min. ms		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%																						
	Output overvoltage protection						6.5V ±10%						16V ±10%		30V ±10%																				
	Output short-circuit protection						Max. 5ms						Max. 10ms		Max. 5ms		Min. 10ms		Max. 5ms																
Output indicator												Green LED																							
Insulation resistance												Min. 100MΩ (Between all input and output terminals with 500VDC)																							
Dielectric strength												For 1 minute at 3.0kVAC 50/60Hz (Between all input and output terminals)						1 minute at 1.5kVAC 50/60Hz (Between all input terminals F.G)																	
Vibration												0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours																							
Shock												300m/s ² in X, Y, Z directions for 3 times																							
Electromagnetic susceptibility												EN61000-6-2 Appropriate																							
Electromagnetic interference												EN61000-6-4 Appropriate																							
Protection												IEC60950, IEC50178 Standard																							
Ambient temperature		-10~50℃		-10~40℃		-10~50℃		-10~40℃		-10~50℃		-10~40℃		-10~50℃																					
Ambient humidity												25 ~ 85%RH																							
Storage temperature and humidity												-25 ~ 65℃ / 25 ~ 90%RH																							
Approval												CE																							
Unit weight		Approx. 350g						Approx. 400g																											

(1) It is when the rated input voltage is 100VAC, 100%.

(3) It is when the rated input voltage is 100VAC.

(2) SPA-030/050 series : It is when the rated input voltage is 100-240VDC, 100%.

SPA-075/100 series : It is when the rated input voltage is 100-120VAC/200-240VDC, 100%.

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor

(L) Pressure sensor

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

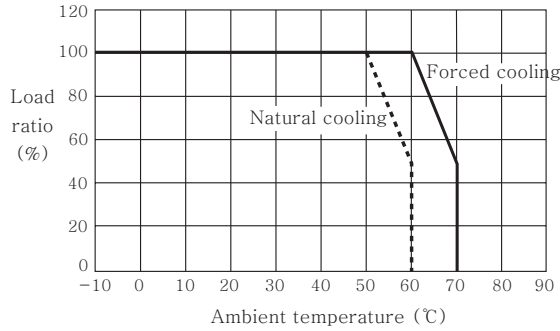
(O) Graphic panel

(P) Production stoppage models & replacement

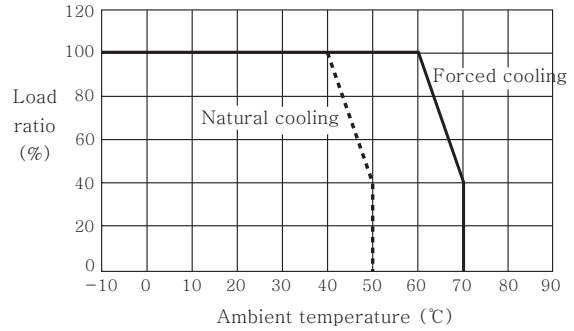
SPA Series

Output feature data for ambient temperature

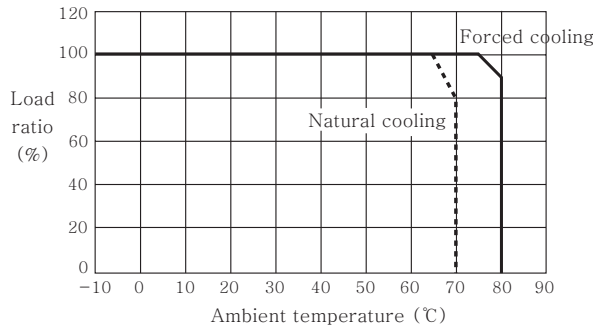
●SPA-030-05



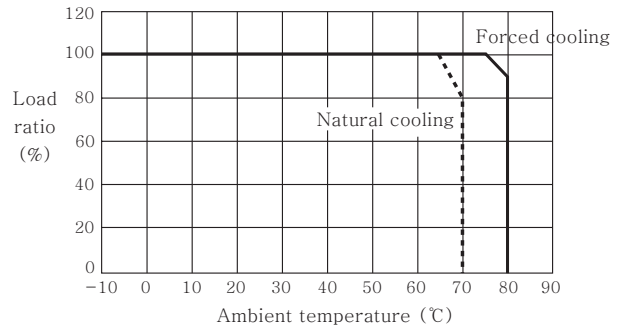
●SPA-050-05



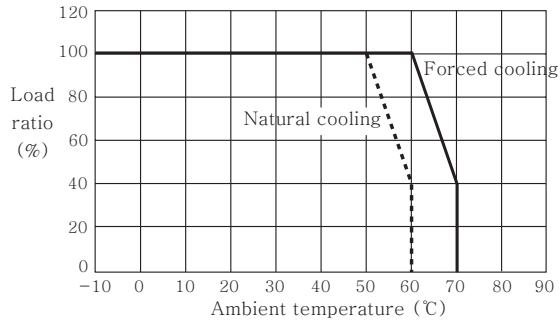
●SPA-030-12 ●SPA-050-12



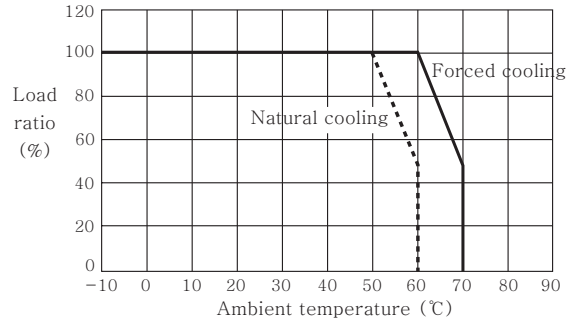
●SPA-030-24 ●SPA-050-24



●SPA-075-12 ●SPA-100-12

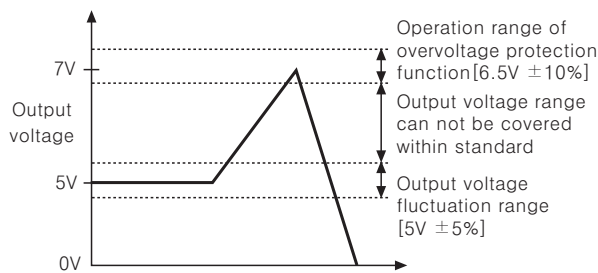


●SPA-075-24 ●SPA-100-24

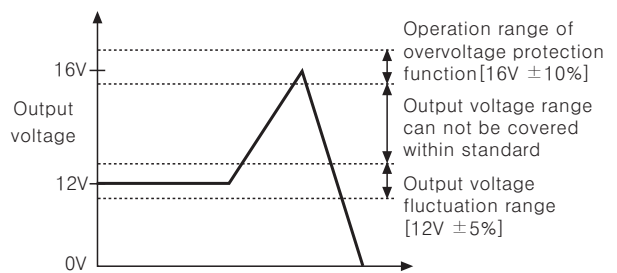


Feature data for output overvoltage protection

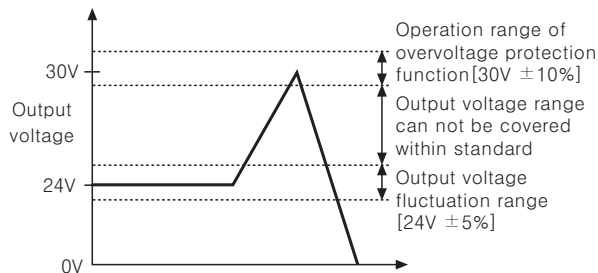
●SPA-075-05 / SPA-100-05



●SPA-075-12 / SPA-100-12

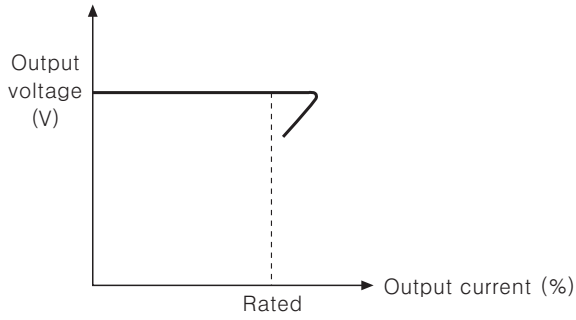


●SPA-075-24 / SPA-100-24



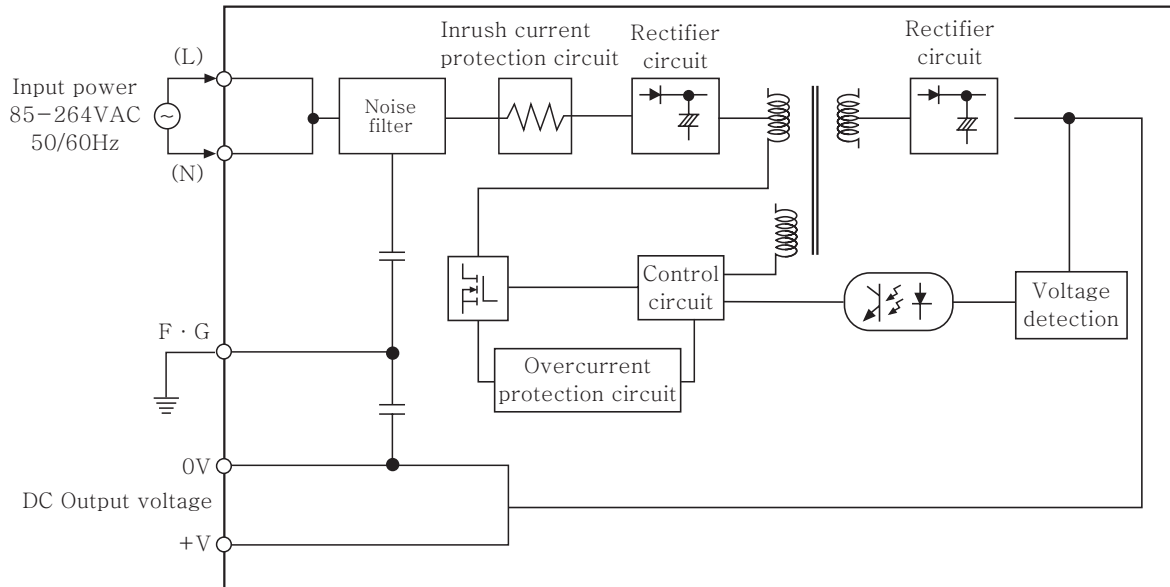
Switching Power Supply

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.)

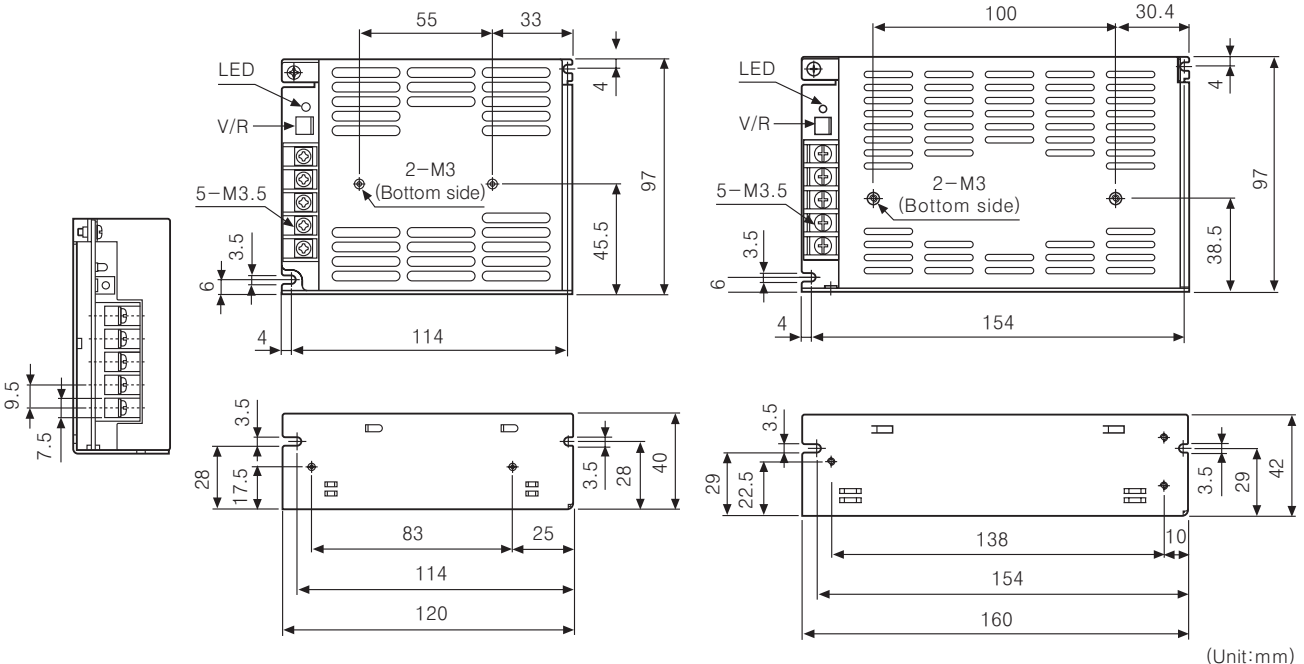
Block diagram



Dimensions

●SPA-030/050 Series

●SPA-075/100 Series

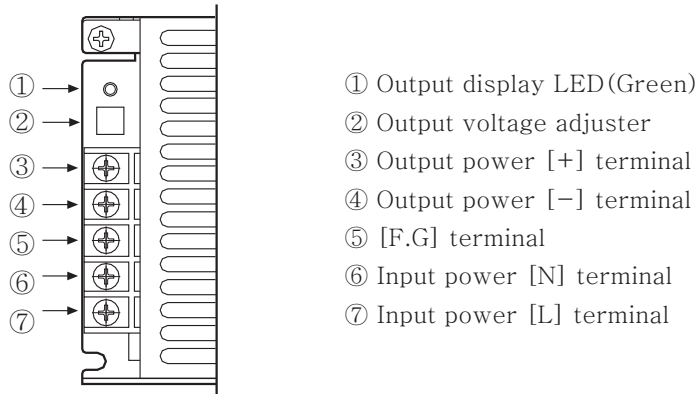


(Unit:mm)

(A)	Counter
(B)	Timer
(C)	Temp. controller
(D)	Power controller
(E)	Panel meter
(F)	Tacho/Speed/Pulse meter
(G)	Display unit
(H)	Sensor controller
(I)	Switching power supply
(J)	Proximity sensor
(K)	Photo electric sensor
(L)	Pressure sensor
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(N)	Stepping motor & Driver & Controller
(O)	Graphic panel
(P)	Production stoppage models & replacement

SPA Series

Front part identification



Proper Usage

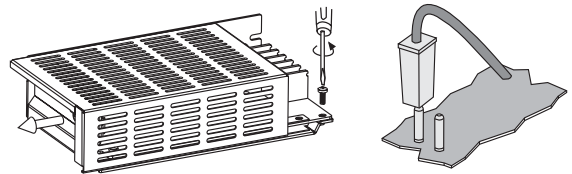
1. Technical information of operation

- ① This product is not available to operate of output voltage as parallel and series.
- ② 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.
- ③ 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.
- ④ The overvoltage limit function is operated when it is exceeded the rated output voltage range with an output voltage adjuster.
- ⑤ This product has overheating protection function. It is operated normally when releasing the load connection for few minutes.
- ⑥ The power factor is within 0.5~0.7 using condenser rectified method. Please use the below formula and check the input power capacity when using a cabinet panel or transformer.

$$\text{Apparent power [VA]} = \frac{\text{Active Power [W]}}{\text{Power factor} \times \text{Efficiency}}$$

- ⑦ This product does not have harmonics suppression and power factor correction circuit.
Please mount the device for it.
- ⑧ This product has a noise filter, it can be changed with the mounting place and connection.
- ⑨ Please change as a same rated fuse when the inner fuse is broken.

- ⑩ The input voltage is 220V for factory default of switching method. When it is switched as 110V, please detach the case as below and select the switch properly.



2. Caution for mounting

- ① Please mount the device on metal panel for the reliability.
- ② Please mount the device in a ventilative place for high radiation of heat.

3. Please use the power line as below specification.

Input power line specification	AWG19 ~ 21	AWG16 ~ 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