

## Selection Guide

### Multifunctional sensor controller [PA10 Series]

#### Specifications

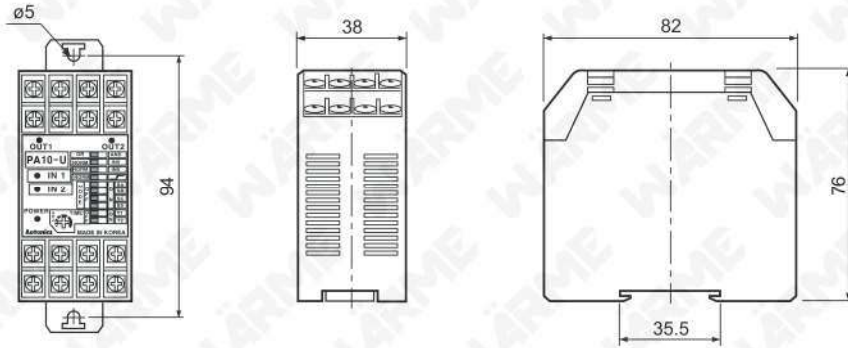
Model	PA10-U	PA10-V	PA10-VP	PA10-W	PA10-WP
Appearances					
Power supply	100-240VAC 50/60Hz				
Allowable operation voltage	90 to 110% of rated voltage				
Power consumption	100VAC 50/60Hz: Max. 9VA(Condoton:12VDC/200mA resistive load), 240VAC 50/60Hz: Max. 10VA				
Power for external sensor	12VDC ±10% Approx. 200mA				
Input(IN1)(IN2)	Selectable NORM/INV. Selectable OR/AND operation for IN1, IN2 input. Selection function for IN2 derivative action.		Selectable NORM/INV. Operation for IN1, IN2 AND.		Selectable NORM/INV. Operation for IN1, IN2 AND.
	<b>NPN input type</b>		<b>NPN input type</b>	<b>PNP input type</b>	<b>NPN input type</b>   <b>PNP input type</b>
Input type	<ul style="list-style-type: none"> <li>• <b>PA10-U</b>(No-voltage input) Impedance at short-circuit: Max. 680Ω, Residual voltage at short-circuit: Max. 0.8V, Impedance at open: Min. 100kΩ</li> <li>• <b>PA10-V/PA10-W</b>(No-voltage input) Impedance at short-circuit: Max. 300Ω, Residual voltage at short-circuit: Max. 2V, Impedance at open: Min. 100kΩ</li> <li>• <b>PA10-VP/PA10-WP</b>(Voltage input) Input impedance: 5.6kΩ, "H" level voltage:5-30VDC, "L" level voltage: 0-2VDC</li> </ul>				
Output	Contact output	OUT : 250VAC 3A(resistive load)			OUT1, OUT2 : 250VAC 3A(resistive load)
	Solid-state output	O-C OUT1/O-C OUT2 : NPN open collector output Max. 30VDC 100mA	O-C OUT: NPN open collector output Max. 30VDC 100mA		—
Response time	Input : Min. 2μs, Relay contact output : Min. 10ms, Transistor output : Min. 0.5μs(When it is encoder mode)				
Time setting function by each mode ※Only for PA10-U	Have	<ul style="list-style-type: none"> <li>• ON Delay Mode</li> <li>• One-Shot Delay Mode</li> <li>• Flicker One-Shot Mode</li> <li>• High-Speed Detection Mode</li> </ul>			<ul style="list-style-type: none"> <li>• OFF Delay Mode</li> <li>• Flicker Mode</li> <li>• Low-Speed Detection Mode</li> <li>• ON/OFF Delay Mode</li> </ul>
		None	<ul style="list-style-type: none"> <li>• Normal Mode</li> <li>• Flip-Flop Mode</li> <li>• Encoder(Mode 9 to 11)</li> </ul>		
Relay life cycle	Mechanical	Min. 10,000,000 operations			
	Electrical	Min. 100,000 operations(250VAC 3A resistive load)			
Dielectric strength	2000VAC 50/60Hz for 1 minute				
Insulation resistance	Min. 100MΩ(at 500VDC megger)				
Environment	Ambient temperature	-10 to 55°C, storage: -25 to 60°C			
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH			
Unit weight	Approx. 150g			Approx. 160g	

※If the load is connected over 200mA at the sensor output, it may cause mechanical trouble.

※Environment resistance is rated at no freezing or condensation.

## Dimensions

(unit: mm)



## Connections

### PA10-U



### PA10-V/PA10-VP



### PA10-W/PA10-WP

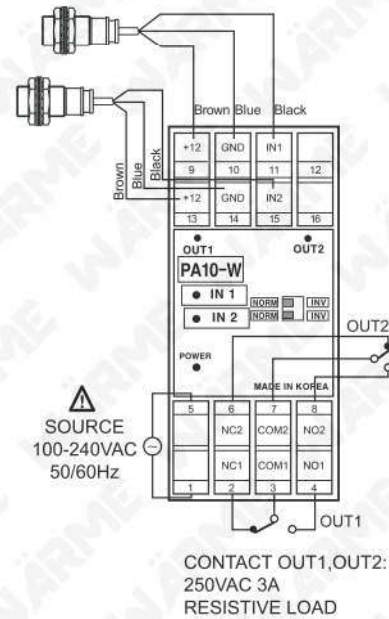


Photo electric sensor
Fiber optic sensor
Door/Area sensor
Proximity sensor
Pressure sensor
Rotary encoder
Connector/Socket
Temp. controller
SSR/ Power controller
Counter
Timer
Panel meter
Tacho/ Speed/ Pulse meter
Display unit
Sensor controller
Switching mode power supply
Stepper motor& Driver&Controller
Graphic/ Logic panel
Field network device

## Selection Guide

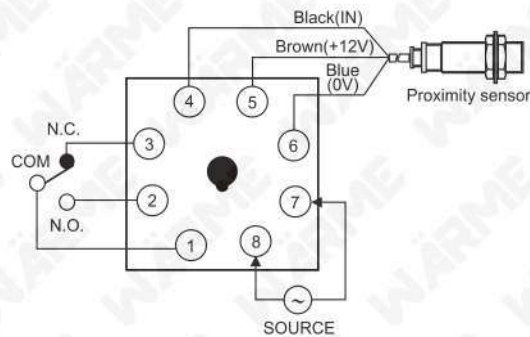
### General purpose sensor controller [PA12 Series]

#### Specifications

Model	PA-12	
Appearances		
Type	Selectable NPN/PNP	
Power supply	Selectable 110/220VAC 50/60Hz	
Power consumption	Approx. 4VA	
Power for external sensor	12VDC 50mA	
Input signal	PNP	High level : 7-12VDC, Low level : 0-5VDC
	NPN	Short-circuit impedance : Max. 1kΩ, Residual voltage : Max. 2VDC, Open-circuit impedance : Min. 100kΩ
Response time	Input	Min. 0.2ms
	Output	Min. 10ms
Input resistance	10kΩ	
Control output	Contact composition	SPDT(1a1b)
	Contact capacity	250VAC 3A(For resistive load)
Environment	Ambient temperature	-10 to 50°C
	Ambient humidity	45 to 85%RH
Relay life cycle	Mechanical	Min. 10,000,000 operations
	Electrical	Min. 100,000 operations(250VAC 3A resistive load)
Unit weight	Approx. 269g	

※Environment resistance is rated at no freezing or condensation.

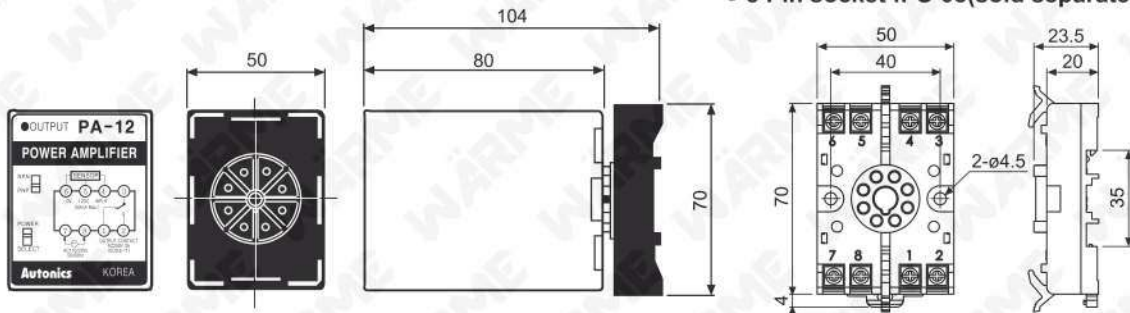
#### Connections



#### Dimensions


(unit: mm)

● 8 Pin socket :PS-08(sold separately)



## DIN rail mounting type switching mode power supply [SP Series]

### Specifications

Model	SP-0305	SP-0312	SP-0324	
Appearances				
Output power	3W			
Input	Power supply	100-240VAC(85-264VAC)		
	Frequency	50/60Hz		
	Current consumption	Max. 0.15A		
	Efficiency	67 to 74%		
Output	Voltage	5VDC	12VDC	24VDC
	Current	0.6A	0.25A	0.13A
	Allowable voltage range	Max. $\pm 5\%$		
	Ripple	Max. 5%		
	Voltage fluctuation ratio	Max. 0.5%(at 85-264VAC 100% Load)		
	Overcurrent protection	Min. 110%		
Series / Parallel operation	Not available			
Output indicator	Red LED			
Insulation resistance	100M $\Omega$ (at 500VDC megger)			
Dielectric strength	2000VAC 50/60Hz for 1 minute			
Vibration	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours			
Shock	300m/s <sup>2</sup> (approx. 30G) in each of X, Y, Z directions for 3 times			
Environment	Ambient temperature	-10 to 50°C, storage : -20 to 70°C		
	Ambient humidity	35 to 85%RH		
Unit weight	Approx. 100g			

※Environment resistance is rated at no freezing of condensation.

### Dimensions

(unit: mm)

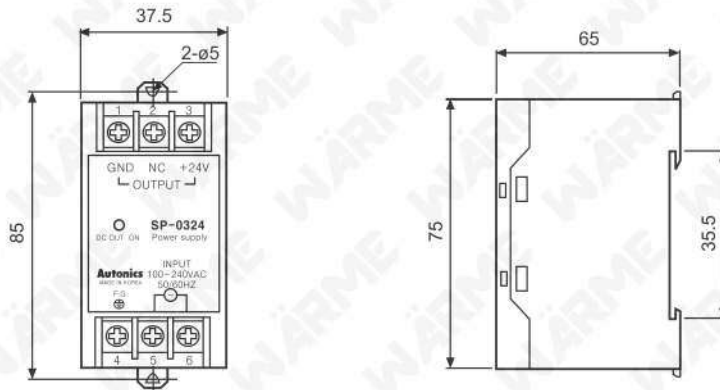


Photo electric sensor
Fiber optic sensor
Door/Area sensor
Proximity sensor
Pressure sensor
Rotary encoder
Connector/Socket
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SSR/ Power controller
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Panel meter
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Display unit
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Switching mode power supply
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Graphic/ Logic panel
Field network device

## Selection Guide



### Switching mode power supply with minimized noise and ripple [SPA Series]

#### 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	
Appearances													
Capacity	30W	50W	30W	50W	30W	50W	75W	100W	75W	100W	75W	100W	
Power supply <sup>※5</sup>	100-240VAC(85-264VAC)						100-120/200-240VAC(85-132/170-264VAC) switching type						
Frequency	50/60Hz												
Efficiency <sup>※1</sup>	Min. 60%	Min. 67%	Min. 74%		Min. 80%		Min. 70%	Min. 78%	Min. 72%	Min. 78%	Min. 80%		
Current consumption <sup>※1</sup>	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		
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 <sup>※4</sup>	±5%												
Input fluctuation ratio <sup>※2</sup>	Max. ±0.5%												
Load fluctuation ratio <sup>※1</sup>	Max. ±2%		Max. ±1%		Max. ±2%		Max. ±1%		Max. ±2%		Max. ±1%		
Ripple <sup>※3</sup>	Max. ±1%												
Starting time <sup>※4</sup>	Max. 200ms		Max. 150ms		Max. 250ms		Max. 250ms		Max. 250ms		Max. 250ms		
Holding time <sup>※1</sup>	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)		
Output overcurrent protection <sup>※3</sup>	Min. 110%						Min. 105%		Min. 110%		Min. 110%		
Output overvoltage protection	—						6.5V ±10%		16V ±10%		30V ±10%		
Output short-circuit protection	Max. 5ms		Max. 10ms		Max. 5ms		Max. 10ms		Max. 5ms		Max. 10ms		
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 of X, Y, Z directions for 2 hours												
Shock	300m/s <sup>2</sup> (approx. 30G) in each of X, Y, Z directions for 3 times												
EMS	Conforms to EN61000-6-2												
EMI	Conforms to EN61000-6-4												
Protection	IEC60950, IEC50178 standard												
Environment	Ambien 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 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)  
SPA-075/100 Series : 100-120/200-240(85-132/170-264VAC) ] under 100% of load.

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

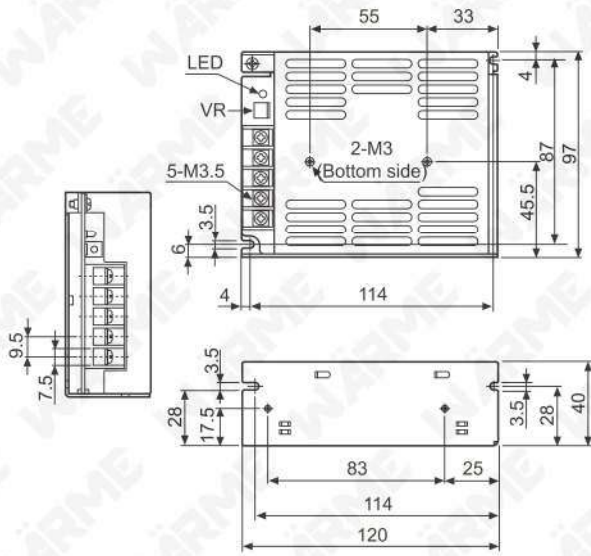
※3: Rated input voltage(100VAC). ※4: Vary voltage by output voltage adjuster, it is changed over voltage variation range(±5%).

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

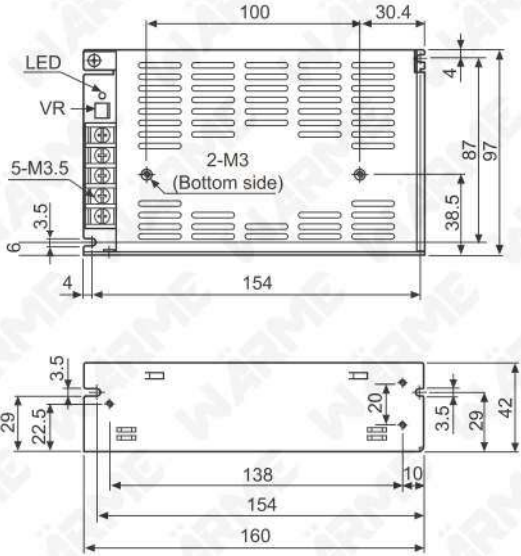
※Environment resistance is rated at no freezing or condensation.

■ Dimensions

● SPA-030/050 Series



● SPA-075/100 Series



(unit: mm)

- Photo electric sensor
- Fiber optic sensor
- Door/Area sensor
- Proximity sensor
- Pressure sensor
- Rotary encoder
- Connector/Socket
- Temp. controller
- SSR/ Power controller
- Counter
- Timer
- Panel meter
- Tacho/ Speed/ Pulse meter
- Display unit
- Sensor controller
- Switching mode power supply
- Stepper motor& Driver&Controller
- Graphic/ Logic panel
- Field network device

DIN rail mounting switching mode power supply [SPB Series]

■ Ordering information

SPB	—	060	—	24
				Output voltage
				Output power
				Item

12	12VDC
24	24VDC
48	48VDC
060	60W
120	120W
240	240W
SPB	Switching Mode Power Supply

■ Specifications

Model	SPB-060-12	SPB-060-24	SPB-120-24	SPB-240-12	SPB-240-24	SPB-240-48	
Appearances	NEW 		NEW 		NEW 		
Output power	60W		120W	240W			
Input	Voltage						100-240VAC(85-264VAC)
	Frequency						50/60Hz
	Efficiency <sup>*1</sup>		Min. 75%	Min. 80%	Min. 86%	Min. 88%	
	Power factor <sup>*1</sup>		—	Min. 0.9	—		
	Current consumption <sup>*1</sup>		Max. 1.6A	Max. 1.9A	Max. 3.8A		
Power factor correction circuit	—		Built-in				

※1: It is for the rated input voltage 100-240VAC, and 100% load.

## Selection Guide

### Specifications

Model	SPB-060-12	SPB-060-24	SPB-120-24	SPB-240-12	SPB-240-24	SPB-240-48	
Voltage	12VDC	24VDC		12VDC	24VDC	48VDC	
Current	5A	2.5A	5A	20A	10A	5A	
Output	Voltage adjustment range <sup>※2</sup>	Max. ±5%					
	Input variation <sup>※3</sup>	Max. ±0.5%					
	Load variation <sup>※1</sup>	Max. ±1%			Max. ±1.5%		
	Ripple <sup>※1</sup>	Max. ±1%			Max. ±3%	Max. 1.5%	Max. ±1%
	Start-up time <sup>※1</sup>	Max. 600ms		Max. 1000ms			
	Hold time <sup>※1</sup>	Min. 10ms			Min. 20ms		
Protection	Inrush current protection	Max. 25A (100VAC), Max. 40A(240VAC)			Max. 50A(100VAC), Max. 50A(240VAC)		
	Output over current protection <sup>※4</sup>	Min. 105%					
	Output over voltage protection	—		30.0V ±10%	16.0V ±10%	30.0V ±10%	58.0V ±10%
	Output short-circuit protection	Max. 10ms					
	Output low-voltage indicate	9.6V±10%	20.0V±10%		10.0V±10%	20.0V±10%	43.0V±10%
Output indicator	Green LED						
Insulation resistance	Min. 100MΩ(at 500VDC megger between all input terminals and output terminals)						
Dielectric strength	3000VAC 50/60Hz for 1 min. (between all input terminals and output terminals)						
	1500VAC 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 of X, Y, Z directions for 2 hour						
Shock	300m/s <sup>2</sup> (approx. 30G) in each of X, Y, Z directions for 3 times						
EMS	Conforms to EN61000-6-2						
EMI	Conforms to EN61000-6-4						
Safety	IEC60950, IEC50178						
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 65°C					
	Ambient humidity	25 to 85%RH, storage: 25 to 90%RH					
Protection	IP20(IEC standard)						
Unit weight <sup>※5</sup>	Approx. 347g(approx. 274g)		Approx. 570g (approx. 466g)	Approx. 866g(approx. 736g)			

※1: It is for the rated input voltage 100-240VAC, and 100% load.

※2: Adjusting voltage by the output adjuster (V.ADJ), it is changed the below voltage adjustment range(±5%).

※3: It is for the rated input voltage 100-240VAC(85-264VAC), and 100% load.

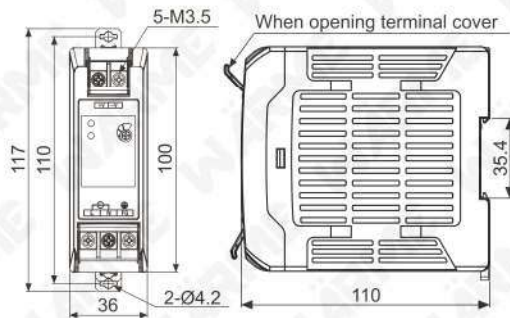
※4: It is for the rated input voltage 100-240VAC.

※5: The weight is with packaging and the weight in parentheses is only unit weight.

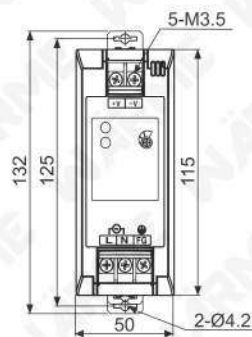
※Environment is rated at no freezing or condensation.

### Dimensions

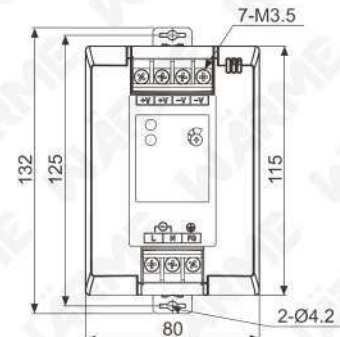
#### ● SPB-060 Series



#### ● SPB-120 Series



#### ● SPB-240 Series



(unit: mm)

※Side sizes are same as  
SPB-060/120 /240 Series.