



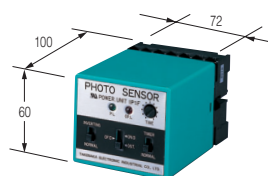
## • Power supply unit for sensors

- PS series high-capacity, slim
- IP series UL Standard-compliant (E-94173)

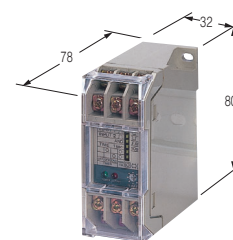
## ■ Type

Model	Power supply	Operation mode	Output mode	Timer feature	Power supplied to sensor
PS3N	AC 100~240V ±10% 50 / 60Hz	AND logic operation	Relay contact output	Not provided	12 VDC, 200 mA max.
PS3N-SR			Triac output		
PS3F		AND logic operation CLOCK AND logic operation	Relay contact / open collector	Provided	
PS3F-SR			Triac / open collectors		
IP1F	AC 100 · 110 / 200 · 220V ±10% 50 / 60Hz	Reverse operation Timer function selectable	Relay contact/ voltage output	Provided	12 VDC, 100 mA max.
IMP1F					12 VDC, 150 mA max.
IP1N		Reverse operation		Not provided	12 VDC, 100 mA max.

IP series



PS series



(With terminals and panel cover)

## Rating/Performance/Specification (PS series)

Rating/performance	Model	PS3N	PS3N-SR	PS3F	PS3F-SR
	Power supply	12 – 24 VDC ±10% 50/60 Hz			
	Power consumption	10W max.			
	Input	NPN open collector input (*1) Input mode: L mode		NPN open collector input (*1) Input mode: H/L switching Minimum input duration: 20 us (*2)	
	Operation mode	AND logic operation		AND/CLOCK AND logic operation (On-delay, off-delay, one-shot, timer disabled) Timer : 0.1-1s, 1-10s	
	Output mode	●Relay contact output 1c Rating: 2A (250V AC) max. resistance load	●Triac output 1a Photocoupler-insulated zero-cross system Load voltage: 75-250 VAC Load current: 2 Arms Residual ON voltage :1.5 Vrms	●Relay contact output 1c Rating: 2A (250V AC) max. resistance load  ●NPN open collector output Rating: 100mA (30V DC) max. Residual ON voltage: 1 V max.	●Triac output 1a Photocoupler-insulated zero-cross system Load voltage: 75-250 VAC Load current: 2 Arms Residual ON voltage :1.5 Vrms  ●NPN open collector output Rating: 100mA (30V DC) max. Residual ON voltage : 1 V max.
Power supplied to sensor	12V DC ±10% 200 mA max. (short circuit protection circuit provided) (*3)				
Response time	5 ms max.	12 ms max.	●Relay output: 5 ms max.  ●NPN open collector output Activation: 20 μs max Deactivation: 50 μs max.	●Triac output: 12 ms max.  ●NPN open collector output Activation: 20 μs max Deactivation: 50 μs max.	
Specification	Indicator	POWER: power indicator (green LED) OUTPUT: operation indicator (red LED)			
	Volume (VR)	—		TIME: delay timer adjustment selectable between 0.1-1 s and 1-10 s	
	Switch (SW)	—		INPUT 1: input mode H/L selector switch INPUT 2 AND- AND/CLOCK AND selector switch TIME: delay time range selector switch 1s: between 0.1 and 1 s 10s: between 1 and 10 s TIMER: timer function selector switch (Two switches combined to select between on-delay, off-delay, one-shot and timer disabled)	
	Case material	ABS resin			
	Connection	Terminal block (with M3.5 screws, terminal block width 8.1 mm)			
	Mounting	DIN rail (35 mm) or screw mounting.			
	Mass	120 g max.		150 g max	

## Environmental Specification

Environment	Ambient temperature	-10 - +55 °C *3 (non-freezing)
	Storage temperature	-40 - +70 °C (non-freezing, non-condensing)
	Ambient humidity	35-85%RH (non-condensing)
	Protective structure	IP40
	Vibration	10-55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction
	Dielectric withstanding	1,500 VAC for 1 minute (*4)
	Shock	1000 m/s <sup>2</sup> / 2 times each in 3 directions
	Insulation resistance	500 VDC, 20 M $\Omega$ or higher (*4)

(\*1) For voltage input, use voltage of 3 V max. for L mode and 8 V min. (30 V max.) for H mode.

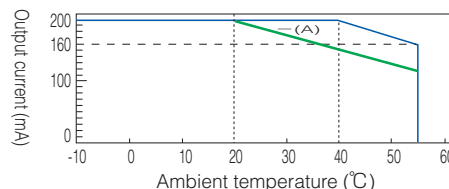
(\*2) Minimum input duration for one-shot (OST) output to be triggered.

(\*3) When the ambient temperature rises above 40 °C, refer to and follow the Derating table.

(\*4) Between individual inputs and outputs for case, between input and output for power supply and between input and output for relay contact or triac output. The internal circuit 0 V (0 V of power supply for sensor) and the power supply for the control unit are connected through a capacitor (0.001  $\mu$ F).

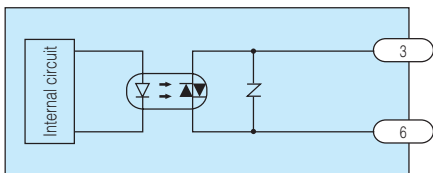
### Derating table

When the ambient temperature exceeds 40 °C, the output current value decreases as shown in the figure on the right. Line (A) indicates a range in which adjacent installation is permitted.

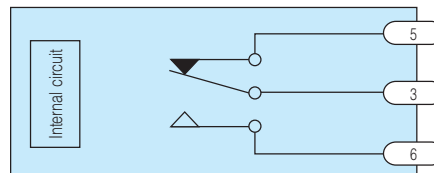


## Output Circuit and Connection

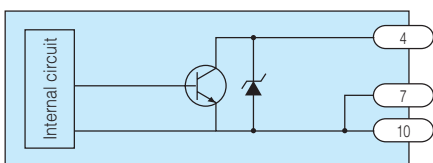
- Triac output (PS3N-SR, PS3F-SR)



- Relay output (PS3N, PS3F)

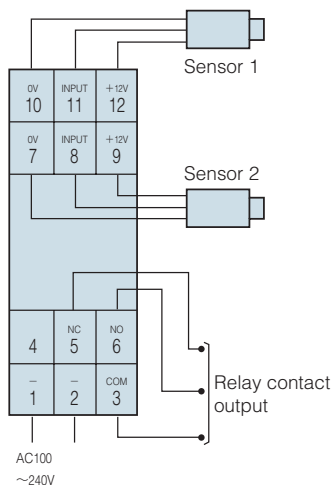


- Open collector output (PS3F, PS3F-SR)

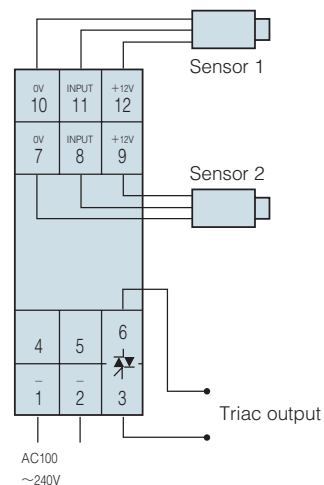


## Connection Examples

PS3N

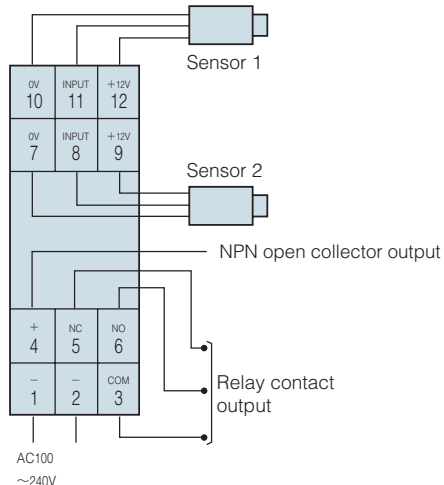


PS3N-SR

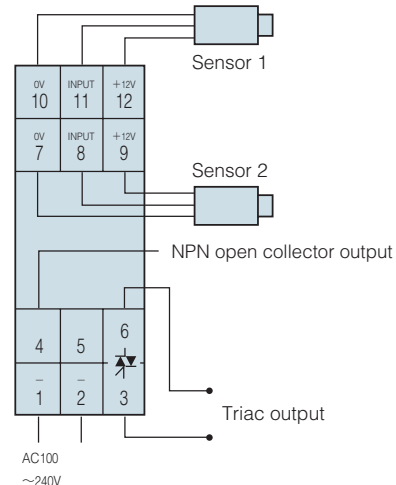


A shorting bar is provided between Terminals (7) and (8).  
When using two sensors for AND logic operation, remove the shorting bar.  
When not using two sensors, short-circuit Terminals (7) and (8).

PS3F

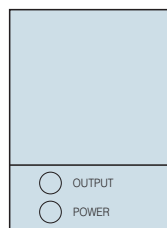


PS3F-SR



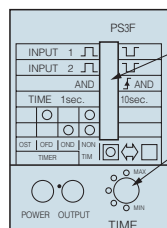
## Panel Description

PS3F  
PS3N-SR



OUTPUT: operation indicator (red)  
POWER: power indicator (green)

PS3F  
PS3F-SR



Mode switches  
Delay time adjustment  
Turning clockwise increases the duration.

OUTPUT: operation indicator (red)  
POWER: power indicator (green)

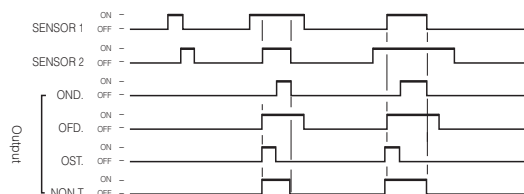
## Mode Switches

- This switch selects between sensor signal input modes.  
 □ : output activated when sensor input signal turns H.  
 □ : output activated when sensor input signal turns L.

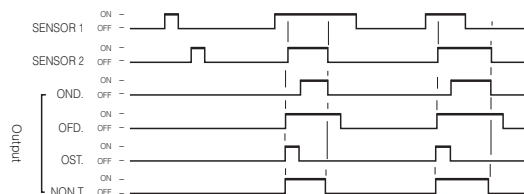
Note) When not using the second sensor (INPUT 2), set the INPUT 2 switch at □.

- This switch is for enabling logic operation with two sensors.  
 Note) When not using two sensors, set the switch at AND.

Setting at **AND** enables AND logic output with two sensors.



Setting at **AND** enables judgment of the input state of Sensor 1 signal at the moment of input of Sensor 2 signal, which is output. Generally, the output is in a one-shot (OST) signal.



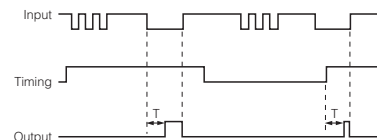
- This switch is for selecting between delay time ranges.  
 1 s Setting at 1 s allows duration setting between 0.1 and 1 s.  
 10 s Setting at 1 s allows duration setting between 1 and 10 s.

- This selector switch is for specifying the timer function. Select the function according to the application.

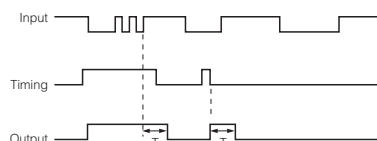
## Timer Operation

When the basic ON-OFF operation is not sufficient for intended output signals, timer functions are available to apply output signals.

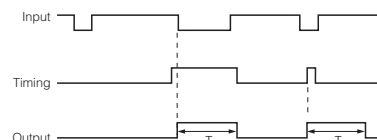
- On-delay: cancels short detection signals.



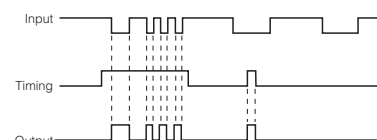
- Off-delay: extends output signals by a certain period.



- One-shot: output signals of a certain width starting at the moment of detection.



- Basic operation



## Dimensions (in mm)

