PS • IP series

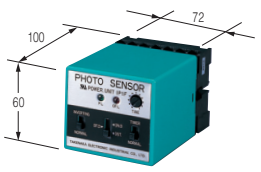
Power unit

- Power supply unit for sensors
  - PS series : Slim body with high capacity

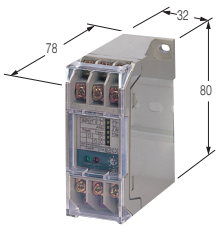
Type

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

IP series



PS series



(With terminals and panel cover)

Rating/Performance/Specification (PS series)

Model	PS3N	PS3N-SR	PS3F	PS3F-SR
Power supply	100 - 240VAC ±10% 50/60 Hz			
Power consumption	10W or less			
Input	NPN open collector input (*1) Input mode: L mode		NPN open collector input (*1) Input mode: H/L switching Minimum input duration: 20 μs (*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 output 1c Rating: 2A (250VAC) or less resistive 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 output 1c Rating: 2A (250 VAC) or less resistive load ●NPN open collector output Rating: 100mA (30 VDC) or less Residual ON voltage: 1 V or less	●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 (30 VDC) or less Residual ON voltage : 1 V or less
Power supplied to sensor	12V DC ±10% 200 mA or less. (short circuit protection circuit provided)			
Response time	10ms or less	12ms or less	●Relay output: 10ms or less ●NPN open collector output ON/OFF:0.1 ms or less	●Triac output: 12 ms or less ●NPN open collector output ON/OFF:0.1 ms or less
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)	
Material	Case: ABS resin			
Connection	Terminal block (with M3.5 screws, terminal block width: 8.1 mm)			
Mounting	DIN rail (35 mm) or screw mounting.			
Weight	Approx. 120 g		Approx. 150 g	
Accessory	Operation manual			

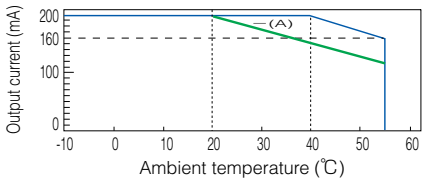
Environmental Specification

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	IP20
Vibration	10-55 Hz / 1.5 mm double amplitude / 2 hours each in 3 directions
Dielectric withstanding	1,500 VAC for 1 minute (*4)
Shock	100 m/s² / 2 times each in 3 directions
Insulation resistance	500 VDC, 20 MΩ or higher (*4)

(*1) For voltage input, use voltage of 3 V or less for L mode and 8 to 30 V 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 μF).

●Derating table

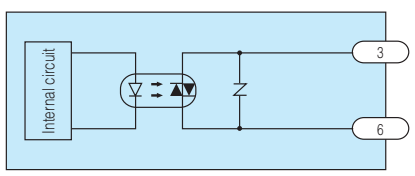
When the ambient temperature exceeds 40 °C, the output current value decreases as shown in the figure on the right. Line (A) indicates a range in which adjacent installation is permitted.



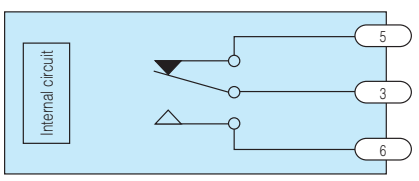
PS

Output Circuit and Connection

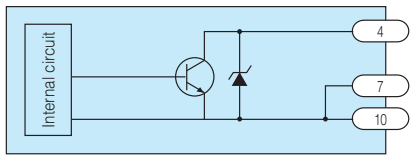
- Triac output (PS3N-SR, PS3F-SR)



- Relay output (PS3N, PS3F)

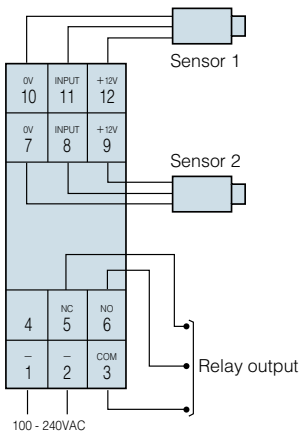


- Open collector output (PS3F, PS3F-SR)

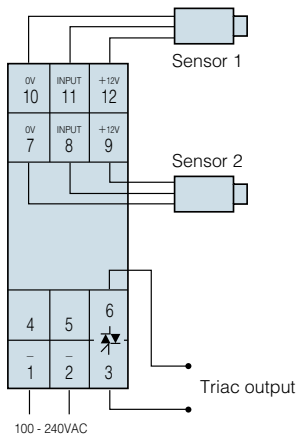


Connection

PS3N

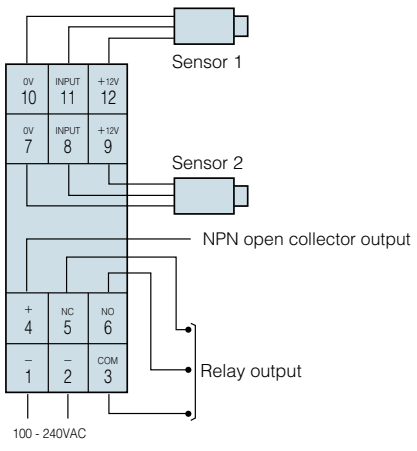


PS3N-SR

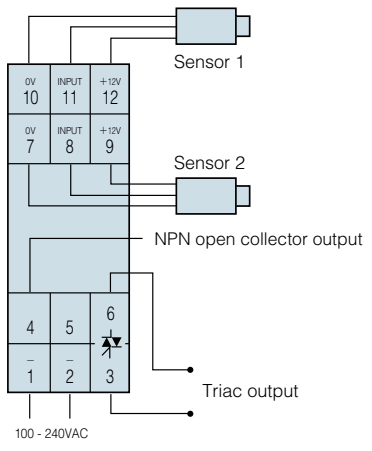


A shorting bar is provided between Terminals (7) and (8).
When using two sensors for AND logic operation, remove the shorting bar.
When not using two sensors, short circuit Terminals (7) and (8).

PS3F

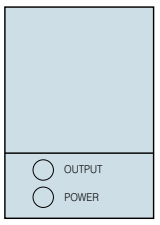


PS3F-SR



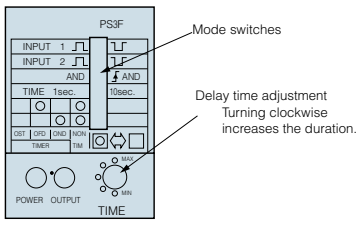
Panel Description

PS3N
PS3N-SR



OUTPUT: Operation indicator (red)
POWER : Power indicator (green)

PS3F
PS3F-SR



OUTPUT: Operation indicator (red)
POWER : Power indicator (green)

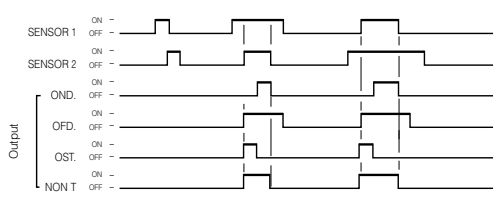
Mode Switches

● INPUT 1 / INPUT 2 — This Switch selects between sensor signal input modes.
⎍ : Output activated when sensor input signal turns H.
⎎ : Output activated when sensor input signal turns L

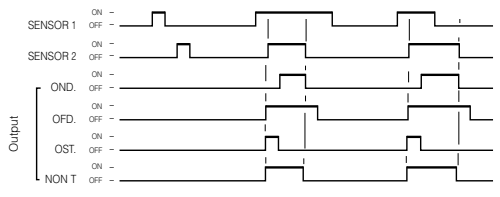
Note) When not using the second sensor (INPUT 2), set the INPUT 2 switch at ⎍.

● AND / AND — This switch enables 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.

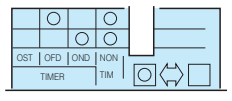


Setting at AND enables judgment of the input state of Sensor 1 signal at the moment of input of Sensor 2 signal, which is output. Generally, the output is in a one shot (OST) signal.



● TIME 1 s / 10s
This switch is for selecting between delay time ranges.

1 s Setting at 1 s allows duration setting between 0.1 and 1 s.
10s Setting at 1 s allows duration setting between 1 and 10 s.

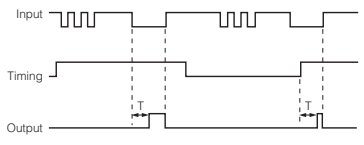
● 

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

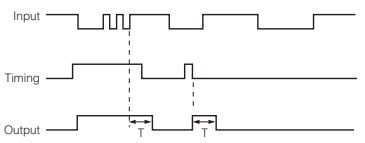
Timer Operation

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

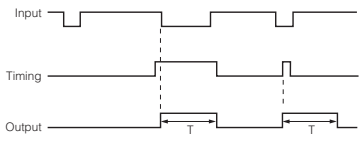
● On delay: Cancels short detection signals.



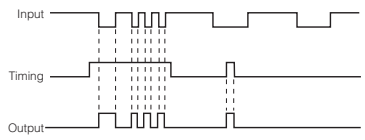
● Off delay: Extends output signals by a certain period.



● One shot: Output signals of a certain width starting at the moment of detection.

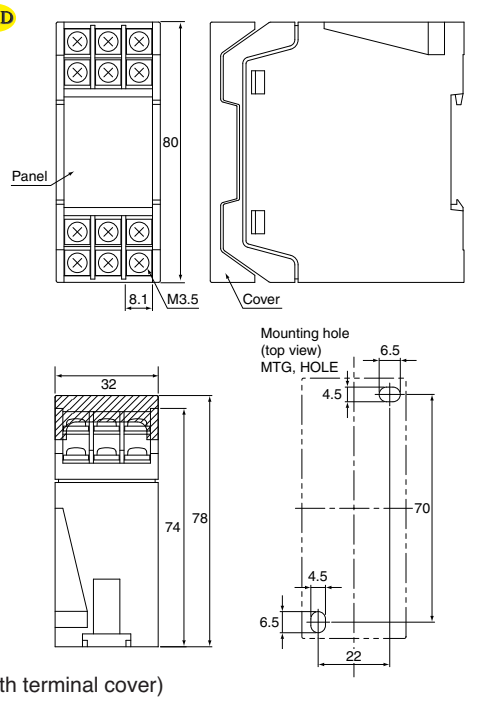


● Basic operation



Dimensions (in mm)

CAD



(With terminal cover)

CAD To download CAD data including dimensions, please visit www.takex-elec.co.jp/index_e.html.