

PR Series

Simple installing cylinder type photo sensor

- Simple installing cylinder type photo sensor
- Built in output break protective circuit and over current protective circuit
- Attached the sensitivity adjustment volume
- L.ON/D.ON selection



●● Specification

Model	Brass case	PR-T10NC	PR-M1NC	PR-M2NC	PR-R300NC
	Plastic	PR-T10NP	PR-M1NP	PR-M2NP	PR-R300NP
Sensing method	Through beam type		Retro reflection type		Diffusion reflection type
Sensing distance	10 m		1 m	2 m	300 mm
Sensing object	min Ø10 mm (Opaque above)		min Ø25 mm (Opaque above)		200X200 mm (White non-glossy paper)
Power supply voltage	12 - 24 V DC, ± 10%				
Current consumption	Emitter	max 15 mA	max 35 mA		
	Receiver	max 20 mA			
Control output	NPN voltage output, Load current max 200 mA (30 V DC). Resistive load				
Output action	L.ON, D.ON * Selected by the control line, but limited with receiver in the through beam type				
Response time	max 1.5 ms				
Hysteresis	—				Less than ±20 % of the sensing range
Light source (wave length)	Infrared lightening LED (890 nm)				
LED	Control output indicator: Red LED (Red LED of through beam type emitter is the power indicator)				
Sensitivity adjustment	By the sensitivity adjusting volume (But limited with the receiver in the through beam type)				
Protective circuit	Built in the reversed power supply connection protective circuit and output short protective circuit				
Ambient illumination	Sunlight: max 10,000 Lux, Incandescent lamp : max 3,000 Lux				
Ambient temperature	-10 ~ 60 °C (Surrounding storage temperature : -25~70 °C)				
Ambient humidity	35 ~ 85 % RH (With no condensation)				
Protective structure	IP 66 (IEC)				
Insulation resistance	min 20 MΩ (500 V DC, Between the code and case)				
Dielectric strength	500 V AC, 50/60 Hz for 1 min				
Vibration resistance	10 - 55 Hz double amplitude 1.5mm, for 2 hours each in X, Y and Z directions				
Shock resistance	500 %, 3 times each in X, Y and Z directions				
Connection method	Code extended type 2 m, 4P (Emitter : 3P)				
Material	Case : brass (Nickel plating) / P.B.T, lens : PC				
Weight	Brass case : Approx. 120 g, Plastic case : Approx. 100 g				

(Note 1) The sensing distance can be varied depending on the size, surface condition, glossy, non-glossy of the sensing object

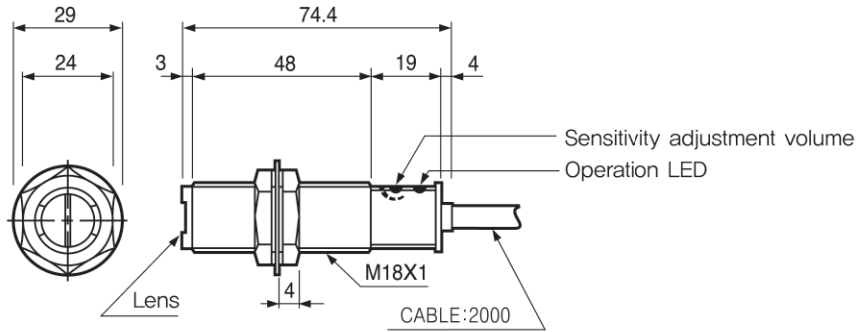
(Note 2) PR-TL10N□ is emitter and PR-TR10N□ is receiver

(Note 3) Sensing range of the retro reflection type is a distance when using HY-M5 (Mirror)

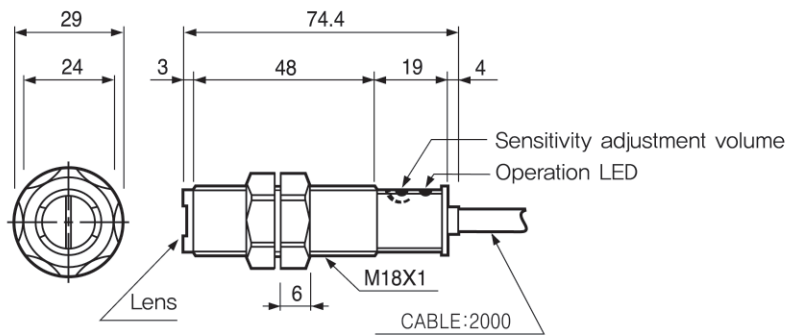
Photo Sensor

Dimension (unit : mm)

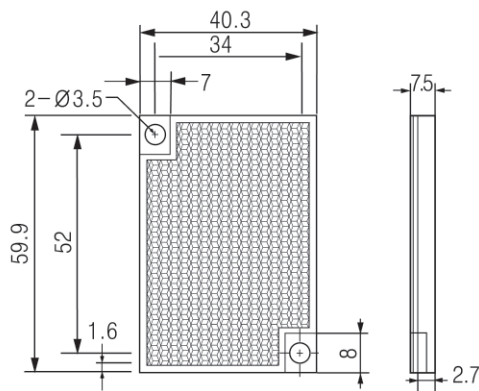
■ Brass case (C)



■ Plastic case (P)



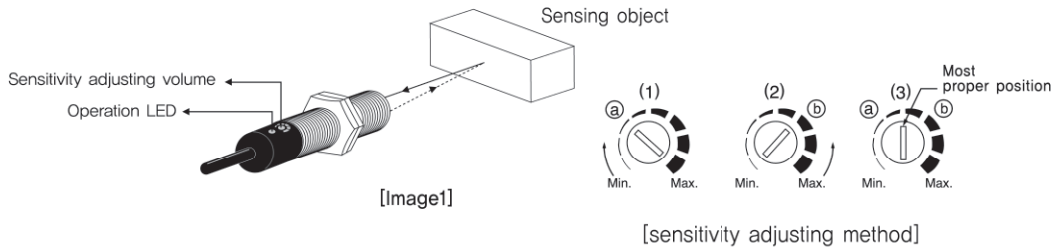
■ Mirror (HY-M5)



Installation method

■ Diffuse reflection type (PR-R300N)

- Generally it is used with the max sensitivity setting but it may be affected by the front side wall, pole and etc without the sensing object so please be cautious when adjusting.
 - Increasing the sensitivity too much may end up with malfunction so please be cautious
- (1) With the sensing object in the position, increase the volume gradually from the min sensitivity to the state when operation LED becomes ON and that position will be referred as point ①.
 - (2) With the sensing object not in the position, decrease the volume gradually from the max sensitivity to the state when operation LED becomes OFF and that position will be referred as point ②.
 - (3) The position halfway between point ① and ② is the most suitable position



■ Retro reflection type (PR-M1N, PR-M2N)

- Install the sensor and mirror to face each other. After that, adjust the position of mirror to the direction of up, down, left and right and confirm the range where the operation LED becomes turned OFF. Install it at the center of position where light became turned OFF.
- Adjust the sensitivity adjustment volume at the most suitable position according to the sensing range, sensing object and etc.
- When installing more than 1 sensor, please keep the distance (gap) more than 30 cm due to the possibility of malfunction occurrence.
- When the sensing object is glossy or highly reflective, please install an angle of $30^\circ \sim 45^\circ$ degree according to the moving direction of sensing object in order to prevent malfunction from occurring [refer to the image 2 provided below]

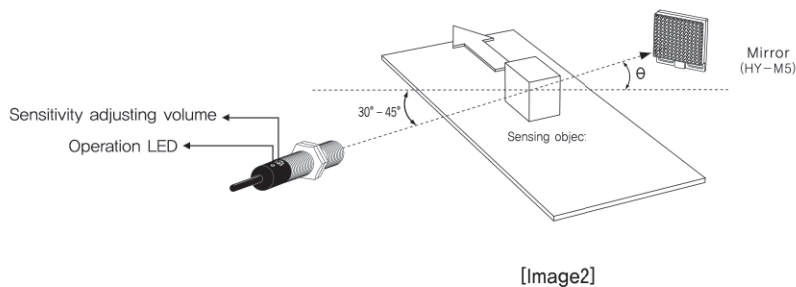
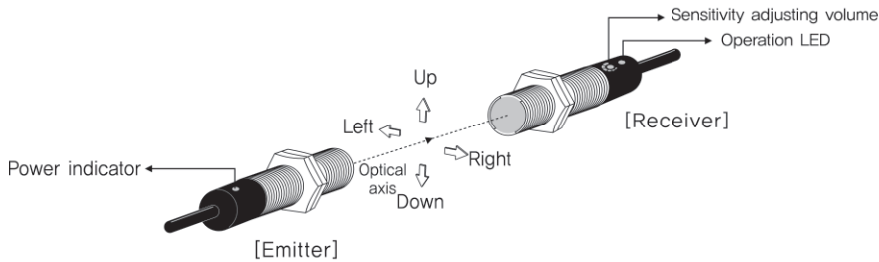


Photo Sensor

■ Through beam type (PR-T10N)

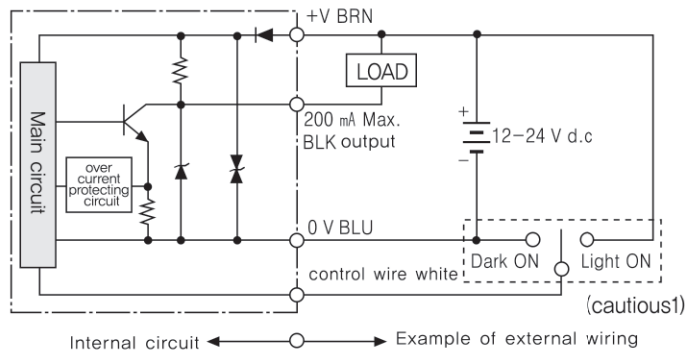
- Install the emitter and receiver to face each other in the straight line and check for the proper wiring. After finishing confirmation, supply in the power.
- Fix either the emitter or receiver and check for the range where operation indicator becomes turned OFF by controlling in the direction of up, down, left and right. After finishing the confirmation, place it in the middle and fix it.
- Place the sensing object within the optical axis range and confirm the condition of proper operation
- If the sensing objects are semitransparent or too small (less than $\varnothing 8$ mm) then there is possibility that sensor will not detect any objects because they just pass through so please be cautious
- Use it within the 95 % of max operation range
- Adjust the sensitivity adjustment volume at the most suitable position according to the sensing range, sensing object and etc



[Image3]

⦿ Output circuit diagram

■ Receiver of diffuse reflection type, Retro reflection type, Through beam type



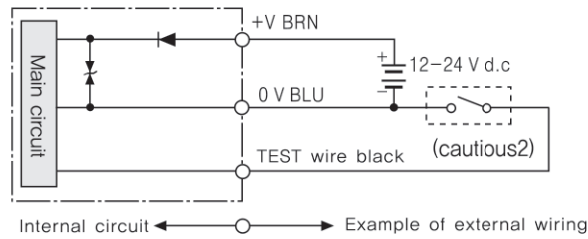
(cautious 1)

Display the Light ON/Dark ON mode selection wiring method

-Light ON : Open or connect the control wire to +V

-Dark ON : When connecting the control wire to 0V

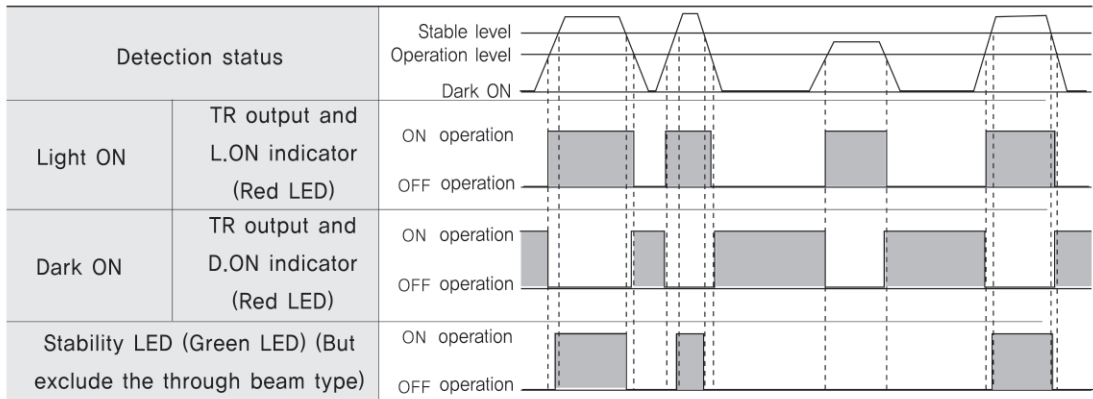
■ Emitter of through beam type



(cautious 2)

- ① Transmitting LED and power indicator become OFF when connecting with the TEST wire 0V. (TEST operation state) Transmitting LED and power indicator become ON when connecting with the TEST wire 0V. (Normal operation state)
- ② Maintain the TEST wire in an OFF state when operating
- ③ Insulated the wires that are not used.

🔗 Operation chart



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Photo Sensor