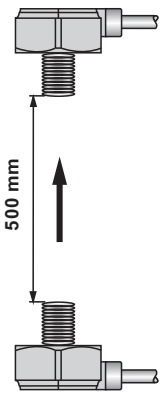


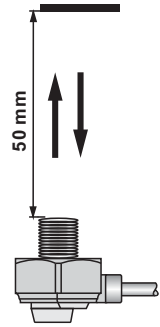




Thru-beam Mode & Diffuse Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
 <p>Thru-beam mode Sensing Distance 500mm Light source Red LED</p>	2m Cable 	10-30V DC	Emitter	<u>RP14-T0500D-EY6C2L2</u>
			NPN Light-ON	<u>RP14-T0500N-LY6C3U2</u>
			NPN Dark-ON	<u>RP14-T0500N-DY6C3U2</u>
			PNP Light-ON	<u>RP14-T0500P-LY6C3U2</u>
			PNP Dark-ON	<u>RP14-T0500P-DY6C3U2</u>
	5m Cable 	10-30V DC	Emitter	<u>RP14-T0500D-EY6C2L5</u>
			NPN Light-ON	<u>RP14-T0500N-LY6C3U5</u>
			NPN Dark-ON	<u>RP14-T0500N-DY6C3U5</u>
			PNP Light-ON	<u>RP14-T0500P-LY6C3U5</u>
			PNP Dark-ON	<u>RP14-T0500P-DY6C3U5</u>
 <p>Diffuse mode Sensing Distance 50mm Light source Red LED</p>	2m Cable 	10-30V DC	NPN Light-ON	<u>RP14-D0050N-LY6C3U2</u>
			NPN Dark-ON	<u>RP14-D0050N-DY6C3U2</u>
			PNP Light-ON	<u>RP14-D0050P-LY6C3U2</u>
			PNP Dark-ON	<u>RP14-D0050P-DY6C3U2</u>
			—	—
	5m Cable 	10-30V DC	NPN Light-ON	<u>RP14-D0050N-LY6C3U5</u>
			NPN Dark-ON	<u>RP14-D0050N-DY6C3U5</u>
			PNP Light-ON	<u>RP14-D0050P-LY6C3U5</u>
			PNP Dark-ON	<u>RP14-D0050P-DY6C3U5</u>
			—	—

Note:

Coming Soon : Part numbers with underline
In Preparation: Part numbers with a line through the middle

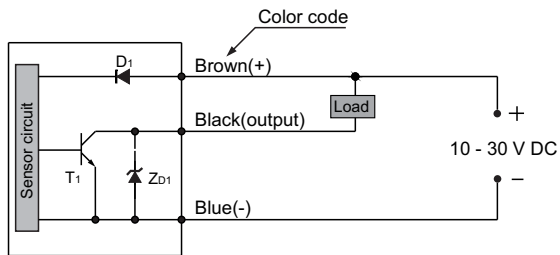
Specifications

Item	Model No.	Type	Thru-beam Mode		Diffuse Mode	
		NPN output	RP14-T0500N-LY6C3Ux	RP14-T0500N-DY6C3Ux	RP14-T0050N-LY6C3Ux	RP14-T0050N-DY6C3Ux
		PNP output	RP14-T0500P-LY6C3Ux	RP14-T0500P-DY6C3Ux	RP14-T0050P-LY6C3Ux	RP14-T0050P-DY6C3Ux
Sensing range		500 mm		50 mm(Note)		
Sensing object		φ2 mm or more opaque object		Opaque, translucent or transparent object		
Hysteresis		—————		15 % or less of operation distance		
Repeatability		0.05 mm or less		0.5 mm or less		
Supply power		10 - 30 V DC 10% Ripple P-P % or less				
Current consumption		Emitter: 10 mA or less, Receiver: 15 mA or less		20 mA or less		
Output		<NPN output type> NPN open-collector transistor Maximum sink current: 50 mA Applied voltage: 30V DC or less(between output and 0V) Residual voltage: 1V or less(at 50 mA sink current) 0.4 V or less (at 16 mA sink current)		<PNP output type> PNP open-collector transistor Maximum source current: 50 mA Applied voltage: 30V DC or less(between output and +V) Residual voltage: 1V or less(at 50 mA source current) 0.4 V or less (at 16 mA source current)		
Output operation		Light-ON	Dark-ON	Light-ON	Dark-ON	
Short-circuit protection		Incorporated				
Light source		Red LED (modulated)				
Response time		0.5 ms or less				
Operation indicator		Orange LED (lights up when the output is ON)(incorporated on the receiver for thru-beam type)				
Stability indicator		Green LED (lights up under stable light received condition or stable dark condition, incorporated on the receiver)		Green LED (lights up under stable light received condition or stable dark condition)		
Sensitivity adjuster		—————		Continuously variable adjuster		
Pollution degree		3(Industrial environment)				
Protection		IP67 (IEC)				
Ambient temperature		-25 to 55 °C(No dew condensation or icing allowed), Storage: -30 to + 70 °C				
Ambient humidity		35 to 85% RH,Storage:35 to 85% RH				
Ambient illuminance		Sunlight:11,000 ℓx at the light-receiving face, Incandescent light:3500 ℓx at the light-receiving face				
EMC		IEC 60947-5-2 Parts 7.2.6.1,2,3 or RFI>3V/m(ln30-1000MHz),EFT>1KV,ESD>4KV(contact)				
Voltage withstandability		IEC 60947-5-2 Parts 8.3.3.4, or 500VDC for one min between all supply terminals connected together and enclosure				
Insulation resistance		>20MΩ, with 250V DC megger between all supply terminals connected together and enclosure				
Vibration resistance		IEC 60947-5-2 Parts 7.4.2 or 10-55Hz 1.0m amplitude in x, y and z directions for 30 min				
Shock resistance		IEC 60947-5-2 Parts 7.4.1 or 30g 11ms in x, y and z directions for six time each				
Material		Enclosure: Die-cast zinc(Nickel plated), Lens: Polycarbonate, Enclosure cover: polycarbonate				
Cable		0.1 mm ² 3-core (thru-beam type sensor emitter: 2-core) cabtyre cable, 2 m long				
Cable extension		Extension up to total 50m is possible with 0.3mm ² , or more, cable (thru-beam type: both emitter and receiver).				
Weight		Emitter: 20g approx., Receiver: 20g approx.		20g approx.		

Note: The sensing range is specified of white non-glossy paper (100 X 100 mm) as the object.

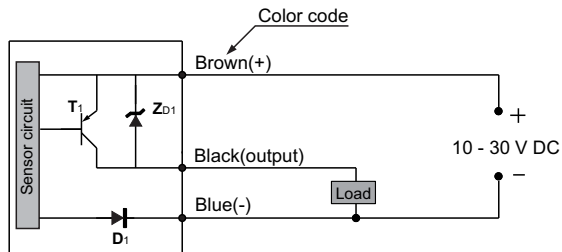
Connection Diagrams

NPN output type



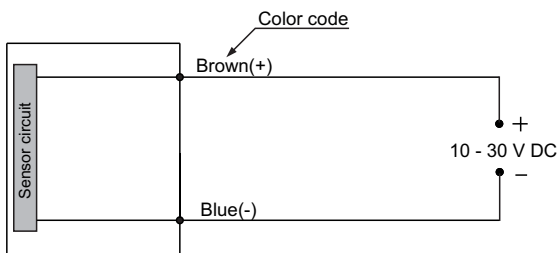
Symbols...D1: Reverse supply polarity protection diode
 ZD1: Surge absorption zener diode
 T1: NPN output transistor

PNP output type

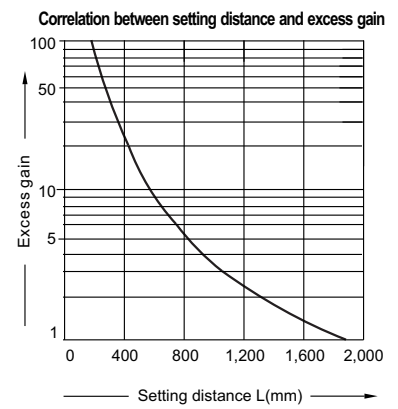
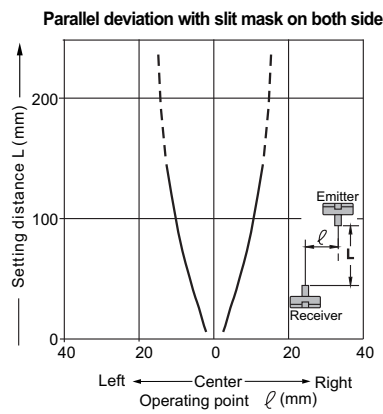
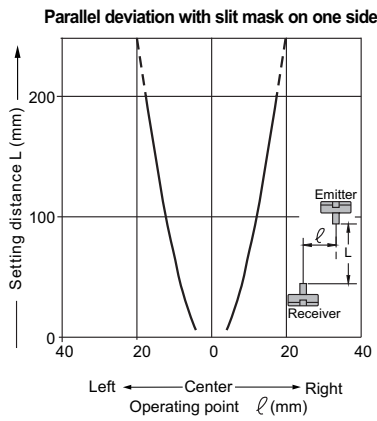
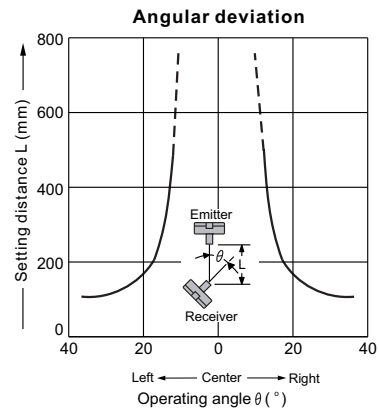
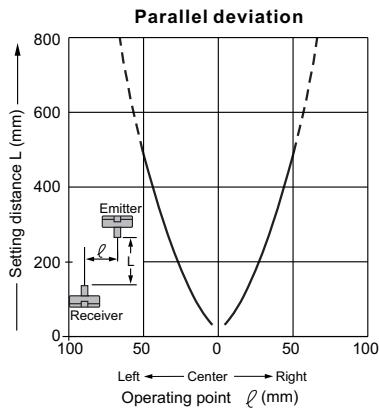


Symbols...D1: Reverse supply polarity protection diode
 ZD1: Surge absorption zener diode
 T1: PNP output transistor

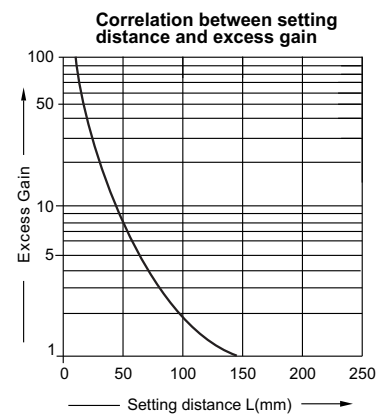
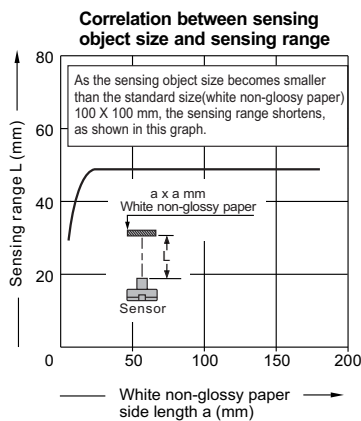
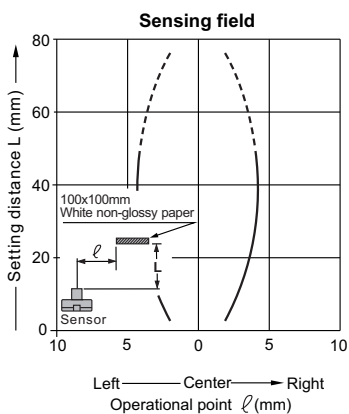
Emitter



Thru-beam Sensor



Diffuse Sensor



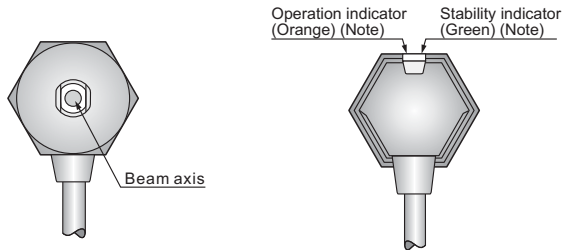
Precautions for Proper Use



This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

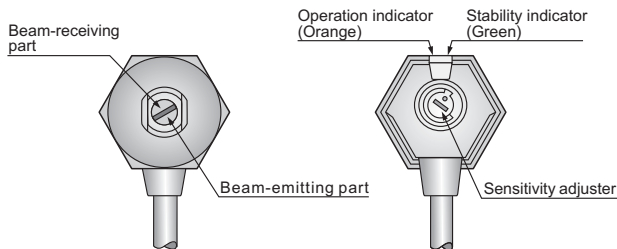
Part description

Thru-beam mode sensor



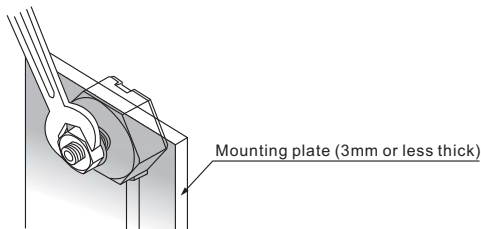
Note: Not incorporated on emitter.

Diffuse mode sensor



Mounting

Mount the sensor on a mounting plate 3mm or less thick, using the enclosed nut and toothed lock washer. When tightening the nut, hold the sensor with hand or a spanner and make sure that the tightening torque is 0.6 N·m (Diffuse mode sensor: 1N·m) or less. Do not tighten the sensor itself with a spanner, etc.



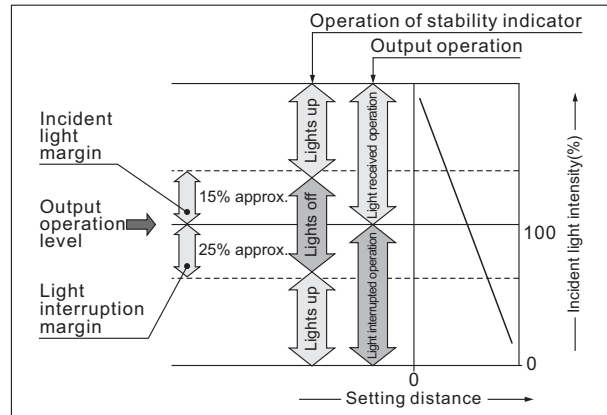
Sensitivity adjustment (Diffuse mode sensor only)

Step	Sensitivity adjuster	Description
(1)	Max	Turn the sensitivity adjuster fully counter-clockwise to the minimum sensitivity position.
(2)	Max	In the light received condition, turn the sensitivity adjuster slowly clockwise and confirm the point ① where the sensor enters the 'Light' state operation.
(3)	Max	In the dark condition, turn the sensitivity adjuster further clockwise until the sensor enters the 'Light' state operation and then bring it back to confirm point ② where the sensor just returns to the 'Dark' state operation. (If the sensor does not enter the 'Light' state operation even when the sensitivity adjuster is turned fully clockwise, this extreme position is point ②.)
(4)	Optimum position	The position at the middle of points ① and ② is the optimum sensing position.

Note: Use the attached adjusting screwdriver to turn the adjuster slowly. Turning with excessive strength will damage the adjuster.

Stability indicator

The stability indicator (green) lights up when the incident light intensity has sufficient margin with respect to the operation level. If the incident light intensity level is such that the stability indicator lights up, stable sensing can be done without the light received operation being affected by a change in ambient temperature or supply voltage.



Wiring

Make sure that the power supply is off while wiring. Verify that the supply voltage variation is within the rating. If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground. In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this product, connect the frame ground (F.G.) terminal of the equipment to an actual ground. Extension up to total 50m (thru-beam type: both emitter and receiver) is possible with 0.3mm², or more, cable. However, in order to reduce noise, make the wiring as short as possible. Don't run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction. Make sure to use an isolation transformer for the DC power supply. If an auto-transformer (single winding transformer) is used, this product or the power supply may get damaged. In case a surge is generated in the used power supply, connect a surge absorber to the supply and absorb the surge.

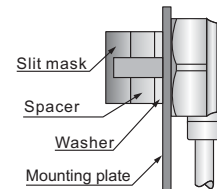
Optional slit mask (Thru-beam type only)

Apply the optional slit mask (RP14-A1) when detecting small objects or for increasing the accuracy of sensing position. However, the sensing range is reduced when the slit mask is mounted.

Mounting method

- Insert the sensor into the mounting plate.
- Fit the washer and spacers enclosed with the slit mask. Note that the number of spacers to be fitted differs with the mounting plate thickness, as given in the table below. (Note)
- Mount the slit mask. Make sure that the tightening torque is 0.6 N·m or less. Note: If the mounting plate thickness falls within the values mentioned in the table below, use the number of spacers that represents the thickness that comes closest to the actual thickness of the mounting plate being used. There will be no effect on the sensor if the slit comes out in the front because of the spacers.

Mounting plate thickness	No. of spacers
3 mm	0 pc.
2 mm	1 pc.
1 mm	2 pcs.

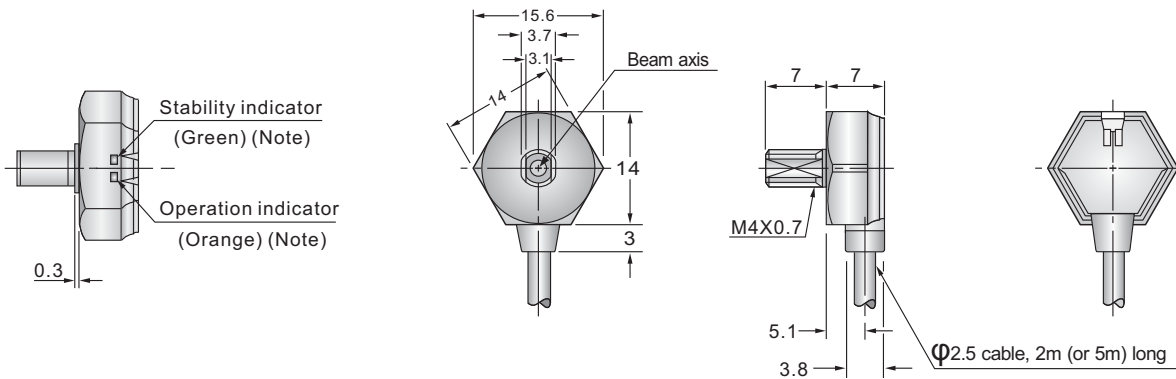


Others

Do not use during the initial transient time (50ms) after the power supply is switched on. Take care that the sensor is not directly exposed to fluorescent light from a rapid-starter lamp or a high frequency lighting device, as it may affect the sensing performance. Avoid dust, dirt, and steam. Take care that the sensor does not come in direct contact with water, oil, grease, or organic solvents, such as thinner, etc. In case of using the sensor at a place where static electricity is generated, use a metal mounting plate. Also, ensure to ground the mounting plate.

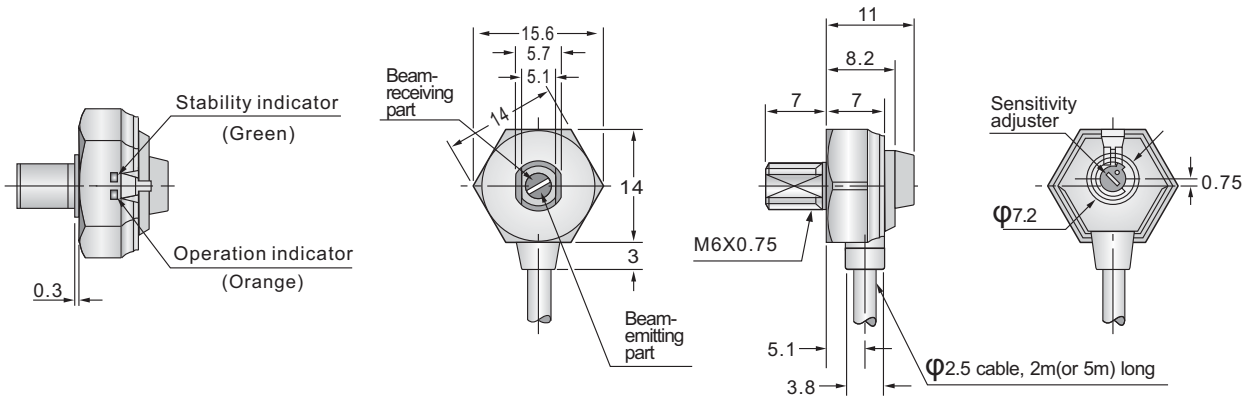
Dimensions (Unit: mm)

Thru-beam Sensor



Note: Not incorporated on the emitter

Diffuse Sensor

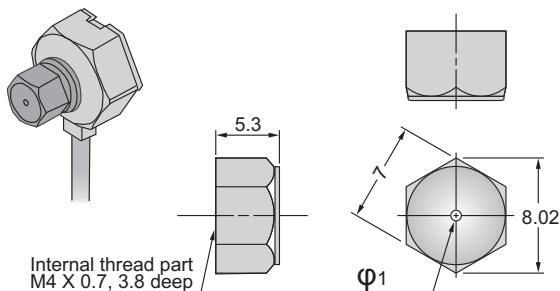


Slit mask (optional)

Slit mask	Model No.	Description
Slit mask(For thru-beam type sensor only)	RP14-A1 (Slit size Φ 1mm)	Slit on one side <ul style="list-style-type: none"> • Sensing range: 200 mm • Min. sensing object: Φ2 mm
		Slit on both sides <ul style="list-style-type: none"> • Sensing range: 150 mm • Min. sensing object: Φ1 mm

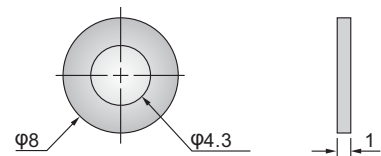
Note: One and two spacers are provided per set. Two sets are required when installing on both sides.

● **RP14-A1** (Slit mask-optional)



Material: Brass(Nickel plated)

● **RP14-A2** (Spacer-optional)



Material: POM