















## Cylindrical Photoelectric Sensor

The CY series of photoelectric sensors has an M18 thread size for convenient mounting. Thrubeam, diffuse reflective, and retro-reflective types allow for a wide range of applicable uses. They are available in AC and DC types with three output options (NPN, PNP, or Thyristor). A pigtailed type sensor with an M12 connector is also available, providing an easy to replace option.

Its IP67 construction allow for installation in tough environments and can be washed down with water. In addition, it has strong resistance against vibration. The connector also has IP67 protection.

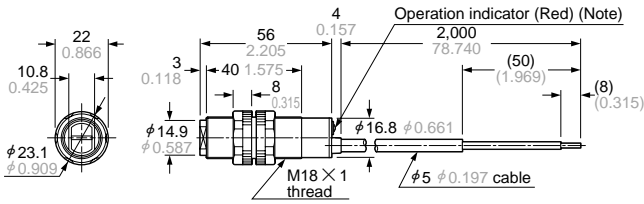
Convenient options such as the side-view attachment and slit masks enhance the usability of the CY series.

Model Name	Model Pic	Type	Output Operation	Output Configuration	Emitting Element	Max. Range (mm)	Max. Range (in)
Sort ▲ ▼		Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼
CY-11A		Thrubeam AC Type	Light-ON	AC Thyristor	Infrared LED	12000	472.4
CY-11A-J		Thrubeam AC Type, M12 Quick Disconnect	Light-ON	AC Thyristor	Infrared LED	12000	472.4
CY-11B		Thrubeam AC Type	Dark-ON	AC Thyristor	Infrared LED	12000	472.4
CY-11B-J		Thrubeam AC Type, M12 Quick Disconnect	Dark-ON	AC Thyristor	Infrared LED	12000	472.4
CY-12A		Diffuse Reflective AC Type	Light-ON	AC Thyristor	Infrared LED	120	4.7
CY-12A-J		Diffuse Reflective AC Type, M12 Quick Disconnect	Light-ON	AC Thyristor	Infrared LED	120	4.7
CY-12B		Diffuse Reflective AC Type	Dark-ON	AC Thyristor	Infrared LED	120	4.7
CY-12B-J		Diffuse Reflective AC Type, M12 Quick Disconnect	Dark-ON	AC Thyristor	Infrared LED	120	4.7
CY-17A		Retro-Reflective AC Type	Light-ON	AC Thyristor	Infrared LED	3000	118.1
CY-17A-J		Retro-Reflective AC Type, M12 Quick Disconnect	Light-ON	AC Thyristor	Infrared LED	3000	118.1

CY-17B		Retro-Reflective AC Type	Dark-ON	AC Thyristor	Infrared LED	3000	118.1
CY-17B-J		Retro-Reflective AC Type, M12 Quick Disconnect	Dark-ON	AC Thyristor	Infrared LED	3000	118.1
CY-19A		Polarized Retro-Reflective AC Type	Light-ON	AC Thyristor	Red LED	1500	59.1
CY-19A-J		Polarized Retro-Reflective AC Type, M12 Quick Disconnect	Light-ON	AC Thyristor	Red LED	1500	59.1
CY-19B		Polarized Retro-Reflective AC Type	Dark-ON	AC Thyristor	Red LED	1500	59.1
CY-19B-J		Polarized Retro-Reflective AC Type, M12 Quick Disconnect	Dark-ON	AC Thyristor	Red LED	1500	59.1
CY-21		Thrubeam DC Type	Light-ON/Dark-ON	NPN	Infrared LED	12000	472.4
CY-21-J		Thrubeam DC Type, M12 Quick Disconnect	Light-ON/Dark-ON	NPN	Infrared LED	12000	472.4
CY-21-PN		Thrubeam DC Type	Light-ON/Dark-ON	PNP	Infrared LED	12000	472.4
CY-21-PN-J		Thrubeam DC Type, M12 Quick Disconnect	Light-ON/Dark-ON	PNP	Infrared LED	12000	472.4
CY-22		Diffuse Reflective DC Type	Light-ON/Dark-ON	NPN	Infrared LED	120	4.7
CY-27		Retro-Reflective DC Type	Light-ON/Dark-ON	NPN	Infrared LED	3000	118.1
<b>CY-29</b>		<b>Polarized Retro-Reflective DC Type</b>	<b>Light-ON/Dark-ON</b>	<b>NPN</b>	<b>Red LED</b>	<b>1500</b>	<b>59.1</b>

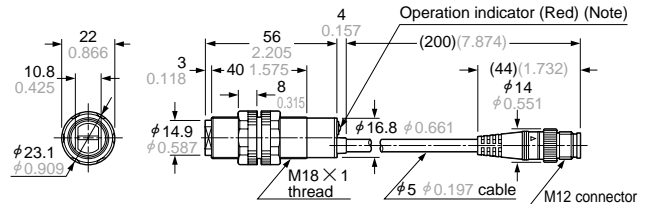
**DIMENSIONS (Unit: mm in)**

**CY-21 □ CY-27 □  
CY-22 □** Sensor



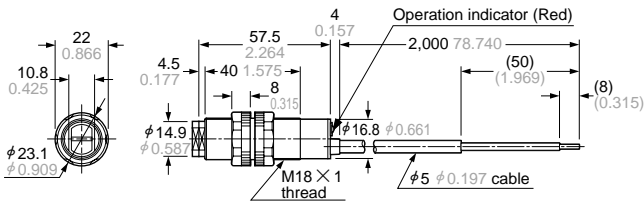
Note: It is the emitting indicator (red) on the emitter of the thru-beam type sensor.

**CY-21 □-J CY-27 □-J  
CY-22 □-J** Sensor



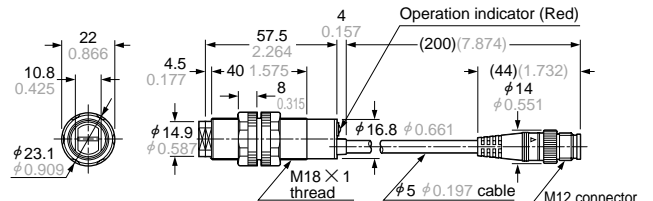
Note: It is the emitting indicator (red) on the emitter of the thru-beam type sensor.

**CY-29 □** Sensor



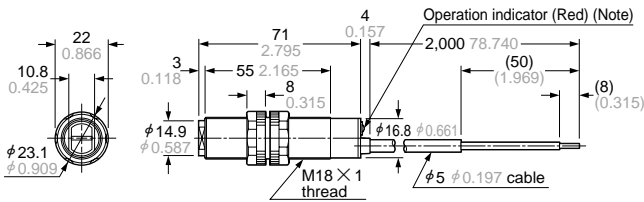
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**CY-29 □-J** Sensor



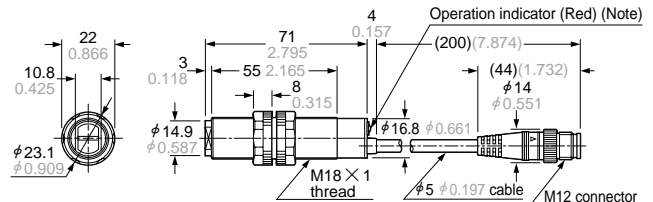
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**CY-11 □ CY-17 □  
CY-12 □** Sensor



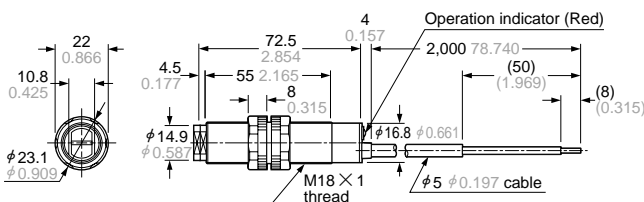
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**CY-11 □-J CY-17 □-J  
CY-12 □-J** Sensor



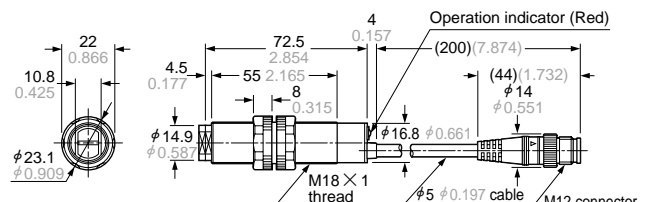
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**CY-19 □** Sensor



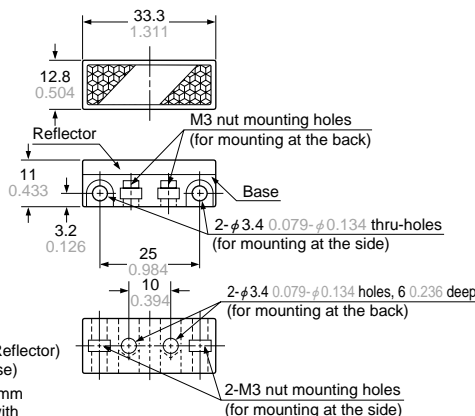
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**CY-19 □-J** Sensor



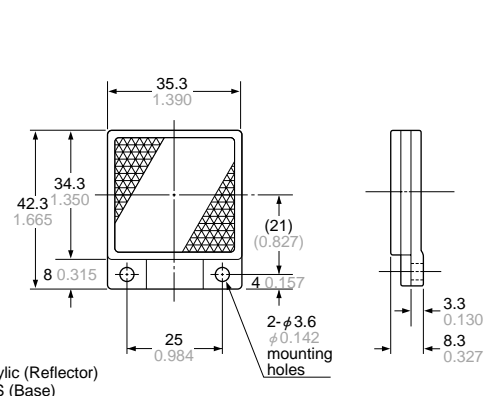
Note: It is the power indicator (red) on the emitter of the thru-beam type sensor.

**RF-210** Reflector (Optional)



Material: Acrylic (Reflector)  
ABS (Base)  
Two M3 (length 8 mm 0.315 in) screws with washers and two nuts are attached.

**RF-220** Reflector (Optional)



Material: Acrylic (Reflector)  
ABS (Base)

## SPECIFICATIONS

### DC supply type

Item	Model No.	Type	Thru-beam	Retroreflective		Diffuse reflective
		NPN output type	CY-21	CY-27	With polarizing filters	CY-22
		PNP output type	CY-21-PN	CY-27-PN	CY-29-PN	CY-22-PN
Sensing range			12 m 39.370 ft	3 m 9.843 ft (Note 1)	1.5 m 4.921 ft (Note 1)	120 mm 4.724 in (Note 2)
Sensing object			φ8 mm φ0.315 in or more opaque object	φ50 mm φ1.969 in or more opaque or translucent object (Note 1)	φ50 mm φ1.969 in or more opaque, translucent or specular object (Note 1)	Opaque, translucent or transparent object
Hysteresis			—————			15 % or less of operation distance
Repeatability (perpendicular to sensing axis)			0.1 mm 0.004 in or less			0.3 mm 0.012 in or less
Supply voltage			10 to 30 V DC Ripple P-P 10 % or less			
Current consumption			Emitter: 20 mA or less Receiver: 25 mA or less	25 mA or less		
Output			<NPN output type> NPN open-collector transistor <ul style="list-style-type: none"> <li>• Maximum sink current: 100 mA</li> <li>• Applied voltage: 30 V DC or less (between output and 0 V)</li> <li>• Residual voltage: 1.5 V or less (at 100 mA sink current)</li> </ul>		<PNP output type> PNP open-collector transistor <ul style="list-style-type: none"> <li>• Maximum source current: 100 mA</li> <li>• Applied voltage: 30 V DC or less (between output and + V)</li> <li>• Residual voltage: 1.5 V or less (at 100 mA source current)</li> </ul>	
Utilization category			DC-12 or DC-13			
Output operation			Selectable either Light-ON or Dark-ON by the control input			
Short-circuit protection			Incorporated			
Response time			2 ms or less			
Test input (emission halt) function			Incorporated	—————		
Operation indicator			Red LED (lights up when the output is ON)			
Emission indicator			Red LED (lights up during beam emission)	—————		
Environmental resistance	Pollution degree		3 (Industrial environment)			
	Protection		IP67 (IEC)			
	Ambient temperature		- 25 to + 55 °C - 13 to + 131 °F (No dew condensation or icing allowed), Storage: - 30 to + 70°C - 22 to + 158 °F			
	Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH			
	Ambient illuminance		Sunlight: 10,000 lx at the light-receiving face, Incandescent light: 3,000 lx at the light-receiving face			
	EMC		EN 50081-2, EN 50082-2, EN 60947-5-2			
	Voltage withstandability		1,000 V AC for one min. between all supply terminals connected together and enclosure			
	Insulation resistance		20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure			
Vibration resistance		10 to 500 Hz frequency, 1.5 mm 0.059 in amplitude (10 G max.) in X, Y and Z directions for two hours each				
Shock resistance		500 m/s <sup>2</sup> acceleration (50 G approx.) in X, Y and Z directions for three times each				
Emitting element			Infrared LED (modulated)	Red LED (modulated)	Infrared LED (modulated)	
Material			Enclosure: PBT, Lens: Polycarbonate	Enclosure: PBT, Front cover: Acrylic		
Cable			0.34 mm <sup>2</sup> 4-core (thru-beam type emitter: 3-core) cabtyre cable, 2 m 6.562 ft long			
Cable extension			Extension up to total 100 m 328.084 ft is possible with 0.34 mm <sup>2</sup> , or more, cable (thru-beam type: both emitter and receiver).			
Weight			Emitter: 90 g approx. Receiver: 100 g approx.	100 g approx.		
Accessories			Nut: 4 pcs.	Nut: 2 pcs.		

**NOTE: Reflector is not supplied with the retroreflective type sensor. Please select the suitable reflector or reflective tape from the options.**

Notes: 1) The sensing range and the sensing object of the retroreflective type sensor are specified for the **RF-230** reflector (optional).  
 2) The sensing range of the diffuse reflective type sensor is specified for white non-glossy paper (200 × 200 mm 7.874 × 7.874 in) as the object.