

Photoelectric Sensor with Built-in Amplifier for Detecting Transparent PET Bottles

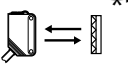
E3Z-B

- Uses OMRON's unique optical system ("Inner View") that can detect various shapes of PET bottles and transparent objects.
- Detects a wide range of bottles from 500-ml bottles to 2-l bottles, and from single bottles to sets of stocked bottles.
- Provides a high degree of protection (IP67), mutual interference protection function, and CE Marking as standard features (for all Sensors in E3Z Series).



Ordering Information

Standard Models

Sensing method	Appearance	Connection method	Sensing distance	Model	
				NPN output	PNP output
Retroreflective (without MSR function) (See note 1.)	 *1	Pre-wired (see note 3)	500 mm (80 mm) *2	E3Z-B61	E3Z-B81
		Connector		E3Z-B66	E3Z-B86
		Pre-wired (see note 3)	2 m (100 mm) *2	E3Z-B62	E3Z-B82
		Connector		E3Z-B67	E3Z-B87

- Note:**
1. The Reflector is sold separately.
 2. The specified sensing distance is possible when the E39-R1S is used. Figures in parentheses indicate the minimum required distance between the Sensor and the Reflector.
 3. Models with a 0.5-m cable are available. When ordering, specify the cable length by adding the code "0.5m" to the model number (e.g., E3Z-B61 0.5m).

Accessories (Order Separately)

Reflectors

Type	Model	Sensing distance (typical)		Quantity	Remarks
		E3Z-B□1/-B□6	E3Z-B□2/-B□7		
Standard	E39-R1S			1	The Sensor is not provided with a Reflector.
Fog Preventive Coating	E39-R1K	500 mm (80 mm) * (rated value)	2 m (100 mm) * (rated value)	1	

- Note:** Figures in parentheses indicate the minimum required distance between the Sensor and Reflector.

Specifications

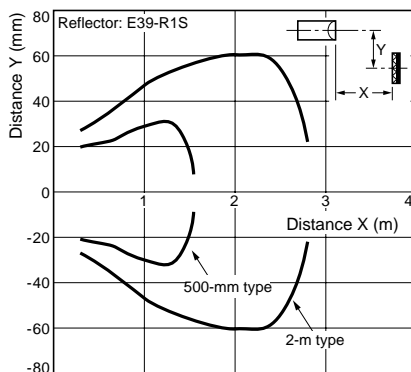
■ Ratings/Characteristics

Item	Sensing method NPN output PNP output	Retroreflective (without MSR function)			
		E3Z-B61	E3Z-B66	E3Z-B62	E3Z-B67
		E3Z-B81	E3Z-B86	E3Z-B82	E3Z-B87
Sensing distance		500 mm (80 mm) (See note.) (using E39-R1S)		2 m (100 mm) (See note.) (using E39-R1S)	
Standard sensing object		500-ml (65-mm dia.) transparent round PET bottles			
Light source (wave length)		Red LED (680 nm)			
Power supply voltage		12 to 24 VDC \pm 10% including 10% (p-p) max. ripple			
Current consumption		30 mA max.			
Control output		Load power supply voltage:26.4 VDC max. Load current:100 mA max. (Residual voltage: 1 V max.) Open-collector output (NPN or PNP depending on model) L-ON/D-ON selectable			
Circuit protection		Protection from reversed power supply connection and output short-circuit, and mutual interference protection			
Response time		Operation or reset: 1 ms max.			
Sensitivity adjustment		One-turn adjuster			
Ambient illumination (receiver side)		Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.			
Ambient temperature		Operating: -25°C to 55°C/Storage: -40°C to 70°C (with no icing or condensation)			
Ambient humidity		Operating: 35% to 85%/Storage: 35% to 95% (with no condensation)			
Insulation resistance		20 M Ω min. at 500 VDC			
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min			
Vibration resistance		10 to 55 Hz, 1.5-mm double amplitude or 300 m/s ² for 2 hours each in X, Y, and Z directions			
Shock resistance		Destruction: 500 m/s ² 3 times each in X, Y, and Z directions			
Degree of protection		IP67 (IEC60529)			
Connection method		Pre-wired cable (length: 2 m or 500 mm)	M8 connector	Pre-wired cable (length: 2 m or 500 mm)	M8 connector
Indicator		Operation indicator (orange) Stability indicator (green)			
Weight (packed state)		Approx. 65 g	Approx. 20 g	Approx. 65 g	Approx. 20 g
Material	Case	PBT (polybutylene terephthalate)			
	Lens	Methacrylate resin			
Accessories		Instruction manual (The Reflector or Mounting Bracket are sold separately.)			

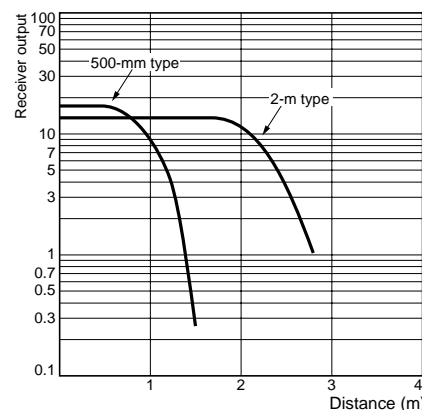
Note: Figures in parentheses indicate the minimum required distances between the Sensors and Reflectors.

Engineering Data

■ Parallel Operating Range (Typical) E3Z-B66(B86), B62, 67/-B82, 87 and E39-R1S (Reflector)



■ Receiver Output vs. Distance (Typical) E3Z-B66(B86), B62, 67/-B82, 87 and E39-R1S (Reflector)



Operation

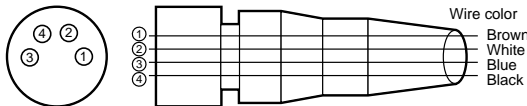
■ NPN Output

Model	E3Z-B61/-B66/-B62/-B67	
Output transistor status	Light ON	Dark ON
Timing chart		
Mode selector	Light ON (L/ON)	Dark ON (D/ON)
Output circuit	<p style="text-align: center;">Connector Pin Arrangement</p> <p style="text-align: center;">Pin 2 is open.</p>	

■ PNP Output

Model	E3Z-B81/-B82/-B86/-B87	
Output transistor status	Light ON	Dark ON
Timing chart		
Mode selector	Light ON (L/ON)	Dark ON (D/ON)
Output circuit	<p style="text-align: center;">Connector Pin Arrangement</p> <p style="text-align: center;">Pin 2 is open.</p>	

Structure of Sensor I/O Connector



- XS3F-M421-402-A
- XS3F-M421-405-A
- XS3F-M422-402-A
- XS3F-M422-405-A

Classification	Wire color	Connector pin No.	Use
DC	Brown	①	Power supply (+V)
	White	②	---
	Blue	③	Power supply (0 V)
	Black	④	Output

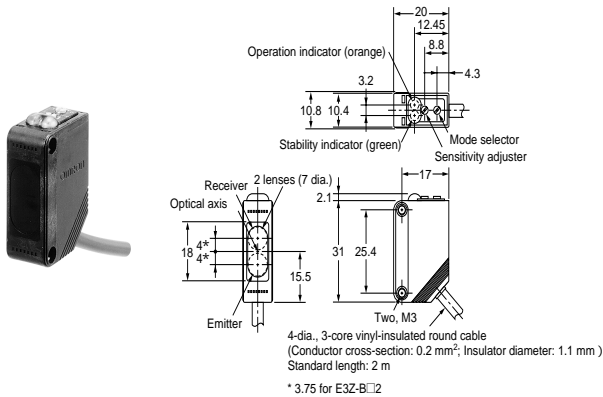
Note Pin 2 is not used.

Dimensions

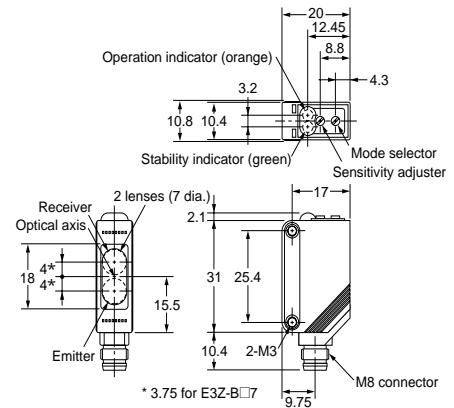
Note: All units are in millimeters unless otherwise indicated.

■ Sensors

Retroreflective Models (Pre-wired Models)



Retroreflective Models (Connector Models)

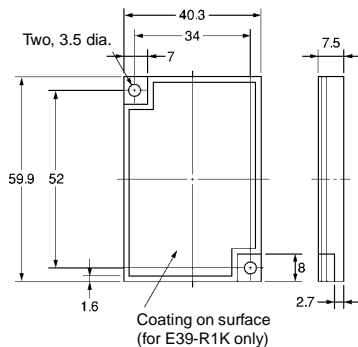


Accessories (Ordered Separately)

Reflectors E39-R1S E39-R1K



Material
Surface: Acrylic resin
Backside: ABS resin



Precautions

Be sure to abide by the following precautions for the safe operation of the Sensor.

For wiring precautions, refer to *Precautions* in Cat. No. E308-E1.

■ Correct Use

Design

Bottles

The Sensor may be unable to achieve stable detection depending on the shape of bottles. Be sure to verify stable detection before using the Sensor.

Mounting

Sensor Mounting

If the Sensor fails to provide stable detection due to the shape of bottles, adjust the location and inclination of the Sensor.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. E316-E1-1

In the interest of product improvement, specifications are subject to change without notice.

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