

E3Z-B

Reliable Detection of Transparent Objects, Including Thin-walled Clear, Plastic Bottles

- Uses OMRON's unique optical system ("Inner View") that can detect various shapes of clear, plastic bottles.
- 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 prevention, and EN standard compliance.



Be sure to read *Safety Precautions* on page 4.

Ordering Information

Sensors

Red light

Sensing method	Appearance	Connection method	Sensing distance	Model	
				NPN output	PNP output
Retro-reflective (without MSR function) *1	*1	Pre-wired (2 m) *2	500 mm (80 mm) *3	E3Z-B61 2M *4	E3Z-B81 2M
		Connector (M8, 4 pins)		E3Z-B66	E3Z-B86
		Pre-wired (2 m) *2	2 m (500 mm) *3	E3Z-B62 2M *4	E3Z-B82 2M
		Connector (M8, 4 pins)		E3Z-B67	E3Z-B87

*1. The Reflector is sold separately.

*2. 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).

*3. The specified sensing distance is possible when the E39-R1S is used. Values in parentheses indicate the minimum required distance between the Sensor and the Reflector.

*4. The following table shows the model numbers of e-CON Pre-wired Connectors that are available. Specify "-ECON" and the cable length (0.3 m, 0.5 m, or 2 m) at the end of the model number. Example: E3Z-B61-ECON 0.3M

*5. Install the Sensor so that plastic bottles are at least 500 mm from the Sensor when they pass.

Accessories (Order Separately)

Reflectors

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

* Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

Mounting Brackets

Refer to E3Z for details.

Sensor I/O Connectors

Refer to E3Z for details.

Ratings and Specifications

Sensing method		Retro-reflective (without MSR function)			
Item	Model	E3Z-B61	E3Z-B66	E3Z-B62	E3Z-B67
		E3Z-B81	E3Z-B86	E3Z-B82	E3Z-B87
Sensing distance *1		500 mm (80 mm) *2 (using E39-R1S)		2 m (500 mm) *2 (using E39-R1S)	
Standard sensing object		500-ml (65-mm dia.) transparent round plastic bottles			
Light source (wavelength)		Red LED (680 nm)			
Power supply voltage		12 to 24 VDC±10%, ripple (p-p): 10% max.			
Current consumption		30 mA max.			
Control output		Load power supply voltage: 26.4 VDC max., Load current: 100 mA max. Residual voltage: Load current of less than 10 mA: 1 V max. Load current of 10 to 100 mA: 2 V max. Open collector output (NPN/PNP depending on model) Light-ON/Dark-ON selectable			
Protection circuits		Reversed power supply polarity protection, Output short-circuit protection, Mutual interference prevention, and Reversed output polarity protection			
Response time		Operate 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 range		Operating: -25 to 55°C, Storage: -40 to 70°C (with no icing or condensation)			
Ambient humidity range		Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)			
Insulation resistance		20 MΩ min. at 500 VDC			
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min			
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude 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 (standard length: 2 m and 0.5 m)	Connector (M8, 4 pins)	Pre-wired cable (standard length: 2 m and 0.5 m)	Connector (M8, 4 pins)
Indicator		Operation indicator (orange) Stability indicator (green)			
Weight (packed state)	Pre-wired cable (2 m)	Approx. 65 g			
	Standard Connector	Approx. 20 g			
Material	Case	PBT (polybutylene terephthalate)			
	Lens	Modified polyarylate			
Accessories		Instruction manual (The Reflector or Mounting Bracket are ordered separately.)			

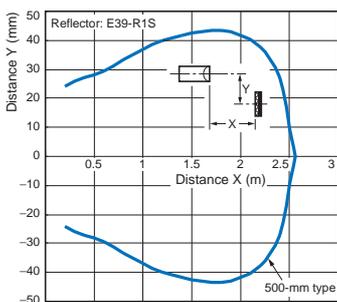
*1. Plastic bottles must pass with the minimum clearance of 500 mm.

*2. Values in parentheses indicate the minimum required distances between the Sensors and Reflectors.

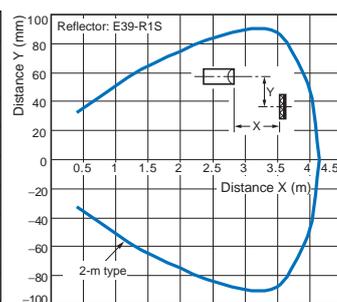
Engineering Data (Typical)

Parallel Operating Range

E3Z-B□1/B□6 + E39-R1S Reflector (Order Separately)

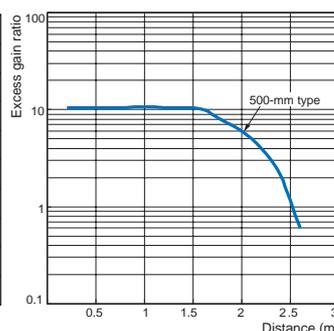


E3Z-B□2/B□7 + E39-R1S Reflector (Order Separately)

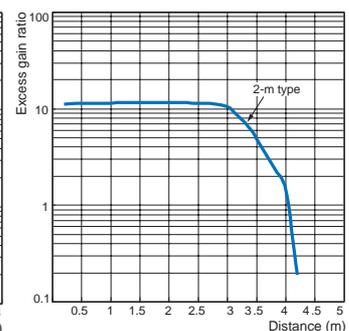


Excess Gain vs. Set Distance

E3Z-B□1/B□6 + E39-R1S Reflector (Order Separately)



E3Z-B□2/B□7 + E39-R1S Reflector (Order Separately)



I/O Circuit Diagrams

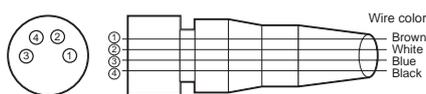
NPN Output

Model	Operation mode	Timing charts	Operation selector	Output circuit
E3Z-B61 E3Z-B62 E3Z-B66 E3Z-B67	Light-ON	Incident light: ON (green bar) No incident light: OFF (white bar) Operation indicator (orange): ON (green bar) OFF (white bar) Output transistor: ON (green bar) OFF (white bar) Load Operate (e.g., relay) Reset: ON (green bar) OFF (white bar) (Between brown and black leads)	L side (LIGHT ON)	Retro-reflective Model
	Dark-ON	Incident light: ON (green bar) No incident light: OFF (white bar) Operation indicator (orange): ON (green bar) OFF (white bar) Output transistor: ON (green bar) OFF (white bar) Load Operate (e.g., relay) Reset: ON (green bar) OFF (white bar) (Between brown and black leads)	D side (DARK ON)	Connector Pin Arrangement: e-CON Connector Pin Arrangement: Pin 2 is not used.

PNP Output

Model	Operation mode	Timing charts	Operation selector	Output circuit
E3Z-B81 E3Z-B82 E3Z-B86 E3Z-B87	Light-ON	Incident light: ON (green bar) No incident light: OFF (white bar) Operation indicator (orange): OFF (white bar) Output transistor: ON (green bar) OFF (white bar) Load Operate (e.g., relay) Reset: ON (green bar) OFF (white bar) (Between blue and black leads)	L side (LIGHT ON)	Retro-reflective Model
	Dark-ON	Incident light: ON (green bar) No incident light: OFF (white bar) Operation indicator (orange): OFF (white bar) Output transistor: ON (green bar) OFF (white bar) Load Operate (e.g., relay) Reset: ON (green bar) OFF (white bar) (Between blue and black leads)	D side (DARK ON)	Connector Pin Arrangement: Pin 2 is not used.

Plugs (Sensor I/O Connectors)



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



E39-ECON□M



E39-ECONW□M

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

Note: Pin 2 is not used.

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2008.11

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