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# E3Z-G

## Photoelectric Sensor with Grooved Design and Easy Settings



- Groove-type Sensor with groove width of 25 mm.
- Models are available with one or two light axes.
- Models are available with M8 pre-wired connectors.



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

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

## Ordering Information

**Sensors** (Refer to *Dimensions* on page 4.)

Infrared light

Sensing method	Appearance	Connection method	Sensing distance	No. of optical axes	Model	
					NPN output	PNP output
Through-beam		Pre-wired (2 m)		1	E3Z-G61 2M *1 *2	E3Z-G81 2M *1 *2
		Pre-wired Connector (M8, 4 pins)			E3Z-G61-M3J 0.3M	E3Z-G81-M3J 0.3M
		Pre-wired (2 m)		2	E3Z-G62 2M *1	E3Z-G82 2M *1
		Pre-wired Connector (M8, 4 pins)			E3Z-G62-M3J 0.3M	E3Z-G82-M3J 0.3M

\*1. M12 Standard Pre-wired Connector Models are also available. When ordering, add "-M1J 0.3M" to the end of the model number (e.g., E3Z-G61-M1J 0.3M). The cable is 0.3 m long.

\*2. M12 Pre-wired Smartclick Connector Models are also available. When ordering, add "-M1TJ 0.3M" to the end of the model number (e.g., E3Z-G61-M1TJ 0.3M). The cable is 0.3 m long.

## Accessories (Order Separately)

### Sensor I/O Connectors (Sockets on One Cable End)

(Models with Pre-wired Connectors: A Connector is not provided with the Sensor. Be sure to order a Connector separately.) (Refer to *Dimensions* on XS3.)

Cable specification	Appearance	Type of cable	Model
Standard cable		2 m	XS3F-M421-402-A
		5 m	XS3F-M421-405-A
		2 m	XS3F-M422-402-A
		5 m	XS3F-M422-405-A
Vibration-proof robot cable		2 m	XS3F-M421-402-R
		5 m	XS3F-M421-405-R
		2 m	XS3F-M422-402-R
		5 m	XS3F-M422-405-R

Note: Refer to *Introduction to Sensor I/O Connectors/Sensor Controllers* for details.

### Protective Bracket

A Protective Bracket is not provided with the Sensor. Order a Protective Bracket separately if required. (Refer to *Dimensions* on E39-L/E39-S/E39-R)

Appearance	Model	Applicable model
	E39-L149	E3Z-G

## Ratings and Specifications

Number of optical axes		1	2
Item	Model	E3Z-G61/E3Z-G61-M3J	E3Z-G62/E3Z-G62-M3J
		E3Z-G81/E3Z-G81-M3J	E3Z-G82/E3Z-G82-M3J
Sensing distance (distance between arms of groove)		25 mm	
Standard sensing object		Opaque, 1.5-mm dia. min.	
Light source (wavelength)		Infrared LED (940 nm)	
Power supply voltage		12 to 24 VDC±10%, ripple (p-p): 10% max.	
Current consumption		25 mA max.	40 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) Light-ON/Dark-ON selectable	
Protection circuits		Reversed power supply polarity protection, Output short-circuit protection, and Mutual interference prevention	
Response time		Operate or reset: 1 ms max.	
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 between lead wires and case	
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between lead wires and case	
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 <sup>2</sup> 3 times each in X, Y, and Z directions	
Degree of protection		IP64 (IEC 60529)	
Connection method		Pre-wired cable (standard length: 2 m and 0.5 m)/Pre-wired Connector (standard length: 300 mm)	
Indicator		Operation indicator (orange)	
Weight (packed state)	Pre-wired (with 2-m cable)	Approx. 65 g	
	Pre-wired Connectors	Approx. 30 g	
Material	Case	ABS (Acrylonitril Butadiene Styrene)	
Accessories		Instruction manual	

I/O Circuit Diagrams

NPN Output

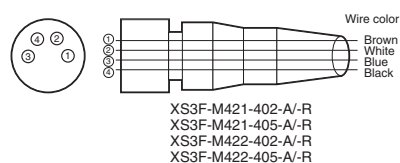
No. of optical axes/model	Operation mode	Timing charts	Operation selector	Output circuit
1 axis E3Z-G61 E3Z-G61-M3J	Light-ON	<p>Incident light ON, No incident light OFF, Operation indicator (orange) ON, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between brown ① and black ④ leads)</p>	L side (LIGHT ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
	Dark-ON	<p>Incident light OFF, No incident light ON, Operation indicator (orange) OFF, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between brown ① and black ④ leads)</p>	D side (DARK ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
2 axes E3Z-G62 E3Z-G62-M3J	Light-ON	<p>Incident light ON, No incident light OFF, Operation indicator (orange) ON, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between brown ① and black ④ (white ②) leads)</p>	L side (LIGHT ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
	Dark-ON	<p>Incident light OFF, No incident light ON, Operation indicator (orange) OFF, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between brown ① and black ④ (white ②) leads)</p>	D side (DARK ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>

PNP Output

No. of optical axes/model	Operation mode	Timing charts	Operation selector	Output circuit
1 axis E3Z-G81 E3Z-G81-M3J	Light-ON	<p>Incident light ON, No incident light OFF, Operation indicator (orange) OFF, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between blue ③ and black ④ leads)</p>	L side (LIGHT ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
	Dark-ON	<p>Incident light OFF, No incident light ON, Operation indicator (orange) ON, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between blue ③ and black ④ leads)</p>	D side (DARK ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
2 axes E3Z-G82 E3Z-G82-M3J	Light-ON	<p>Incident light ON, No incident light OFF, Operation indicator (orange) OFF, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between blue ③ and black ④ (white ②) leads)</p>	L side (LIGHT ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>
	Dark-ON	<p>Incident light OFF, No incident light ON, Operation indicator (orange) ON, Control output ON, Output transistor OFF, Load Operate (e.g., relay) Reset. (Between blue ③ and black ④ (white ②) leads)</p>	D side (DARK ON)	<p>Connector Pin Arrangement</p> <p>Pin 2 is not used.</p>

## Plugs (Sensor I/O Connectors)

### M8 connector



### Pin arrangement

Classification	Wire color	Connector pin No.	Application	
			1-axis models	2-axis models
DC	Brown	1	Power supply (+V)	
	White	2	---	Output 2 (S2)
	Blue	3	Power supply (0 V)	
	Black	4	Output	Output 1 (S1)

Note: Pin 2 of 1-axis models is not used.

## Safety Precautions

### Refer to *Warranty and Limitations of Liability*.

#### ⚠ WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



#### Precautions for Correct Use

- Do not use the product in atmospheres or environments that exceed product ratings.
- The degree of protection for this Product is IP64 (IEC). The degree of protection for other models in the E3Z Series is IP67.

## Dimensions

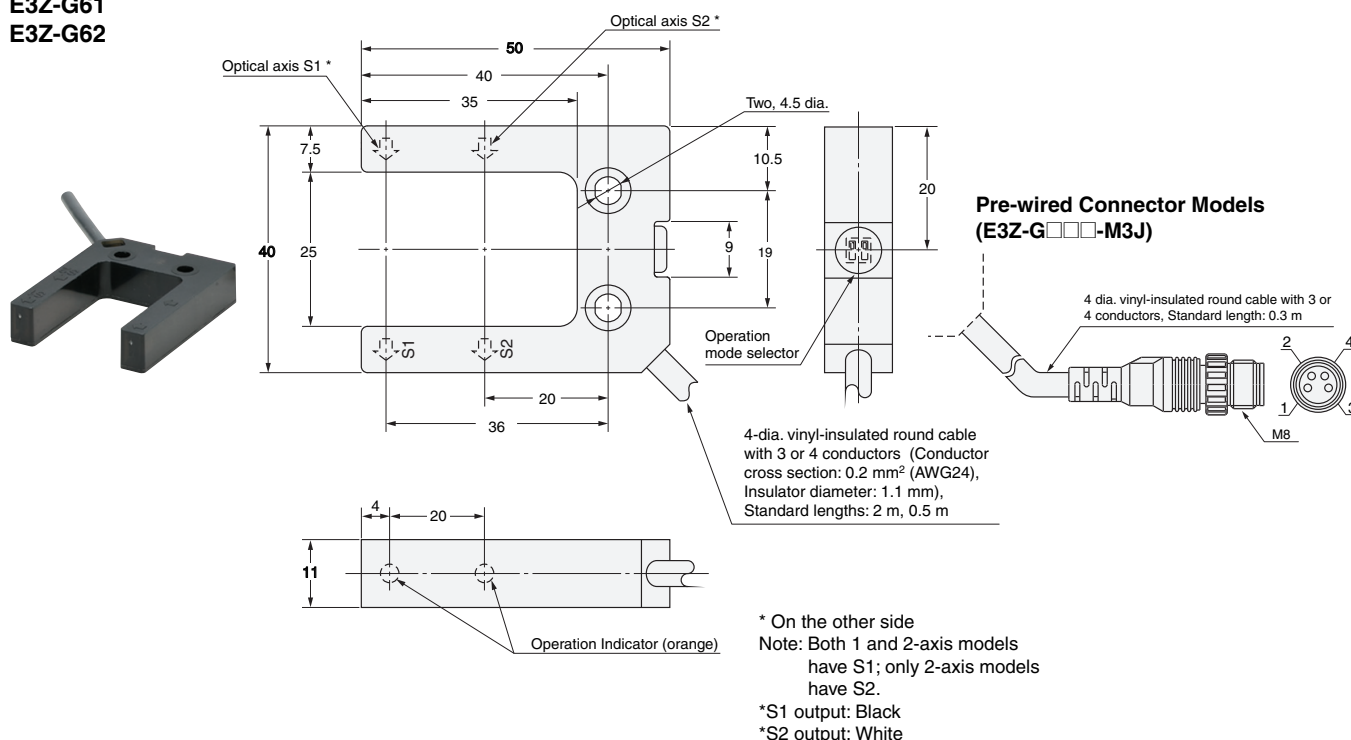
(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

## Sensors

### E3Z-G61

### E3Z-G62



## Accessories (Order Separately)

### Mounting Brackets

Refer to E39-L for details.

### Sensor I/O Connectors

Refer to XS3F for details.

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