

## Grooved-type Photoelectric Sensor

## E3Z-G

- Grooved design eliminates the need for optical axis adjustment.
- Two-axis models also available.
- Ideal for detection and positioning for cranes and conveyor systems in automated warehouses.



## Ordering Information

### ■ Sensor Unit

Sensing method	Appearance	Connection method	Sensing distance	Number of optical axes	Model	
					NPN output	PNP output
Through-beam		Pre-wired (0.5/2 m)	25 mm	1	E3Z-G61	E3Z-G81
		Junction connector			E3Z-G61-M3J	E3Z-G81-M3J
		Pre-wired (0.5/2 m)		2	E3Z-G62	E3Z-G82
		Junction connector			E3Z-G62-M3J	E3Z-G82-M3J

**Note:** 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-G61 0.5M).

### ■ Accessories (Order Separately)

#### Sensor I/O Connector

Cable specifications	Appearance	Type of cable		Model
Standard cable	Straight	2 m	Four-core cable	XS3F-M421-402-A
		5 m		XS3F-M421-405-A
	L-shape	2 m		XS3F-M422-402-A
		5 m		XS3F-M422-405-A

## Specifications

### ■ Ratings/Characteristics

Item	Sensing method	Through beam (grooved type)			
	Number of optical axes	1		2	
	NPN output	E3Z-G61	E3Z-G61-M3J	E3Z-G62	E3Z-G62-M3J
	PNP output	E3Z-G81	E3Z-G81-M3J	E3Z-G82	E3Z-G82-M3J
<b>Sensing distance</b>	25 mm (distance between arms of groove)				
<b>Light source (wave length)</b>	Infrared LED (940 nm)				
<b>Power supply voltage</b>	12 to 24 VDC±10% including 10% (p-p) max. ripple				
<b>Current consumption</b>	25 mA max.		40 mA max.		
<b>Control output</b>	Load power supply voltage: 26.4 VDC max. Load current: 100 mA max. (Residual voltage: 1 V max.) L-ON/D-ON selectable (With 2-axis models, L-ON or D-ON can be selected for each axis.)				
<b>Circuit protection</b>	Protection from reversed power supply connection, output short-circuits, and mutual interference.				
<b>Response time</b>	Operation or reset: 1 ms max.				

Item	Sensing method Number of optical axes NPN output PNP output	Through beam (grooved type)			
		1		2	
		E3Z-G61	E3Z-G61-M3J	E3Z-G62	E3Z-G62-M3J
		E3Z-G81	E3Z-G81-M3J	E3Z-G82	E3Z-G82-M3J
Ambient illumination (receiver side)	Incandescent lamp: 3,000 lux max. Sunlight: 10,000 lux max.				
Ambient temperature	Operating: -25 to 55°C/Storage: -40 to 70°C (with no icing or condensation)				
Ambient humidity	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				
Enclosure rating	IP64 (IEC60529)				
Connection method	Pre-wired cable (length: 2 m or 0.5 m)		Junction connector	Pre-wired cable (length: 2 m or 0.5 m)	
Indicator	Operation indicator (orange)				
Weight (packed state)	Pre-wired models (with 2-m cable): 65 g Models with junction connectors: 30 g				
Material	ABS				
Accessories	Instruction sheet				

## Operation

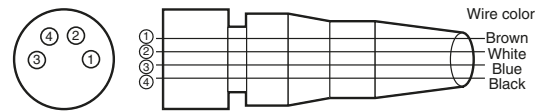
### ■ Output Circuits (NPN Output)

No. of optical axes/model	Output transistor status	Timing chart	Mode selector	Output circuit
1 axis E3Z-G61 E3Z-G61-M3J	Light ON		LIGHT ON (L/ON)	<p><b>Connecting Pin Arrangement</b></p> <p><b>Note:</b> Pin 2 is not used.</p>
	Dark ON		DARK ON (D/ON)	<p><b>Connector Pin Arrangement</b></p>
2 axes E3Z-G62 E3Z-G62-M3J	Light ON		LIGHT ON (L/ON)	<p><b>Connector Pin Arrangement</b></p>
	Dark ON		DARK ON (D/ON)	<p><b>Connector Pin Arrangement</b></p>

■ Output Circuits (PNP Output)

No. of optical axes/model	Output transistor status	Timing chart	Mode selector	Output circuit
1 axis E3Z-G81 E3Z-G81-M3J	Light ON	Incident Interrupted Operation indicator (orange) ON OFF Output transistor ON OFF Load Operate Reset (Between brown and black)	LIGHT ON (L/ON)	<p>Connector Pin Arrangement</p> <p>Note: Pin 2 is not used.</p>
	Dark ON	Incident Interrupted Operation indicator (orange) ON OFF Output transistor ON OFF Load Operate Reset (Between brown and black)	DARK ON (D/ON)	<p>Connector Pin Arrangement</p> <p>Note: Pin 2 is not used.</p>
2 axes E3Z-G82 E3Z-G82-M3J	Light ON	Incident Interrupted Operation indicator (orange) ON OFF Output transistor ON OFF Load Operate Reset (Between brown and black)	LIGHT ON (L/ON)	<p>Connector Pin Arrangement</p>
	Dark ON	Incident Interrupted Operation indicator (orange) ON OFF Output transistor ON OFF Load Operate Reset (Between brown and black)	DARK ON (D/ON)	<p>Connector Pin Arrangement</p>

Structure of Sensor I/O Connector

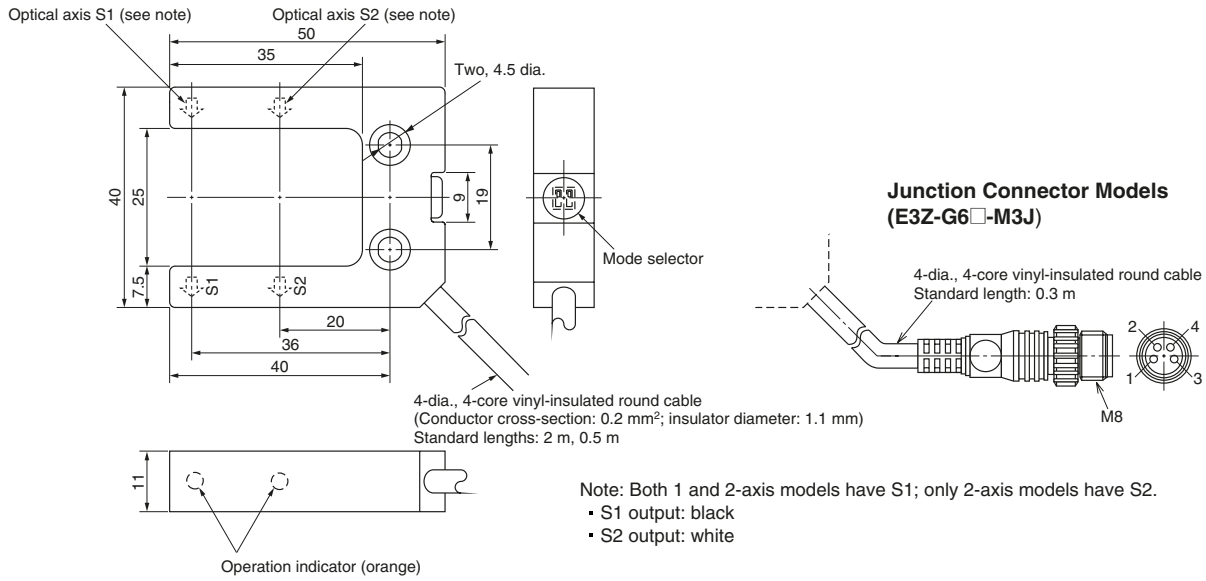


- XS3F-M421-402-A
- XS3F-M421-405-A
- XS3F-M422-402-A
- XS3F-M422-405-A

Classification	Wire color	Connector pin number	Use	
			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.

# Dimensions



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**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. E320-E1-1 **In the interest of product improvement, specifications are subject to change without notice.**

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