

Grooved-Type Photoelectric Sensor

E3Z-G


Grooved Design Eliminates the Need For Optical Axis Adjustment

- One or two axes models available
- Ideal for slowdown, then stop applications
- CE and UL approved
- Prewired or connector versions
- Separate outputs on two-axes models





Ordering Information

■ Sensor Unit

Sensing method	Appearance	Connection method	Sensing distance	Number of optical axes	Part number	
					NPN output	PNP output
Through-beam		Prewired (2 m)	25 mm	1	E3Z-G61	E3Z-G81
		Pigtail with M8 connector			E3Z-G61-M3J	E3Z-G81-M3J
		Prewired (2 m)		2	E3Z-G62	E3Z-G82
		Pigtail with M8 connector			E3Z-G62-M3J	E3Z-G82-M3J

■ Accessories (Order Separately)

Sensor I/O Connector

Cable specifications	Appearance	Type of cable	Part number	
Standard cable	Straight 	2 m	Four-conductor cable	XS3F-M421-402-A
		5 m		XS3F-M421-405-A
	90° right angle 	2 m		XS3F-M422-402-A
		5 m		XS3F-M422-405-A

Specifications

■ Ratings/Characteristics

Photoelectric sensor type	Through beam (grooved type)			
No. of optical axes:	1 optical axis		2 optical axes	
NPN output:	E3Z-G61	E3Z-G61-M3J	E3Z-G62	E3Z-G62-M3J
PNP output:	E3Z-G81	E3Z-G81-M3J	E3Z-G82	E3Z-G82-M3J
Sensing distance	25 mm (0.98 in) distance between arms of groove			
Light source (wave length)	Infrared LED (940 nm)			
Power supply voltage	12 to 24 VDC ±10% (p-p) max. ripple			
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.) L-ON/D-ON switch-selectable (With 2-axes models, L-ON or D-ON can be selected for each axis.)			
Circuit protection	Protection from reversed power supply connection, output short-circuit, and mutual interference.			
Response time	Operation or reset: 1 ms max.			
Minimum object size	1.2 mm dia.			
Repeatability	0.05 mm			
Excess gain	3 to 6 x			

Specifications table - continued from previous page.

Photoelectric sensor type	Through beam (grooved type)			
No. of optical axes:	1 optical axis		2 optical axes	
NPN output:	E3Z-G61	E3Z-G61-M3J	E3Z-G62	E3Z-G62-M3J
PNP output:	E3Z-G81	E3Z-G81-M3J	E3Z-G82	E3Z-G82-M3J
Switching frequency	500 Hz max.			
Ambient illumination (receiver side)	Incandescent lamp: 3,000 lux max. Sunlight: 10,000 lux max.			
Ambient temperature	Operating: -25°C to 55°C (-13 to 131°F) Storage: -40°C to 70°C (-40°F to 158°F) 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 minute between lead wires and case			
Vibration resistance	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions			
Shock resistance	500 m/s ² 3 times each in X, Y, and Z directions			
Enclosure rating	IP64 (IEC60529)			
Approvals	CE, UL			
Connection method	Prewired cable length: 2 m	Pigtail with M8 connector	Prewired cable length: 2 m	Pigtail with M8 connector
Indicator	Operation indicator (orange)			
Weight (packed)	Prewired models (with 2-m cable): 65 g (2.29 oz) Models with junction connectors: 30 g (1.06 oz)			
Material	ABS housing			
Accessories	Instruction sheet			

Operation

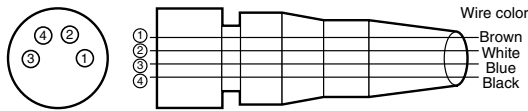
■ Output Circuits (NPN Output)

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>Connecting Pin Arrangement</p> <p>Note: Pin 2 is not used.</p>
	Dark ON		DARK ON (D/ON)	<p>Connector Pin Arrangement</p>
2 axes E3Z-G62 E3Z-G62-M3J	Light ON		LIGHT ON (L/ON)	<p>Connector Pin Arrangement</p>
	Dark ON		DARK ON (D/ON)	<p>Connector Pin Arrangement</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 (relay) 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 (relay) 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 (relay) 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 (relay) Operate Reset (Between brown and black)	DARK ON (D/ON)	<p>Connector Pin Arrangement</p>

Structure of Sensor I/O Connector

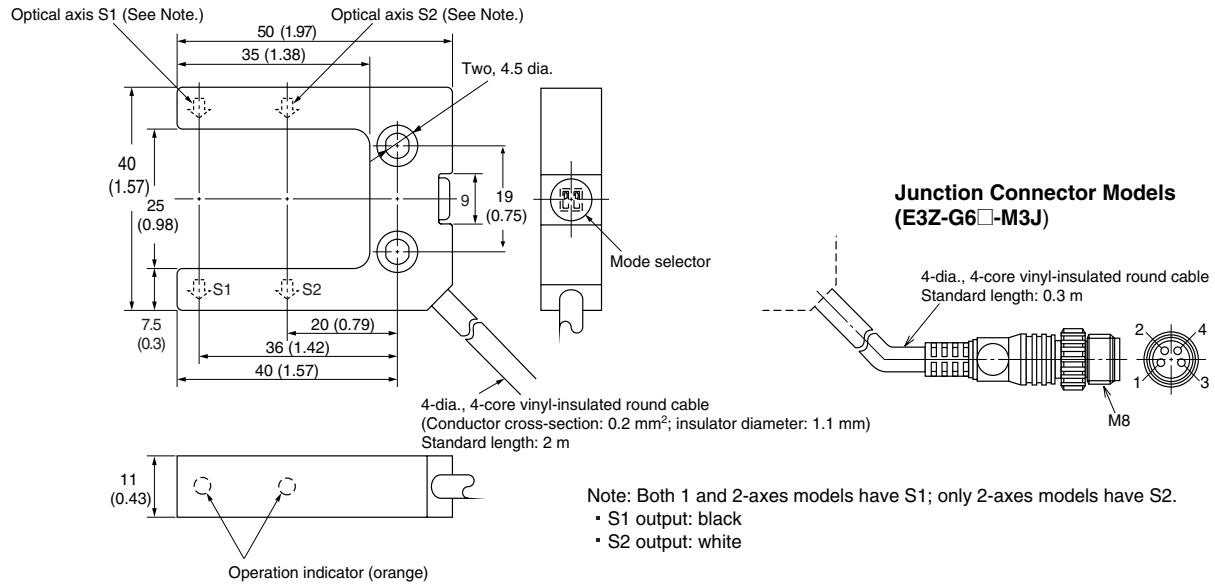


XS3F-M421-402-A
 XS3F-M421-405-A
 XS3F-M422-402-A
 XS3F-M422-405-A

Classification	Wire color	Connector pin number	Use	
			1-axis models	2-axes models
DC	Brown	1	Power supply (+V)	
	White	2	Not used	Output 2 (S2)
	Blue	3	Power supply (0 V)	
	Black	4	Output	Output 1 (S1)

Dimensions

■ 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.

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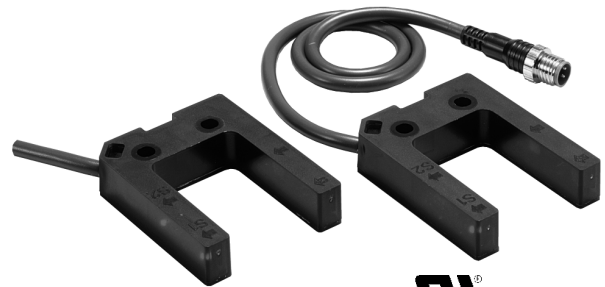
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		Prewired (2 m)		2	E3Z-G62	E3Z-G82
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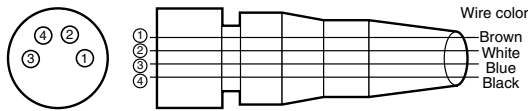
■ Output Circuits (NPN Output)

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 style="text-align: center;">Connecting Pin Arrangement</p> <p style="text-align: center;">Note: Pin 2 is not used.</p>
	Dark ON		DARK ON (D/ON)	<p style="text-align: center;">Connector Pin Arrangement</p>
2 axes E3Z-G62 E3Z-G62-M3J	Light ON		LIGHT ON (L/ON)	<p style="text-align: center;">Connector Pin Arrangement</p>
	Dark ON		DARK ON (D/ON)	<p style="text-align: center;">Connector Pin Arrangement</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 (relay) 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 (relay) Operate Reset (Between brown and black)	DARK ON (D/ON)	
2 axes E3Z-G82 E3Z-G82-M3J	Light ON	Incident Interrupted Operation indicator (orange) ON OFF Output transistor ON OFF Load (relay) 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 (relay) Operate Reset (Between brown and black)	DARK ON (D/ON)	

Structure of Sensor I/O Connector

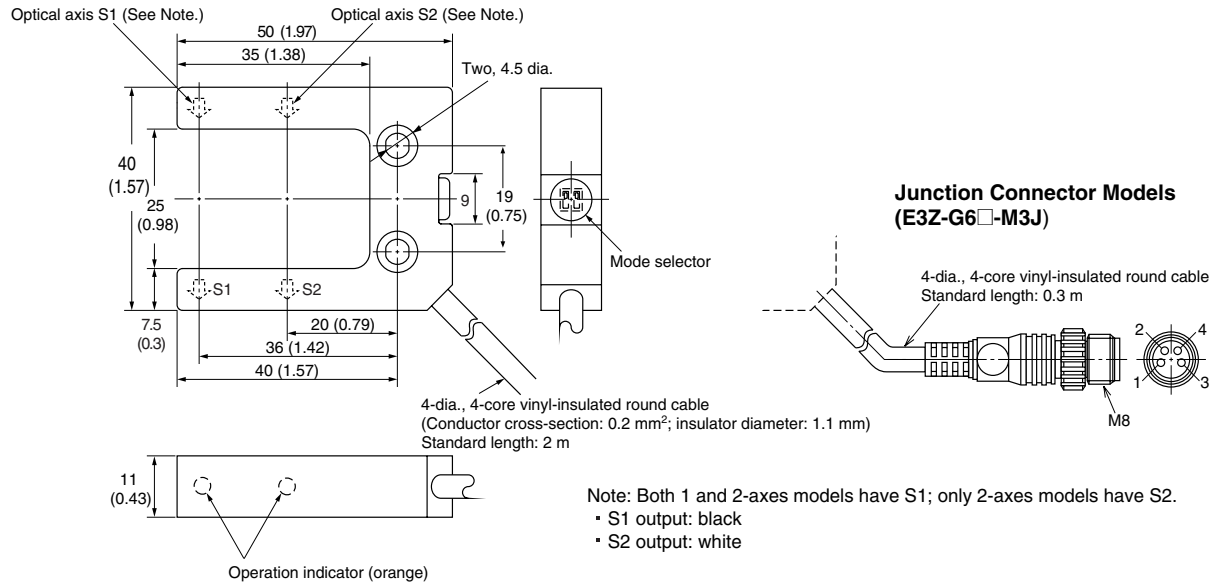


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