Grooved-type Photoelectric Sensor with Built-in Amplifier

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.



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

Ordering Information

page 4.

Sensors (Refer to Dimensions on page 4.)

Be sure to read Safety Precautions on

Sensors (Refer to Dimensions on page 4.)									
Sensing	Appearance	Connection method	Sensing distance				No. of opti-	Model	
method	Appearance	Connection method		Sensing distance			cal axes	NPN output	PNP output
		Pre-wired (2 m)						E3Z-G61 2M *1 *2	E3Z-G81 2M * 1 * 2
Through-beam		Pre-wired Connector (M8, 4 pins)		25	~~~	1	E3Z-G61-M3J 0.3M	E3Z-G81-M3J 0.3M	
iniough beam		Pre-wired (2 m)			231			E3Z-G62 2M *1	E3Z-G82 2M *1
		Pre-wired Connector (M8, 4 pins)	L			2	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 availavble.

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	- 4-wire	XS3F-M421-402-A
	Straight	C Marken	5 m		XS3F-M421-405-A
	L-shape		2 m		XS3F-M422-402-A
			5 m		XS3F-M422-405-A
	Straight	a manual	2 m		XS3F-M421-402-R
Vibration-proof			5 m		XS3F-M421-405-R
robot cable			2 m		XS3F-M422-402-R
	L-shape		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

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Ratings and Specifications

	Number of	of optical axes	1	2				
		NPN output	E3Z-G61/E3Z-G61-M3J	E3Z-G62/E3Z-G62-M3J				
Item	Model	PNP output	E3Z-G81/E3Z-G81-M3J	E3Z-G82/E3Z-G82-M3J				
Sensing distance (distance between arms of groove)			25 mm					
Standard s	Standard sensing object		Opaque, 1.5-mm dia. min.					
Light source	ce (waveler	igth)	Infrared LED (940 nm)					
Power sup	ply voltage		12 to 24 VDC±10%, ripple (p-p): 10% max.					
Current co	nsumption		25 mA max.	40 mA max.				
Control out	tput		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 pre- vention					
Response	time		Operate or reset: 1 ms max.					
Ambient ill (Receiver s			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 hu	umidity ran	ge	Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)					
Insulation	resistance		20 M Ω min. at 500 VDC between lead wires and case					
Dielectric s	strength		1,000 VAC, 50/60 Hz for 1 min between lead wires and case					
Vibration re	esistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions					
Shock resi	stance		Destruction: 500 m/s ² 3 times each in X, Y, and Z directions					
Degree of p	protection		IP64 (IEC 60529)					
Connection	n method		Pre-wired cable (standard length: 2 m and 0.5 m)/Pre-wired Connector (standard length: 300 mm)					
Indicator			Operation indicator (orange)					
Weight Pre-wired (packed (with 2-m cable)			Approx. 65 g					
state) Pre-wired Connectors Approx. 30 g								
Material Case ABS (Acrylonitril Butadiene Styrene)								
MTTFd (Ye	MTTFd (Year)		817					
Accessorie	es		Instruction manual					

I/O Circuit Diagrams

NPN Output

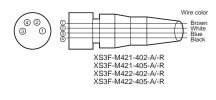
No. of optical axes/model	Operation mode	Timing charts	Operation selector	Output circuit
1 axis E3Z-G61 E3Z-G61-M3J	Light-ON	Incident light No incident light Operation (orange) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between brown ① and black ④ leads)	L side (LIGHT ON)	Operation indicator (orange)
	Dark-ON	Incident light Operation ON (orange) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between brown ① and black ④ leads)	D side (DARK ON)	Connector Pin Arrangement
2 axes E3Z-G62 E3Z-G62-M3J	Light-ON	Incident light Operation ON (orange) OFF Control output ON Output ransistor OFF Load Operate (e.g., relay) Reset (Between brown ① and black ③ (white ②) leads)	L side (LIGHT ON)	Operation indicator S2 Operation indicator S2 (range) Photo- electric Sensor Main Circuit (range) Control output) (S1) Black ToomA Control output) Black (relay) DomA (relay) Control output) (S1) Control output) (S2)
	Dark-ON	Incident light Operation Indicator (orange) OFF Control output ON Output transistor Load Operate (e.g., relay) Reset (Between brown ① and black ③ (white ②) leads)	D side (DARK ON)	Connector Pin Arrangement

PNP Output

No. of optical axes/model	Operation mode	Timing charts	Operation selector	Output circuit
1 axis E3Z-G81 E3Z-G81-M3J	Light-ON	Incident light No incident light Operation (orange) OFF Control output ON Output transistor OFF Load Operate (e.grelay) Reset (Between blue ③ and black ④ leads)	L side (LIGHT ON)	Operation indicator (orange) Photo- electric Sensor Circuit Black (Control output) Black (Control output) Black (Control output) Black (relay) 0 V V V V V V V V V V
	Dark-ON	Incident light Operation ON indicator OFF (orange) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between blue ③ and black ④ leads)	D side (DARK ON)	Connector Pin Arrangement
2 axes E3Z-G82 E3Z-G82-M3J	Light-ON	Incident light No incident light Operation (orange) Control output Output transistor OFF Load (e.g., relay) (Between Dlue () and black () (white (2)) leads)	L side (LIGHT ON)	Operation indicator S2 Operation indicator S1 Operation indicator S1 Operation indicator S1 Operation indicator S1 Operation I2 to 24 VDC White I00mA Corrange White I00mA Corrange I2 to 24 VDC White I00mA Corrange I2 to 24 VDC I2 to 24 VDC I00mA
	Dark-ON	Incident light Operation ON (orange) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between blue ③ and black ④ (white ④) leads)	D side (DARK ON)	(Control output)

Plugs (Sensor I/O Connectors)

M8 connector



Pin arrangement

Classifi-	Wire	Connector	Application		
cation	color	pin No.	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.

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

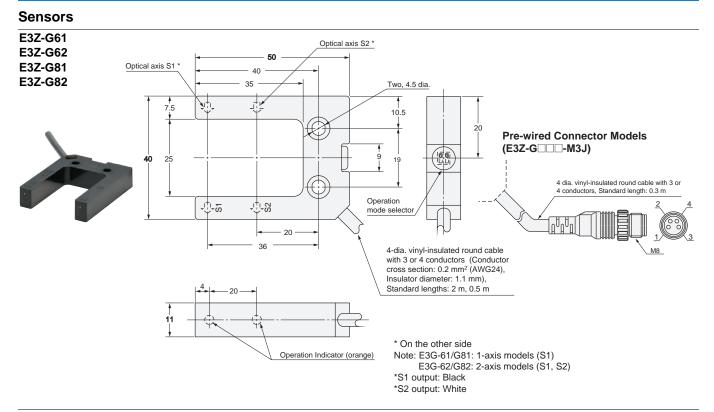


Precautions for Correct Use

- 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.



Accessories (Order Separately)

Mounting Brackets Refer to E39-L for details. Sensor I/O Connectors

Refer to XS3F for details.

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