

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 | | |
| | 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 (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 ² 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

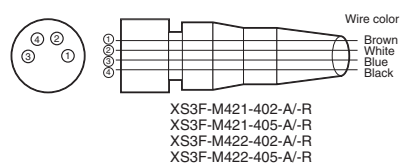
| No. of optical axes/model | Operation mode | Timing charts | Operation selector | Output circuit |
|----------------------------------|----------------|---------------|----------------------|----------------|
| 1 axis E3Z-G61 E3Z-G61-M3J | Light-ON | | L side (LIGHT ON) | |
| | Dark-ON | | D side (DARK ON) | |
| 2 axes E3Z-G62 E3Z-G62-M3J | Light-ON | | L side (LIGHT ON) | |
| | Dark-ON | | D side (DARK ON) | |

PNP Output

| No. of optical axes/model | Operation mode | Timing charts | Operation selector | Output circuit |
|----------------------------------|----------------|---------------|----------------------|----------------|
| 1 axis E3Z-G81 E3Z-G81-M3J | Light-ON | | L side (LIGHT ON) | |
| | Dark-ON | | D side (DARK ON) | |
| 2 axes E3Z-G82 E3Z-G82-M3J | Light-ON | | L side (LIGHT ON) | |
| | Dark-ON | | D side (DARK ON) | |

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.

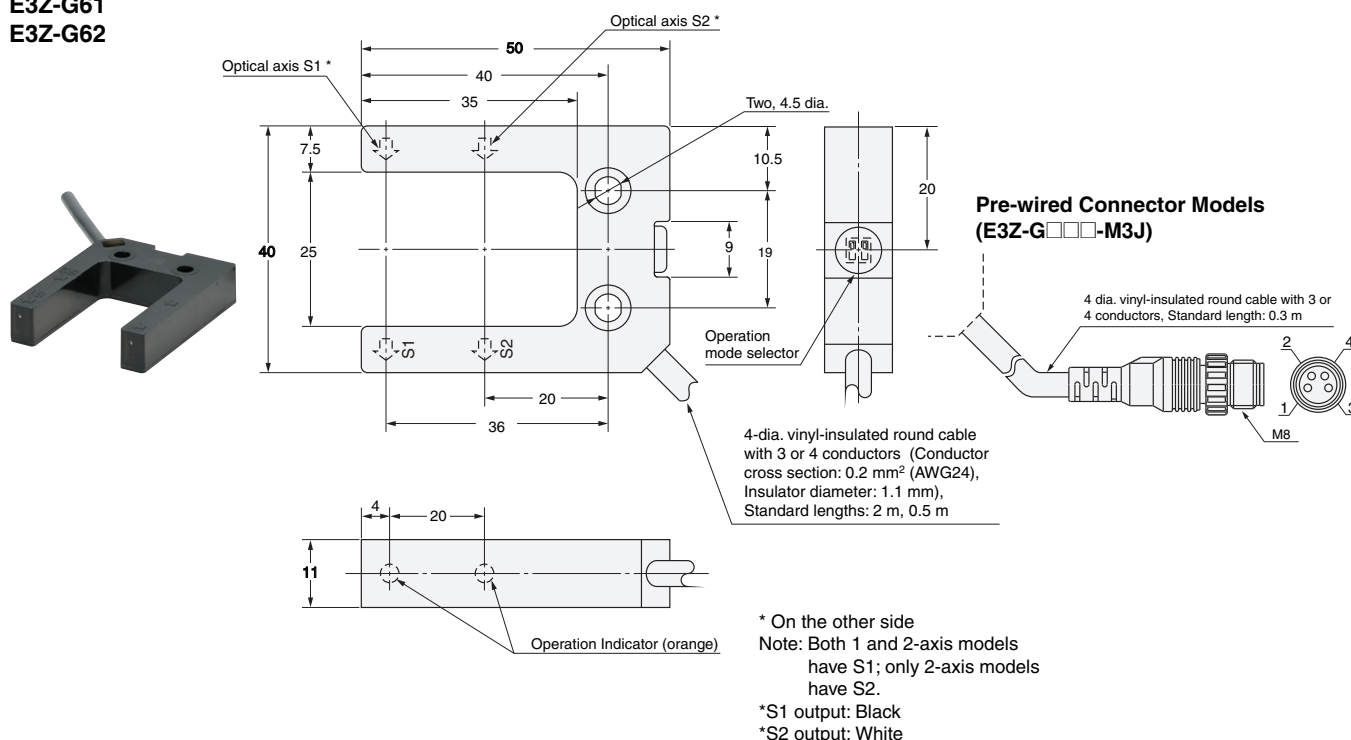
Dimensions

(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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