

Photoelectric Sensor with Built-in Amplifier (Through-beam Type with Red LED)

E3Z-TA

**Visual Beams Allow Visual Confirmation
of the Detection Spot, Making
Installation and Maintenance Easier**

- Mutual interference protection filter included in line-up.
- Sensors can be used in parallel.



Ordering Information

■ Standard Models

| Sensing method | Appearance | Connection method | Sensing distance | Model | |
|----------------|------------|---------------------|------------------|------------|------------|
| | | | | NPN output | PNP output |
| Through-beam | | Pre-wired (0.5/2 m) | | E3Z-T61A | E3Z-T81A |
| | | Connector | | E3Z-T66A | E3Z-T86A |

■ Accessories (Order Separately)

Slit

| Slit width | Sensing distance (typical) | Minimum sensing object (typical) | Model | Quantity |
|-------------|----------------------------|----------------------------------|----------|--|
| 0.5 mm dia. | 35 mm | 0.2 mm dia. | E39-S65A | One for each of the emitter and receiver |
| 1 mm dia. | 150 mm | 0.4 mm dia. | E39-S65B | |
| 2 mm dia. | 550 mm | 0.7 mm dia. | E39-S65C | |
| 0.5×10 mm | 700 mm | 0.2 mm dia. | E39-S65D | |
| 1×10 mm | 1.5 m | 0.5 mm dia. | E39-S65E | |
| 2×10 mm | 3.5 m | 0.8 mm dia. | E39-S65F | |

Mutual Interference Protection Filter

| Sensing distance | Dimensions | Model | Quantity | Remarks |
|------------------|------------|---------|---|---|
| 3 m | | E39-E11 | Two filters each for the emitter and receiver (four in total) | The arrow indicates the direction of polarized light. Mutual interference can be prevented by altering the direction of polarized light from or to adjacent emitters and receivers. |

Specifications

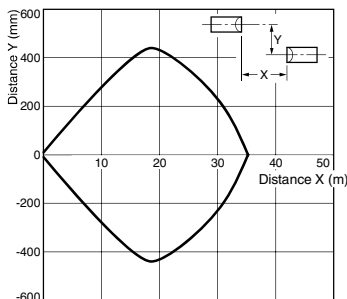
■ Ratings/Characteristics

| Item | Sensing method NPN output PNP output | Through-beam |
|--------------------------------------|--|---|
| | | E3Z-T61A/T66A |
| | | E3Z-T81A/T86A |
| Sensing distance | | 10 m |
| Standard sensing object | | Opaque: 12-mm dia. min. |
| Directional angle | | Both emitter and receiver: 3 to 5° |
| Light source (wave length) | | Red LED (700 nm) |
| Power supply voltage | | 12 to 24 VDC±10% including 10% (p-p) max. ripple |
| Current consumption | | Emitter: 15 mA Receiver: 20 mA |
| 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) L-ON/D-ON selectable |
| Circuit protection | | Protection from load short-circuit and reversed power supply connection |
| Response time | | Operation or reset: 1 ms max. |
| Sensitivity adjustment | | One-turn adjuster |
| Ambient illumination (receiver side) | | Incandescent lamp: 3,000 lx max. sunlight: 10,000 lx max. |
| Ambient temperature | | Operating: -25° C to 55° C/Storage: -40° C 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 |
| Dielectric strength | | 1,000 VAC, 50/60 Hz for 1 min |
| Vibration resistance | | 10 to 55 Hz, 1.5-mm double amplitude or 300 m/s ² 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 | | IP67 (IEC60529) |
| Connection method | | Pre-wired cable (length: 2 m or 500 mm)/M8 connector |
| Indicator | | Operation indicator (orange) Stability indicator (green) Emitter has power indicator (orange) only. |
| Weight (packed state) | Pre-wired cable (2 m) | Approx. 120 g |
| | Connector | Approx. 30 g |
| Material | Case | PBT (polybutylene terephthalate) |
| | Lens | Methacrylate resin |
| Accessories | | Instruction manual (The Reflector or Mounting Bracket is not provided with any of the above models.) |

Engineering Data

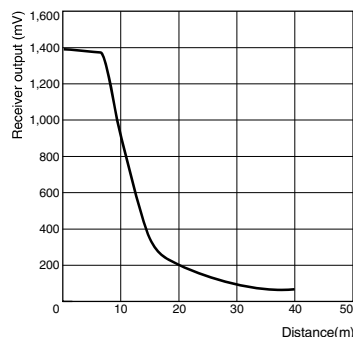
■ Parallel Operating Range (Typical)

E3Z-T□A



■ Receiver Output vs. Distance (Typical)

E3Z-T□A



Operation

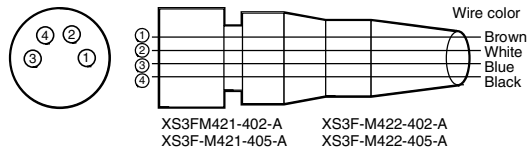
■ NPN Output

| | | |
|---------------------------------|---|----------------|
| Model | E3Z-T61A/E3Z-T66A | |
| Output transistor status | Light ON | Dark ON |
| Timing chart | | |
| Mode selector | Light ON (L/ON) | Dark ON (D/ON) |
| Output circuit | <p style="text-align: center;">Connector Pin Arrangement</p> <p style="text-align: center;">Pin 2 is open.</p> | |

■ PNP Output

| | | |
|---------------------------------|---|----------------|
| Model | E3Z-T81A/T86A | |
| Output transistor status | Light ON | Dark ON |
| Timing chart | | |
| Mode selector | Light ON (L/ON) | Dark ON (D/ON) |
| Output circuit | <p style="text-align: center;">Connector Pin Arrangement</p> <p style="text-align: center;">Pin 2 is open.</p> | |

Structure of Sensor I/O Connector



| Classification | Wire color | Connector pin No. | Use |
|----------------|------------|-------------------|--------------------|
| DC | Brown | ① | Power supply (+V) |
| | White | ② | --- |
| | Blue | ③ | Power supply (0 V) |
| | Black | ④ | Output |

Note: Pin 2 is not used.

Dimensions

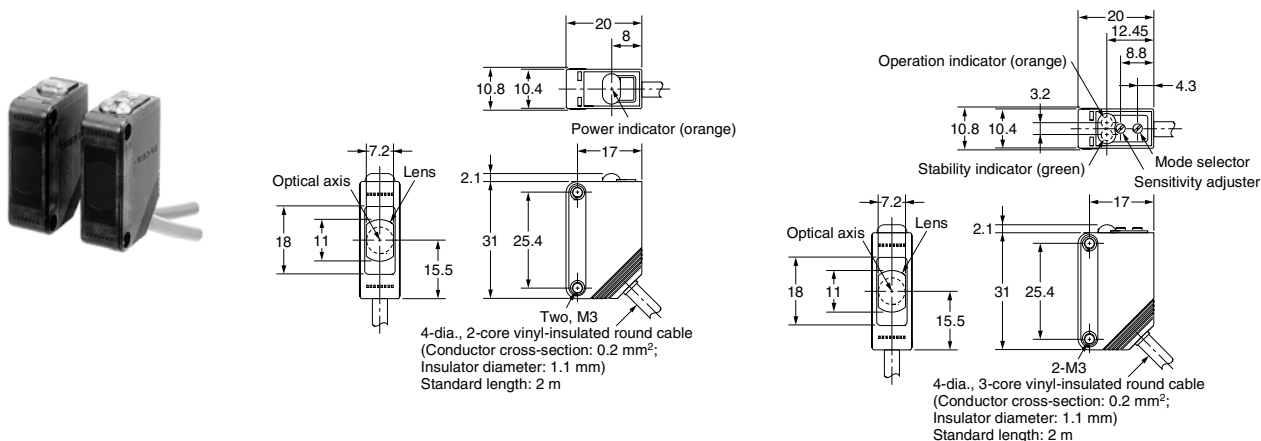
Note: All units are in millimeters unless otherwise indicated.

■ Sensors

Pre-wired Through-beam Models

E3Z-T61A

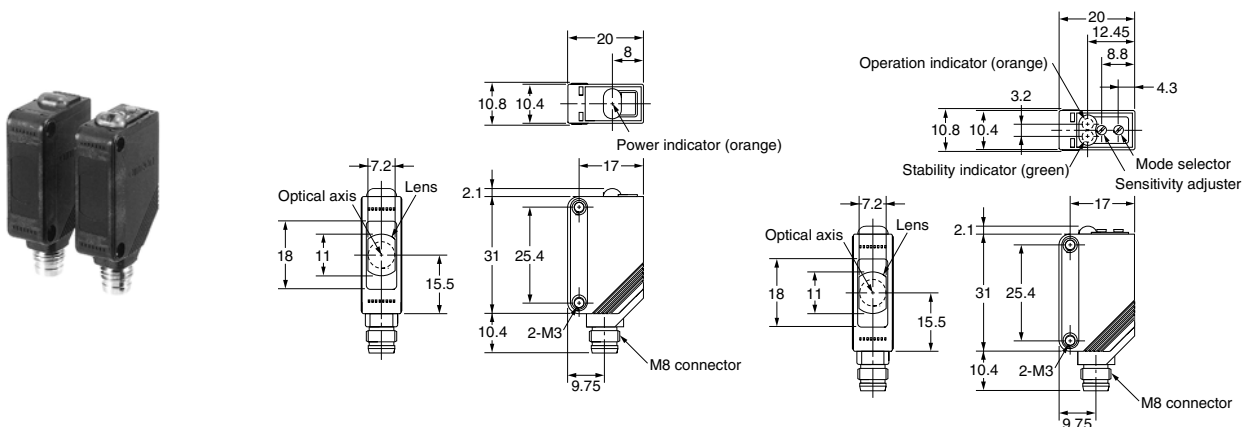
E3Z-T81A



Through-beam Models with Connector

E3Z-T66A

E3Z-T86A



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. E319-E1-1A In the interest of product improvement, specifications are subject to change without notice.

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