

## 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

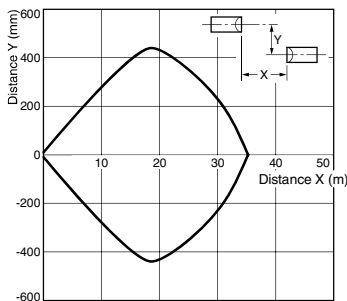
## ■ Ratings/Characteristics

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 <sup>2</sup> 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	
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

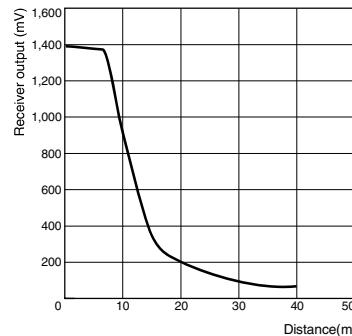
### ■ Parallel Operating Range (Typical)

E3Z-T□A



### ■ Receiver Output vs. Distance (Typical)

E3Z-T□A



# Operation

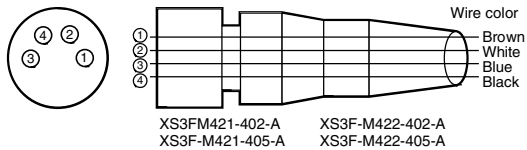
## ■ NPN Output

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

## ■ PNP Output

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

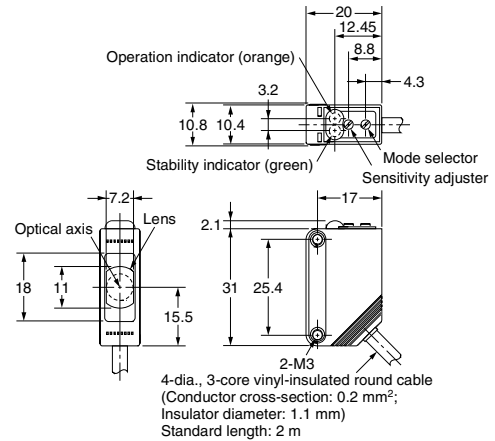
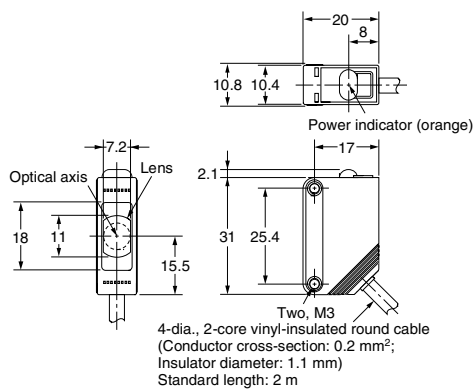
**Note:** All units are in millimeters unless otherwise indicated.

## ■ Sensors

### Pre-wired Through-beam Models

E3Z-T61A

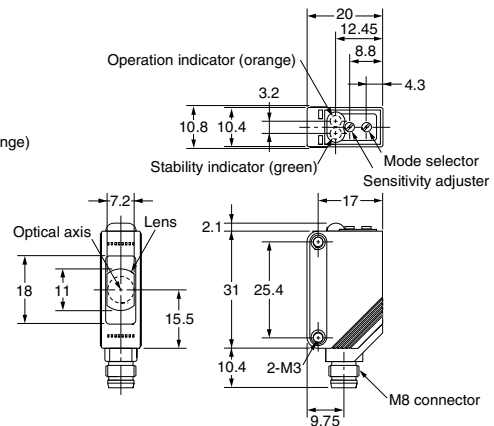
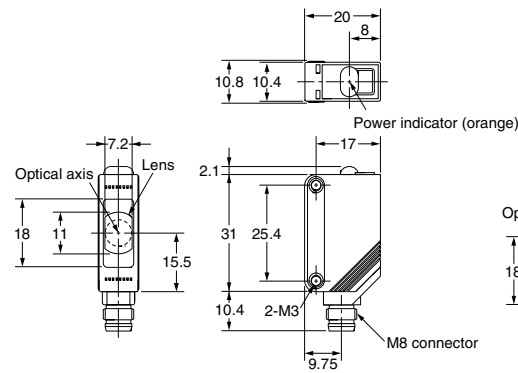
E3Z-T81A



### 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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