Laser Photoelectric Sensor with Built-in Amplifier

**E3Z-Laser**

*Compact photoelectric sensor with LASER light*

The E3Z LASER sensor in compact plastic housing features visible LASER light for precision positioning and detection applications.
- Visible LASER light for precision positioning and small object detection
- High power LED for high functional reserve

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**Features**

**Through-beam and Retroreflective Sensors**

**Greatly Enhanced Beam Visibility for Easier Optical Axis Adjustment of Sensors**
- The optical design maximizes the linear propagation of laser beams. Red laser beams (class 1) can be precisely aligned on the targeted position.
- The functional reserve of the rated through-beam sensing distance of 60 m provides sufficient allowance, enabling Through-beam Models to be used reliability even in dusty environments.

**Reliable Detection of Small Objects and Narrow Gaps with the Small Spot**
- The spot diameter for Through-beam and Retro-reflective Models is 5 mm (a typical example at 3 m), making it possible to detect small workpieces at long distances.
- The sensing distance for Retro-reflective Models is 15 m (when an E39-R1S Reflector is used). This is the longest leeway in the industry.

Detect the sides of large tiles.

Count bottles.
BGS Models
Long-distance Sensing at 300 mm (White Paper)

A Low Black/White Error for Applications with Mixed Colors
- A black/white error as low as 5% makes detection and operation more stable.

Easy Detection of Small Workpieces and Minor Differences in Levels with the Small Spot
- Stable detection is possible with no influence from a glossy background frame.
- The spot diameter for BGS models is 0.5 mm (typical example at 300 mm). Combined with an hysteresis of only 5%, even minute differences can be detected.
- Models with a response time of 0.5 ms (E3Z-LL3/LL8) are available as standard models for fast-moving objects.

Advanced Optical Technology of the E3Z Laser
Laser beam directional deviation can be suppressed and spot diameters can be freely customized. This is achieved through high-precision alignment technology based on LD and emitter lens modularization. The lens position can be adjusted inline. (Patent pending.)

Laser Diagram Conceptual Diagram
By precisely adjusting the emitter lens in the vertical, horizontal, and depth directions, alignment can be achieved with minimal directional deviation (to ±1 degree).
## Ordering Information

### Sensors

<table>
<thead>
<tr>
<th>Sensing method</th>
<th>Appearance</th>
<th>Connection method</th>
<th>Response time</th>
<th>Sensing distance</th>
<th>Model</th>
<th>NPN output</th>
<th>PNP output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through-beam</td>
<td></td>
<td>Pre-wired (2 m)*1</td>
<td></td>
<td></td>
<td>E3Z-LT61</td>
<td>E3Z-LT81</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standard M8 Connector</td>
<td></td>
<td></td>
<td>E3Z-LT66</td>
<td>E3Z-LT86</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 ms</td>
<td></td>
<td>E3Z-LR61</td>
<td>E3Z-LR81</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3Z-LR66</td>
<td>E3Z-LR86</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3Z-LL61</td>
<td>E3Z-LL81</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3Z-LL66</td>
<td>E3Z-LL86</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3Z-LL63</td>
<td>E3Z-LL83</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3Z-LL68</td>
<td>E3Z-LL88</td>
<td></td>
</tr>
</tbody>
</table>

*1. Pre-wired Models with a 0.5-m cable are also available for these products. When ordering, specify the cable length by adding “0.5M” to the end of the model number (e.g., E3Z-LT61 0.5M). M12 Pre-wired Connector Models are also available. When ordering, add “-M1J” to the end of the model number (e.g., E3Z-LT61-M1J). The cable is 0.3 m long.

*2. Consult with your OMRON representative if a distance of more than 10 m is required. Models with large custom-size spots can be produced. These make optical axis adjustment easier and allow the beam to be received more stably by the Receiver even if vibration is present.

*3. The Reflector is sold separately. Select the Reflector model most suited to the application.

*4. Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

### Accessories (Order Separately)

#### Slits (for E3Z-LT□□□)

<table>
<thead>
<tr>
<th>Slit width</th>
<th>Sensing distance</th>
<th>Minimum detectable object (typical)</th>
<th>Model</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 mm dia.</td>
<td>3 m</td>
<td>0.1 mm dia.</td>
<td>E39-S65A</td>
<td>One set (contains Slits for both the Emitter and Receiver)</td>
</tr>
</tbody>
</table>

#### Reflectors (for E3Z-LR□□□)

<table>
<thead>
<tr>
<th>Name</th>
<th>Sensing distance (typical)</th>
<th>Model</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflector</td>
<td>15 m (300 mm)</td>
<td>E39-R1S</td>
<td>• Retro-reflective models are not provided with Reflectors.</td>
</tr>
<tr>
<td></td>
<td>7 m (200 mm)</td>
<td>E39-R12</td>
<td>• Separate the Sensor and the Reflector by at least the distance given in parentheses.</td>
</tr>
<tr>
<td></td>
<td>7 m (200 mm)</td>
<td>E39-R6</td>
<td>• The MSR function is enabled.</td>
</tr>
</tbody>
</table>
Mounting Brackets

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Model</th>
<th>Quantity</th>
<th>Remarks</th>
<th>Appearance</th>
<th>Model</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E39-L153</td>
<td>1</td>
<td>Mounting Brackets</td>
<td></td>
<td>E39-L98</td>
<td>1</td>
<td>Metal Protective Cover Bracket *1</td>
</tr>
<tr>
<td></td>
<td>E39-L104</td>
<td>1</td>
<td></td>
<td></td>
<td>E39-L150</td>
<td>1 set</td>
<td>(Sensor adjuster)</td>
</tr>
<tr>
<td></td>
<td>E39-L43</td>
<td>1</td>
<td>Horizontal Mounting Bracket*1</td>
<td></td>
<td>E39-L151</td>
<td>1 set</td>
<td>Easily mounted to the aluminum frame rails of conveyors and easily adjusted.</td>
</tr>
<tr>
<td></td>
<td>E39-L142</td>
<td>1</td>
<td>Horizontal Protective Cover Bracket*1</td>
<td></td>
<td>E39-L144</td>
<td>1</td>
<td>Compact Protective Cover Bracket (For E3Z only) *1</td>
</tr>
<tr>
<td></td>
<td>E39-L44</td>
<td>1</td>
<td>Rear Mounting Bracket</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1. Cannot be used for Standard Connector models.

Note: When using Through-beam models, order one bracket for the Receiver and one for the Emitter.

Sensor I/O Connectors

(Please refer to accessory datasheet E26E-EN-01 for a complete overview of all available sensor connectors)

<table>
<thead>
<tr>
<th>Size</th>
<th>Cable</th>
<th>Appearance</th>
<th>Cable type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 m</td>
<td>XS3-M421-402-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 m</td>
<td>XS3-M421-405-A</td>
</tr>
<tr>
<td>M8</td>
<td>Standard</td>
<td>Straight</td>
<td>2 m</td>
<td>XS3F-M422-402-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L-shaped</td>
<td>2 m</td>
<td>XS3F-M422-405-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 m</td>
<td></td>
</tr>
<tr>
<td>M12</td>
<td></td>
<td>Straight</td>
<td>2 m</td>
<td>XS2-D421-DC0-A</td>
</tr>
<tr>
<td>(For -M1J</td>
<td></td>
<td>L-shaped</td>
<td>2 m</td>
<td>XS2-D421-GC0-A</td>
</tr>
<tr>
<td>models)</td>
<td></td>
<td></td>
<td>5 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3-wire</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 m</td>
<td>XS2-D422-DC0-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 m</td>
<td>XS2-D422-GC0-A</td>
</tr>
</tbody>
</table>
## E3Z Laser Models

### Ratings and Specifications

<table>
<thead>
<tr>
<th>Sensing method</th>
<th>Through-beam</th>
<th>Retro-reflective with MSR function</th>
<th>Distance-settable (BGS models)</th>
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</thead>
<tbody>
<tr>
<td>Response Item</td>
<td>Standard response</td>
<td>High-speed response</td>
<td></td>
</tr>
<tr>
<td>NPN output</td>
<td>E3Z-LT61/-LT66</td>
<td>E3Z-LR61/-LR66</td>
<td>E3Z-LL61/-LL66</td>
</tr>
<tr>
<td>PNP output</td>
<td>E3Z-LT81/-LT86</td>
<td>E3Z-LR81/-LR86</td>
<td>E3Z-LL81/-LL86</td>
</tr>
</tbody>
</table>

#### Sensing distance
- Through-beam: 60 m \(^1\)
  - (when using E39-R1): 0.2 to 7 m
  - (when using E39-R12): 0.2 to 7 m
  - (when using E39-R6): 0.3 to 15 m
- Retro-reflective with MSR function:
  - White paper: 100 × 100 mm): 20 to 300 mm
  - Black paper: 100 × 100 mm): 20 to 160 mm
- Distance-settable (BGS models):
  - White paper: 100 × 100 mm): 25 to 300 mm
  - Black paper: 100 × 100 mm): 25 to 100 mm

#### Set distance range
- Through-beam: 0.2 to 7 m
  - (when using E39-R1): 0.2 to 7 m
  - (when using E39-R12): 0.2 to 7 m
- Retro-reflective with MSR function:
  - White paper: 100 × 100 mm): 40 to 300 mm
  - Black paper: 100 × 100 mm): 40 to 160 mm
- Distance-settable (BGS models):
  - White paper: 100 × 100 mm): 40 to 300 mm
  - Black paper: 100 × 100 mm): 40 to 100 mm

#### Spot diameter (typical)
- Through-beam: 5 mm dia. at 3 m
- Retro-reflective with MSR function: 0.5 mm dia. at 300 mm

#### Standard sensing object
- Opaque: 12 mm dia. min.
- Opaque: 75 mm dia. min.

#### Minimum detectable object (typical)
- 6 mm dia. opaque object at 3 m
- 0.2 mm dia. stainless-steel pin gauge at 300 mm

#### Differential travel
- 5% max. of set distance

#### Black/white error
- 5% at 160 mm
- 5% at 100 mm

#### Directional angle
- Receiver: 3 to 15°

#### Light source (wavelength)
- Red LED (655 nm), JIS Class 1, IEC Class 1, FDA Class II

#### Power supply voltage
- 12 to 24 VDC ±10%, ripple (p-p): 10% max.

#### Current consumption
- Emitter: 15 mA
- Receiver: 20 mA
- 30 mA max.

#### Control output
- Load power supply voltage: 26.4 VDC max., Load current: 100 mA max., Open collector output
- Load current of less than 10 mA: 1 V max.
- Load current of 10 to 100 mA: 2 V max.

#### Output mode switching
- Switch to change between light-ON and dark-ON

#### Protection circuits
- Reversed power supply polarity protection, Output short-circuit protection, and Reversed output polarity protection
- Reversed power supply polarity protection, Output short-circuit protection, Mutual interference prevention, and Reversed output polarity protection

#### Response time
- Operate or reset: 1 ms max.
- Operate or reset: 0.5 ms max.

#### Sensitivity adjustment
- One-turn adjuster
- Five-turn endless adjuster

#### Ambient illumination (Receiver side)
- Incandescent lamp: 3,000 lx max.
- Sunlight: 10,000 lx max.

#### Ambient temperature range
- Operating: -10 to 55 °C, Storage: -25 to 70 °C (with no icing or condensation)

#### Ambient humidity range
- Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)

#### Insulation resistance
- 20 MΩ min. at 500 VDC

#### Dielectric strength
- 1,000 VAC, 50/60 Hz for 1 min

#### 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/s² 3 times each in X, Y, and Z directions

#### Degree of protection
- IP67 (IEC 60529)

#### Connection method
- Pre-wired cable (standard length: 2 m): E3Z-L□□/□□/□□/□□
- Standard M8 Connector: E3Z-L□□/□□/□□/□□

#### Indicator
- Operation indicator (orange)
- Stability indicator (green)

Emitter for Through-beam Models has power indicator (orange) only.
<table>
<thead>
<tr>
<th>Item</th>
<th>Material</th>
<th>Accessories</th>
<th>Sensing method</th>
<th>Through-beam</th>
<th>Retro-reflective with MSR function</th>
<th>Distance-settable (BGS models)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Through-beam</td>
<td>NPN output</td>
<td>E3Z-LT61/-LT66</td>
<td>E3Z-LR61/-LR66</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PNP output</td>
<td>E3Z-LT81/-LT86</td>
<td>E3Z-LR81/-LR86</td>
</tr>
<tr>
<td>Weight</td>
<td>Pre-wired cable (2 m)</td>
<td>Approx. 120 g</td>
<td>Approx. 65 g</td>
<td>Standard response</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Connector</td>
<td>Approx. 30 g</td>
<td>Approx. 20 g</td>
<td>High-speed response</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case</td>
<td>PBT (polybutylene terephthalate)</td>
<td>Instruction manual</td>
<td>(Neither Reflectors nor Mounting Brackets are provided with any of the above models.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lens</td>
<td>Modified polyarylate resin</td>
<td>Methacrylic resin</td>
<td>Modified polyarylate resin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: An emission stop function can be added to Through-beam Models as a custom function. Ask your OMRON representative for details.

*1. Consult with your OMRON representative if a distance of more than 10 m is required. Models with large custom-size spots can be produced. These make optical axis adjustment easier and allow the beam to be received more stably by the Receiver even if vibration is present.
Parallel Operating Range
Through-beam Models
E3Z-LT

Retro-reflective Models for transparent objects
E3Z-LR

Operating Range at a Set Distance
of 300 mm
BGS Models
E3Z-LL

Excess Gain vs. Set Distance
Through-beam Models
E3Z-LT

Retro-reflective Models
E3Z-LR
Close Range Characteristics
BGS Models

**E3Z-LL□1/-LL□6**

Sensing Distance vs. Sensing Object Material

*BGS Models*

**E3Z-LL□3/-LL□8**

White Paper with a Set Distance of 40 mm

White Paper with a Set Distance of 300 mm

White Paper with a Set Distance of 100 mm
E3Z Laser Models

Emission Spot Diameter vs. Distance
Through-beam and Retro-reflective Models
(Same for All Models)

BGS Models (Same for All Models)

Error vs. Distance
BGS Models

Angle Characteristics (Vertical)
BGS Models
I/O Circuit Diagrams

### NPN output

**Model** | **Operation mode** | **Timing charts** | **Mode selector switch** | **Output circuit**
--- | --- | --- | --- | ---
E3Z-LT61, E3Z-LT66, E3Z-LR61, E3Z-LR66 | Light ON | Incident light: L side (LIGHT ON) | Through-beam Receivers, Retro-reflective Models |
| | Dark ON | No incident light: D side (DARK ON) | |

**Model** | **Operation mode** | **Timing charts** | **Mode selector switch** | **Output circuit**
--- | --- | --- | --- | ---
E3Z-LL61, E3Z-LL66, E3Z-LL63, E3Z-LL68 | Light ON | Incident light: L side (LIGHT ON) |
| | Dark ON | No incident light: D side (DARK ON) |

### PNP output

**Model** | **Operation mode** | **Timing chart** | **Mode selector switch** | **Output circuit**
--- | --- | --- | --- | ---
E3Z-LT81, E3Z-LT86, E3Z-LR81, E3Z-LR86 | Light ON | Incident light: L side (LIGHT ON) |
| | Dark ON | No incident light: D side (DARK ON) |

### Through-beam Emitter

- **Through-beam Receivers, Retro-reflective Models**
- **Output transistor**
- **Load** (e.g., relay)
### Nomenclature

<table>
<thead>
<tr>
<th>Model</th>
<th>Operation mode</th>
<th>Timing chart</th>
<th>Mode selector switch</th>
<th>Output circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3Z-LL81</td>
<td>Light ON</td>
<td>ON</td>
<td>NEAR FAR</td>
<td>L side (LIGHT ON)</td>
</tr>
<tr>
<td>E3Z-LL86</td>
<td>Light ON</td>
<td>OFF</td>
<td>NEAR</td>
<td>D side (DARK ON)</td>
</tr>
<tr>
<td>E3Z-LL83</td>
<td>Light ON</td>
<td>ON</td>
<td>NEAR</td>
<td></td>
</tr>
<tr>
<td>E3Z-LL88</td>
<td>Light ON</td>
<td>OFF</td>
<td>NEAR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dark ON</td>
<td>ON</td>
<td>NEAR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dark ON</td>
<td>OFF</td>
<td>NEAR</td>
<td></td>
</tr>
</tbody>
</table>

#### Plugs (Sensor I/O Connectors)

- **M8 4-pin Connectors**
  - Wire color: Brown, White, Blue, Black
  - Pin Arrangement: XS3F-M421-402-A, XS3F-M421-405-A

- **M12 Connectors**
  - Wire color: Brown, Blue, Black
  - Pin Arrangement: XS2F-D421-DC0-A, XS2F-D422-DC0-A

#### Distance-settable Sensor
- BGS Models
- E3Z-LL

#### Sensors with Sensitivity Adjustment and Mode Selector Switch
- Through-beam Models
- E3Z-LT (Receiver)

#### Retro-reflective Models
Safety Precautions

Refer to Warranty and Limitations of Liability on page 20.

⚠️ Warning
This product is not designed or rated for ensuring safety of persons. Do not use it for such purpose.

To ensure safe use of laser products, do not allow the laser beam to enter your eye. Direct exposure may adversely affect your eyesight.

⚠️ Caution
Do not connect an AC power supply to the Sensor. If AC power (100 VAC or more) is supplied to the Sensor, it may explode or burn.

Precautions for Safe Use
Be sure to abide by the following precautions for the safe operation of the Sensor.

Operating Environment
Do not use the Sensor in locations with explosive or flammable gas.

Wiring

Power Supply Voltage and Output Load

Power Supply Voltage
Make sure that the power supply to the Sensor is within the rated voltage range. If a voltage exceeding the rated voltage range is supplied to the Sensor, it may explode or burn.

Power Supply Voltage
The maximum power supply voltage is 26.4 VDC. Applying a voltage exceeding the rated range may damage the Sensor or cause burning.

Load
Do not use a load that exceeds the rated load.

Load Short-circuiting
Do not short-circuit the load, otherwise the Sensor may be damaged or it may burn.

Connection without Load
Do not connect the power supply to the Sensor with no load connected, otherwise the internal elements may explode or burn. Always connect a load when wiring.

Correct Use
Do not use the product in atmospheres or environments that exceed product ratings.

Usage Environment

Water Resistance
The Sensor is rated IP67. Do not use it in water, in the rain, or outdoors.

Ambient Environment
Do not install the product in the following locations. Doing so may result in product failure or malfunction.
- Locations subject to excess dust and dirt
- Locations subject to direct sunlight
- Locations subject to corrosive gas
- Locations subject to organic solvents
- Locations subject to shock or vibration
- Locations subject to exposure to water, oil, or chemicals
- Locations subject to high humidity or condensation

Designing

Power Reset Time
The Sensor is ready to operate 100 ms after the Sensor is turned ON. If the load and Sensor are connected to independent power supplies respectively, be sure to turn ON the Sensor before supplying power to the load.

Wiring

Avoiding Malfunctions
If using the Sensor with an inverter or servomotor, always ground the FG (frame ground) and G (ground) terminals, otherwise the Sensor may malfunction.

Mounting

Mounting the Sensor
- If Sensors are mounted face-to-face, make sure that the optical axes are not in opposition to each other. Otherwise, mutual interference may result.
- Always install the Sensor carefully so that the aperture angle range of the Sensor will not cause it to be directly exposed to intensive light, such as sunlight, fluorescent light, or incandescent light.
- Do not strike the Photoelectric Sensor with a hammer or any other tool during the installation of the Sensor, or the Sensor will lose its water-resistive properties.
- Use M3 screws to mount the Sensor.
- When mounting the case, make sure that the tightening torque applied to each screw does not exceed 0.54 N·m.
Metal Connectors
- Always turn OFF the power supply to the Sensor before connecting or disconnecting the metal connector.
- Hold the connector cover to connect or disconnect it.
- Secure the connector cover by hand. Do not use pliers, otherwise the connector may be damaged.
- Use a tightening torque of 0.3 to 0.4 N·m for M8 connectors and 0.4 to 0.5 N·m for M12 connectors. Vibration may cause the connectors to become loose and reduce the degree of protection is the tightening torque is not sufficient.

Mounting Direction for Distance-settable Models
- Make sure that the sensing side of the Sensor is parallel with the surface of the sensing objects. Normally, do not incline the Sensor towards the sensing object.

If the sensing object has a glossy surface, however, incline the Sensor by 5° to 10° as shown in the illustration, provided that the Sensor is not influenced by background objects.

- If there is a mirror-like object below the Sensor, the Sensor may not operate stably. Therefore, incline the Sensor or separate the Sensor from the mirror-like object as shown below.

- Do not install the Sensor in the wrong direction. Refer to the following illustration.

Adjusting Distance-settable Models
Indicator Operation

Note: If the stability indicator is lit, the detection/no detection status is stable within the rated ambient operating temperature (-10 to 55°C).

Cleaning
Never use paint thinners or other organic solvents to clean the surface of the product.
Dimensions (Unit: mm)

Sensors

Through-beam
Pre-wired Models
E3Z-LT61
E3Z-LT81

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+V</td>
</tr>
<tr>
<td>2</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>0 V</td>
</tr>
<tr>
<td>4</td>
<td>---</td>
</tr>
</tbody>
</table>

- Power indicator (orange)
- Lens
- Emitter
- Optical axis
- Sensitivity adjuster
- Mode selector switch
- Operation indicator (orange)
- Stability indicator (green)

**Through-beam**

Standard Connector Models
E3Z-LT66
E3Z-LT86

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+V</td>
</tr>
<tr>
<td>2</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>0 V</td>
</tr>
<tr>
<td>4</td>
<td>Output</td>
</tr>
</tbody>
</table>

- Power indicator (orange)
- Lens
- Emitter
- Optical axis
- Sensitivity adjuster
- Mode selector switch
- Operation indicator (orange)
- Stability indicator (green)

**M12 Pre-wired Connector**
(E3Z-LT61-M1J)

- M8 Pre-wired Connector
(Ask your OMRON representative for details.)

- The Emitter cable has two conductors and the Receiver cable has three conductors.
Retro-reflective Models
Pre-wired Models
E3Z-LR61
E3Z-LR81

Retro-reflective Models
Standard Connector Models
E3Z-LR66
E3Z-LR86

BGS Models
Pre-wired Models
E3Z-LL61
E3Z-LL81
E3Z-LL63
E3Z-LL83

BGS Models
Standard M8 Connector Models
E3Z-LL66
E3Z-LL86
E3Z-LL68
E3Z-LL88
## Accessories (Order Separately)

<table>
<thead>
<tr>
<th>Slit</th>
<th>Material</th>
<th>E39-S65A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUS301 stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

### Slit Dimensions
- Diameter: 0.5 mm
- Length: 30 mm
- Height: 4.5 mm
- Depth: 0.2 mm

<table>
<thead>
<tr>
<th>Reflector</th>
<th>Material</th>
<th>E39-R1S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reflective surface: Acrylic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear surface: ABS</td>
<td></td>
</tr>
</tbody>
</table>

### Reflector Dimensions
- Length: 60 mm
- Width: 52 mm
- Height: 40 mm
- Depth: 3.5 mm

<table>
<thead>
<tr>
<th>Reflector</th>
<th>Material</th>
<th>E39-R6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reflective surface: Acrylic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear surface: ABS</td>
<td></td>
</tr>
</tbody>
</table>

### Reflector Dimensions
- Length: 40 mm
- Width: 34 mm
- Height: 4.8 mm
- Depth: 3.5 mm

<table>
<thead>
<tr>
<th>Reflector</th>
<th>Material</th>
<th>E39-R12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reflective surface: Acrylic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear surface: ABS</td>
<td></td>
</tr>
</tbody>
</table>

### Reflector Dimensions
- Length: 37 mm
- Width: 30 mm
- Height: 15 mm
- Depth: 23 mm

---

Laser Photoelectric Sensor with Built-in Amplifier
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Cat. No. E368-E2-01-X

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Laser Photoelectric Sensor with Built-in Amplifier