## Mounting Brackets

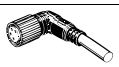
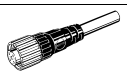
| Shape | Model | Quantity | Remarks | Appear-ance | Model | Quantity | Remarks |
|---|---|---|---|---|---|---|---|
|  | E39-L153 | 1 | Mounting Brackets |  | E39-L98 | 1 | Metal Protective Cover Bracket *1 |
|  | E39-L104 | 1 | |  | E39-L150 | One set | (Sensor adjuster) |
|  | E39-L43 | 1 | Horizontal Mounting Bracket *1 |  | E39-L151 | One set | Easily mounted to the aluminum frame rails of conveyors and easily adjusted.<br><br>For left to right adjustment |
|  | E39-L142 | 1 | Horizontal Protective Cover Bracket *1 | | | | |
|  | E39-L44 | 1 | Rear Mounting Bracket |  | E39-L144 | 1 | Compact Protective Cover Bracket *1 |

*1. Cannot be used for Standard Connector models.

Note: 1 .When using Through-beam Models, order one bracket for the Receiver and one for the Emitter.

## Sensor I/O Connectors

General Purpose

| Size | Cable | Appearance | | Cable type | | Model |
|---|---|---|---|---|---|---|
| M8 (4 pins) | Standard | Straight |  | 2 m | 4-wire type | XS3F-M421-402-A |
| | | | | 5 m | | XS3F-M421-405-A |
| | | L-shaped |  | 2 m | | XS3F-M422-402-A |
| | | | | 5 m | | XS3F-M422-405-A |
| M12 (For -M1J models) | | Straight |  | 2 m | 3-wire type | XS2F-D421-DC0-A |
| | | | | 5 m | | XS2F-D421-GC0-A |
| | | L-shaped |  | 2 m | | XS2F-D422-DC0-A |
| | | | | 5 m | | XS2F-D422-GC0-A |
| | | Straight |  | 2 m | 4-wire type | XS2F-D421-D80-A |
| | | | | 5 m | | XS2F-D421-G80-A |
| | | L-shaped |  | 2 m | | XS2F-D422-D80-A |
| | | | | 5 m | | XS2F-D422-G80-A |

Note: Depending on the connector specification, the IP67 performance applies. When using high-pressure washing, use a suitable connector.

**Detergent resistant sensor I/O connectors**

**Please contact your OMRON representative for sensor connectors with stainless steel nuts.**

## Rating and Specifications

| Item \ Model | | Through-beam | | Retroreflective model (with M.S.R. function) | Diffuse-reflective Models |
|---|---|---|---|---|---|
| Sensor method | | Through-beam | | Retroreflective model (with M.S.R. function) | Diffuse-reflective Models |
| Model | NPN output | E3ZM-T61<br>E3ZM-T66 | E3ZM-T63<br>E3ZM-T68 | E3ZM-R61<br>E3ZM-R66 | E3ZM-D62<br>E3ZM-D67 |
| | PNP output | E3ZM-T81<br>E3ZM-T86 | E3ZM-T83<br>E3ZM-T88 | E3ZM-R81<br>E3ZM-R86 | E3ZM-D82<br>E3ZM-D87 |
| Sensing distance | | 15 m | 0.8 m | 4 m [100 mm]<br>(Using E39-R1S)<br>3 m [100 mm]<br>(Using E39-R1) | 1 m<br>(White paper<br>300 x 300 mm) |
| Spot Diameter (typical) | | --- | | | |
| Standard sensing object | | Opaque: 12 mm dia. min. | Opaque: 2 mm dia. min. | Opaque: 75 mm dia. min. | --- |
| Differential travel | | --- | | | 20% max. of sensing distance max. |
| Black/white error | | --- | | | |
| Directional angle | | Emitter and Receiver: 3° to 15° | | Sensor: 3° to 10°<br>Reflector: 30° | --- |
| Light source (wave length) | | Infrared LED (870 nm) | | Red LED (660 nm) | Infrared LED (860 nm) |
| Power supply voltage | | 10 to 30 VDC, including 10% ripple (p-p) | | | |
| Current consumption | | Emitter, Receiver: 20 mA max. each | | 25 mA max. | |
| Control output | | Load power supply voltage: 30 VDC max., Load current: 100 mA max. (Residual voltage: 2 V max.)<br>Open-collector output (NPN/PNP output depending on model)<br>Light-ON/Dark-ON switch selectable | | | |
| 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. | | | |
| Sensitivity adjustment | | One-turn adjuster | | | |
| Ambient illumination (Receiver side) | | Incandescent lamp: 3,000 lx max. Sunlight 10,000 lx max. | | | |
| Ambient temperature range | | Operating: -25°C to 55°C, Storage: -40°C 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 | | | |
| Dielectric strength | | 1,000 VAC at 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/s$^2$ 3 times each in X, Y, and Z directions | | | |
| Degree of protection *1 | | IEC: IP67, DIN 40050-9: IP69K | | | |
| Connection method | | Pre-wired cable (standard length: 2 m)<br>Standard M8 4-pin Connector | | | |
| Indicator | | Operation indicator (yellow), Stability indicator (green) (Emitter has only power supply indicator (green).) | | | |
| Weight (packed state) | Pre-wired cable | Approx. 150 g | | Approx. 90 g | |
| | Standard Connector | Approx. 60 g | | Approx. 40 g | |
| Materials | Case | SUS316L | | | |
| | Lens | Methacrylic resin | | | |
| | Display | PES (polyether sulfone) | | | |
| | Sensitivity adjustment and operation switch | PEEK (polyether ether ketone) | | | |
| | Seals | Fluoro rubber | | | |
| Accessories | | Instruction sheet (Note: Reflectors and Mounting Brackets are sold separately.) | | | |

*1. IP69K Degree of Protection Specification IP69K is a protection standard against high temperature and high-pressure water defined in the German standard DIN 40050, Part 9.The test piece is sprayed with water at 80°C at a water pressure of 80 to 100 BAR using a specified nozzle shape. The distance between the test piece and nozzle is 10 to 15 cm, and water is sprayed horizontally for 30 seconds each at 0°, 30°, 60°, and 90° while rotating the test object on a horizontal plane.