

# FE Series Photoelectric Sensors



## Mini-rectangular plastic - DC

- 11 models available
- Diffuse, polarized reflective, and through-beam models
- Adjustable sensitivity
- Axial cable or M8 quick-disconnect models
- NPN or PNP, Light-on/Dark-on selectable output
- IP67 rated



| FE Series Photoelectric Sensors Selection Chart |   |                               |                      |                      |                      |                      |            |                       |         |         |     |                    |         |          |         |
|---|---|-------------------------------|----------------------|----------------------|----------------------|----------------------|------------|-----------------------|---------|---------|-----|--------------------|---------|----------|---------|
| Part Number                                     | Price   | Sensing Range                 | Output State         | Logic                | Connection           | Wiring               | Dimensions | Characteristic Curves |         |         |     |                    |         |          |         |
| <b>Diffuse</b>                                  |   |                               |                      |                      |                      |                      |            |                       |         |         |     |                    |         |          |         |
| <b>FER8-ON-0A</b>                               | retired   | up to 800mm (31.49in)         | N.O./N.C. selectable | NPN                  | 2m (6.5) axial cable | Diagram 1            | Figure 1   | Chart 1               |         |         |     |                    |         |          |         |
| <b>FER8-OP-0A</b>                               | retired   |                               |                      | PNP                  | 2m (6.5) axial cable | Diagram 2            | Figure 2   | Chart 1               |         |         |     |                    |         |          |         |
| <b>FER8-ON-0F</b>                               | retired   |                               |                      | NPN                  | M8 (8mm) connector   | Diagram 1            | Figure 1   | Chart 1               |         |         |     |                    |         |          |         |
| <b>Polarized reflective*</b>                    |   |                               |                      |                      |                      |                      |            |                       |         |         |     |                    |         |          |         |
| <b>FERN-OP-0A</b>                               | retired   | up to 4m (13.12ft) with RL110 | N.C./N.O. selectable | PNP                  | 2m (6.5) axial cable | Diagram 2            | Figure 2   | Chart 2               |         |         |     |                    |         |          |         |
| <b>FERN-ON-0F</b>                               | retired   |                               |                      | NPN                  | M8 (8mm) connector   | Diagram 1            | Figure 1   | Chart 2               |         |         |     |                    |         |          |         |
| <b>FERN-OP-0F</b>                               | retired   | up to 1m (39.37in) with RL122 |                      | PNP                  | M8 (8mm) connector   | Diagram 2            | Figure 2   | Chart 2               |         |         |     |                    |         |          |         |
| <b>Through-beam</b>                             |   |                               |                      |                      |                      |                      |            |                       |         |         |     |                    |         |          |         |
| <b>FERHD-OP-0A</b>                              | Each part number consists of an emitter and receiver pair | retired                       | up to 12m (39.37ft)  | N.C./N.O. selectable | PNP                  | 2m (6.5) axial cable | Diagram    | Figure 2              | Chart 3 |         |     |                    |         |          |         |
| <b>FERHD-ON-0F</b>                              |   |                               |                      |                      |                      |                      |            |                       |         | retired | NPN | M8 (8mm) connector | Diagram | Figure 1 | Chart 3 |
| <b>FERHD-OP-0F</b>                              |   |                               |                      |                      |                      |                      |            |                       |         | retired | PNP | M8 (8mm) connector | Diagram | Figure 2 | Chart 3 |

\*Note: Purchase reflectors separately.

| Switching Element Function |                                    |                           |
|----------------------------|------------------------------------|---------------------------|
|                            | Through-beam and Reflective Models | Diffuse Reflective Models |
| <b>Light on</b>            | N.C.                               | N.O.                      |
| <b>Dark on</b>             | N.O.                               | N.C.                      |

## Wiring Diagrams

Diagram 1

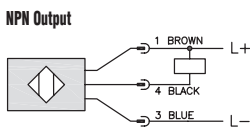


Diagram 2

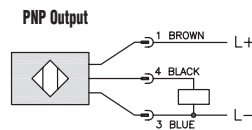
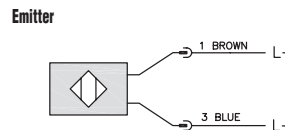
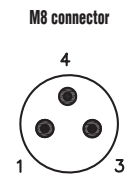


Diagram 3



Connector



## Dimensions

mm

Figure 1

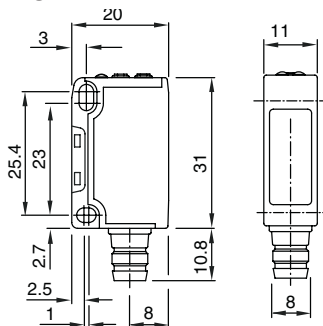
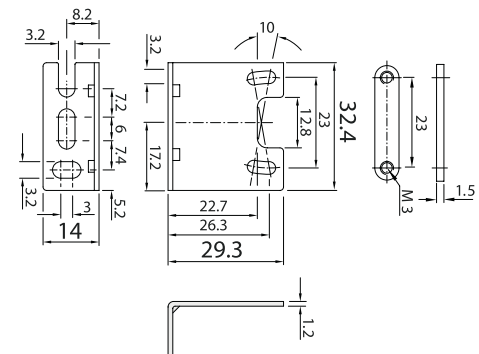
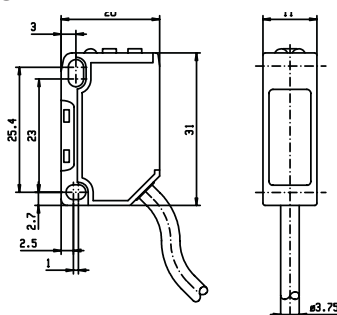


Figure 2



Horizontal mounting bracket supplied with each unit

# FE Series Photoelectric Sensors

| Specifications                      | Diffuse Models                               | Reflective Models                           | Through-Beam Models               |
|-------------------------------------|--|---|-----------------------------------|
| Type                                | Diffuse reflection                           | Polarized reflection <sup>3</sup>           | Through-beam <sup>4</sup>         |
| Sensing Distance                    | 800mm <sup>1</sup>                           | 4m with RL110<br>1m with RL122 <sup>2</sup> | 20m                               |
| Light Spot Diameter                 | 25mm @ 300mm                                 | 150mm @ 2.5 mm                              | 650mm @ 12m                       |
| Emission                            | Red LED (visible)                            |   |                                   |
| Sensitivity                         | Adjustable                                   |   |                                   |
| Output Type                         | NPN or PNP - Light-on/Dark-on Rotary Switch  |   |                                   |
| Operating Voltage                   | 10-30VDC                                     |   |                                   |
| No-load Supply Current              | ≤ 30mA                                       |   | Emitter: ≤ 15mA; Receiver: ≤ 20mA |
| Operating (Load) Current            | ≤ 00mA                                       |   |                                   |
| Off-state (Leakage) Current         | N/A  |   |                                   |
| Voltage Drop                        | 1.8V max at 100mA                            |   |                                   |
| Switching Frequency                 | 1kHz   |   |                                   |
| Ripple                              | ≤ 0%   |   |                                   |
| Time Delay Before Availability (tv) | 100ms  |   |                                   |
| Short-Circuit Protection            | Yes, switch autoresets after load is removed |   |                                   |
| Operating Temperature               | -25 to 55°C (-13° to 131° F)                 |   |                                   |
| Protection Degree (DIN 40050)       | IEC IP67                                     |   |                                   |
| LED Indicators -Switching Status    | Yellow (output energized)                    |   |                                   |
| Housing Material                    | Polybutylene Terephthalate (PBT)             |   |                                   |
| Lens Material                       | Polycarbonate (PC)                           |   |                                   |
| Shock/Vibration                     | <a href="#">See terminology section</a>      |   |                                   |
| Tightening Torque                   | 40 Nm (29 lb-ft)                             |   |                                   |
| Weight (cable/connector)            | 53 g (1.87 oz) / 9 g (0.32 oz)               |   |                                   |
| Connectors                          | 2m (6.5') axial cable; M8 (8 mm) connector   |   |                                   |
| Agency Approvals                    | UL Recognized E224302, CE                    |   |                                   |

<sup>1</sup>With 100x100mm white matte paper  
<sup>2</sup>With Ø84mm RL110 reflector or 12 x 54mm RL122 reflector.  
<sup>3</sup>Purchase reflectors separately.  
<sup>4</sup>Each through-beam part number consists of an emitter and receiver pair.

**Warning: These products are not safety sensors and are not suitable for use in personal safety applications.**

## Characteristic curves

Chart 1 (Diffuse)

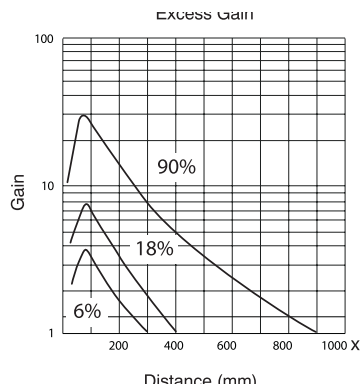


Chart 2 (Polarized Reflective)

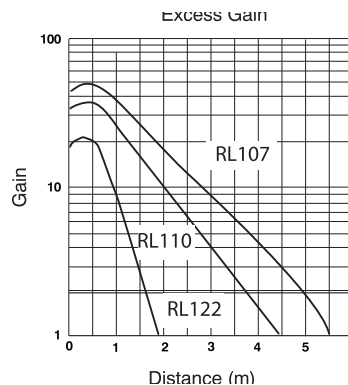


Chart 3 (Through-Beam)

