

proense® F8 Series Barrel Photoelectric Sensors



M8 (8mm) barrel photoelectric sensors

- M8 small dimension housing
- LED status indicator for all models
- Complete protection against electrical damage
- IP67 protection
- Strong stainless steel housing
- Background suppression, diffuse, retroreflective and through- beam available
- Visible red light emission



F8 Series 8mm Diameter Photoelectric Sensors Selection Chart

| Part Number | Price | Sensing Range | Switching Frequency | Light Type | Through-Beam Component | Logic | Output Function | Connection Type | Wiring | Drawing Link |
|--|----------|---------------------------|---------------------|-------------|--|----------|-----------------|-----------------------------------|-----------|----------------------------|
| Diffuse reflective with adjustable background suppression | | | | | | | | | | |
| <u>F8RS-LP-2F</u> | \$168.00 | 7-30mm [0.28 -1.18 in] | 450Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | <u>PDF</u> |
| <u>F8RS-LN-2F</u> | \$168.00 | 7-30mm [0.28 -1.18 in] | 450Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | <u>PDF</u> |
| Diffuse reflective with fixed background suppression | | | | | | | | | | |
| <u>F8RS-LP-1F</u> | \$168.00 | 0-20mm [0-0.79 in] | 450Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | <u>PDF</u> |
| <u>F8RS-LN-1F</u> | \$168.00 | 0-20mm [0-0.79 in] | 450Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | <u>PDF</u> |
| Diffuse reflective | | | | | | | | | | |
| <u>F8R6-LP-1F</u> | \$101.00 | 1-60mm [0.04 -2.36 in] | 500Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | <u>PDF</u> |
| <u>F8R6-LN-1F</u> | \$101.00 | 1-60mm [0.04-2.36 in] | 500Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | <u>PDF</u> |
| Retroreflective sensor * | | | | | | | | | | |
| <u>F8RP-DP-1F</u> | \$101.00 | 0-1m [0-3.28 ft] | 500Hz | Visible red | NA | PNP N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | <u>PDF</u> |
| <u>F8RP-DN-1F</u> | \$101.00 | 0-1m [0-3.28 ft] | 500Hz | Visible red | NA | NPN N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | <u>PDF</u> |
| Through-beam | | | | | | | | | | |
| <u>F8RE-00-1F</u> | \$90.00 | 0-2.2m [0-7.22 ft] | NA | Visible red | <u>F8RR-DP-1F</u> or <u>F8RR-DN-1F</u> | NA | NA | 2-wire, 3-pin M8 quick-disconnect | Diagram 3 | <u>PDF</u> |
| <u>F8RR-DP-1F</u> | \$90.00 | 0-2.2m [0-7.22 ft] | 500Hz | NA | <u>F8RE-00-1F</u> | PNP N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | <u>PDF</u> |
| <u>F8RR-DN-1F</u> | \$90.00 | 0-2.2m [0-7.22 ft] | 500Hz | NA | <u>F8RE-00-1F</u> | NPN N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | <u>PDF</u> |

* Purchase reflector separately

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

proense® F8 Series Barrel Photoelectric Sensors

| F8 Series 8mm Diameter Photoelectric Specifications | | | | | |
|---|--|--|---------------------------|----------------------|----------------------------|
| Sensor type | Diffuse reflective with adjustable background suppression | Diffuse reflective with fixed background suppression | Diffuse reflective | Retroreflective | Through-beam |
| Sensing Distance | 7-30 mm [0.28-1.18 in] | 0-20 mm [0-0.79 in] | 1-60 mm [0.04-2.36 in] | 0-1 m [0-3.28 ft] | 0-2.2 m [0-7.22 ft] |
| Light Spot Diameter | See Product Insert | | | | |
| Emission | Visible red | | | | |
| Output Types | See Sensor Selection Chart | | | | |
| Operating Voltage | 10-30 VDC | | | | |
| No Load Supply Current | ≤ 15mA | | | | |
| Operating (Load) Current | 100mA | | | | |
| Voltage Drop | ≤ 0.7 V | | | | |
| Switching Frequency | 450Hz | 450Hz | 500Hz | 500Hz | 500Hz NA for F8RE-00-1E |
| Ripple | 5% | | 10% | | |
| Time Delay Before Availability (tv) | ≤ 1.11 ms | | ≤ 1ms | | |
| Short-circuit Protection | Yes | | | | |
| Operating Temperature | -5 to 55°C [23 to 131°F] | | | | |
| Protection Degree | IP64 | IP67 | IP67 | IP67 | IP67 |
| LED Indicators - Switching Status | Yellow LED: light received; yellow LED flashing: limit range | | | | |
| Housing Material | Stainless steel | | | | |
| Lens Material | PMMA - Polymethyl methacrylate | | | | |
| Shock/Vibration | IEC 60947-5-2 | | | | |
| Tightening Torque | 6 N•m [4.42 lb•ft] | | | | |
| Weight | 5.5 g [0.19 oz] | 5.1 g [0.17 oz] | 5.2 g [0.18 oz] | | |
| Connectors | 3-pin M8 quick-disconnect | | | | |
| Agency Approvals | cULus, CE, WEEE, IEC 60947-5-2 | | | | |

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1
PNP Output

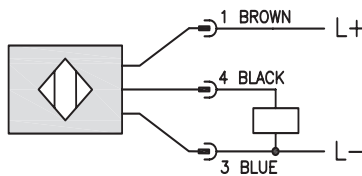


Diagram 2
NPN Output

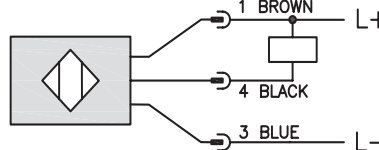
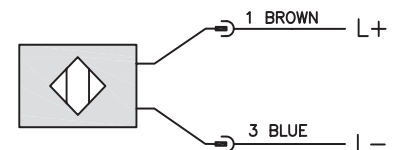
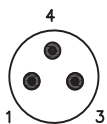


Diagram 3
Emitter



M8 Connector



Accessories for 8mm Sensors

Axial Mounting Bracket

Mounting bracket, axial, zinc-plated steel. For use with 8mm sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

| Accessories for 8mm Sensors | | | | |
|-----------------------------|--------|--|---------------------|-------------|
| Part Number | Price | Description | Drawing Link | Weight [lb] |
| ST08A | \$2.00 | Micro Detectors mounting bracket, axial, zinc plated steel. For use with 8mm sensors. | PDF | 0.04 |



[ST08A](#)

Right-angle Mounting Bracket

Mounting bracket, right-angle, zinc-plated steel. For use with 8mm sensors. Has two mounting holes (use 3mm screws) and allows the rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included.

| Accessories for 8mm Sensors | | | | |
|-----------------------------|--------|--|---------------------|-------------|
| Part Number | Price | Description | Drawing Link | Weight [lb] |
| ST08C | \$2.00 | Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 8mm sensors. | PDF | 0.04 |



[ST08C](#)

Accessories for 8mm Sensors

Right-angle Mounting Bracket

Mounting bracket, right-angle, plastic. For use with 8mm sensors.

| Accessories for 8mm Sensors | | | | |
|-----------------------------|--------|---|---------------------|-------------|
| Part Number | Price | Description | Drawing Link | Weight [lb] |
| OPT2101 | \$8.00 | Wenglor mounting bracket, right-angle, plastic. For use with 8mm sensors. | PDF | 0.02 |



[OPT2101](#)

Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment. For use with 8mm sensors. Available in all stainless steel or with an aluminum head and stainless steel mounting plate.

| Accessories for 8mm Sensors | | | | | | |
|-----------------------------|---------|---|---------------------|---------------------|---------------------|-------------|
| Part Number | Price | Description | Mounting Head | Mounting Plate | Drawing Link | Weight [lb] |
| OPT2112 | \$11.50 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 8mm sensors. | Aluminum | 304 Stainless Steel | PDF | 0.14 |
| OPT2113 | \$21.00 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 8mm sensors. | 304 Stainless Steel | 304 Stainless Steel | PDF | 0.26 |



[OPT2112 & OPT2113](#)

Note: 304 Stainless steel mounting rods sold separately: [OPT2109](#) (200mm length), [OPT2110](#) (300mm length), and [OPT2111](#) (500mm length).

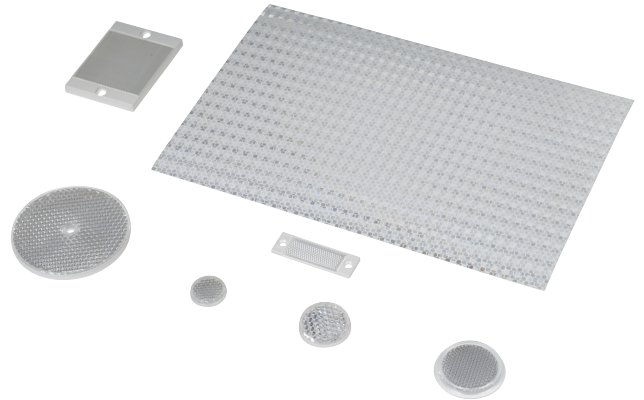
Reflectors

RL Series Reflectors for Polarized Reflective Photoelectric Sensors (All Models)

- Suitable for use with polarized light photoelectric sensors
- Shapes and sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- Single hole, dual hole and self-adhesive mounting types available
- Single and 10-packs available

Installation Notes

- Keep the reflector surface clean to ensure peak detection performance. This is especially true when the maximum sensing range is being used. Clean using a damp cloth.
- When selecting a reflector, it is important to consider the ambient conditions it will be exposed to. Dusty or high humidity conditions may reduce the sensing range as much as 90%.
- Reflectors should be positioned at a 90° angle to the optical axis with a tolerance of ±15°.



| Reflector Specifications | | | | | | | | |
|--------------------------|---------|---------------------|----------|--------------------|----------------------|---|---|---------------------------------------|
| Part number | Price | Drawing Link | Quantity | Dimensions mm [in] | Degree of Protection | Mounting | Materials | |
| RL102 | \$38.00 | PDF | 10 | 25 | IEC IP67 | Customer-supplied adhesive or other mounting method required | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) | |
| RL102-1 | \$4.25 | | 1 | [0.98] | | | | |
| RL103 | \$42.50 | PDF | 10 | 34.5 | | | | |
| RL103-1 | \$4.75 | | 1 | [1.36] | | | | |
| RL104 | \$42.50 | PDF | 10 | 46 | | | | |
| RL104-1 | \$4.75 | | 1 | [1.81] | | | | |
| RL105G | \$38.00 | PDF | 10 | 95 x 38 | | Two 4.3 mm holes | | |
| RL105G-1 | \$4.25 | | 1 | [3.74 x 1.50] | | | | |
| RL106G | \$42.50 | PDF | 10 | 182 x 42 | | Two 6mm holes | | |
| RL106G-1 | \$4.75 | | 1 | [7.17 x 1.65] | | | | |
| RL110 | \$19.00 | PDF | 10 | 84 | | One 5mm hole | | |
| RL110-1 | \$2.00 | | 1 | [3.31] | | | | |
| RL116 | \$19.00 | PDF | 10 | 41 x 60 | | Two 3mm holes | | |
| RL116-1 | \$2.00 | | 1 | [3.54 x 2.36] | | | | |
| RL100DA4 | \$38.50 | NA | 1 | 200 x 300 | | Self-adhesive | | Paper (Acrylic tape with micro prism) |
| RL100DC4 | \$12.00 | NA | 1 | 50 x 300 | | | | |
| RL100DQ1 | \$8.75 | NA | 1 | 100 x 100 | | | | |
| RL111G | \$60.00 | PDF | 10 | 22.5 x 47 | Two 3mm slots | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) | | |
| RL111G-1 | \$7.25 | | 1 | [0.89 x 1.85] | | | | |
| RL112G | \$44.00 | PDF | 10 | 19 x 73 | | | | |
| RL112G-1 | \$4.75 | | 1 | [0.75 x 2.87] | | | | |
| RL113G | \$53.00 | PDF | 10 | 51.4 x 60.3 | Two 4mm slots | | | |
| RL113G-1 | \$6.00 | | 1 | [2.02 x 2.37] | | | | |

Not recommended for applications involving moist air environments or water immersion.

Reflectors

RL Series Reflectors for Polarized Reflective Laser Photoelectric Sensors (FALN series)

- Suitable for use with polarized light laser photoelectric sensors
- Sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- Single and 5-packs available

| Specifications | | | | | | |
|--|------------------------------|-------------------------|----------------------------|-------------------------|----------------------------------|-------------------------|
| Part Number | RL201 | RL201-1 | RL203 | RL203-1 | RL204 | RL204-1 |
| Price | \$38.00 | \$8.25 | \$35.50 | \$7.75 | \$30.00 | \$6.75 |
| Quantity | 5 | 1 | 5 | 1 | 5 | 1 |
| Drawing Link | PDF | | PDF | | PDF | |
| Dimensions | 60 x 82 mm 2.36 x 3.23 in | | 19 x 6mm 0.75 x 2.36 in | | 20mm x 32mm 0.80 in x 1.26 in | |
| Degree of Protection ¹ | IEC IP67 | | | | | |
| Mounting | Two 0.4 mm holes | | Two 0.4 mm holes | | Two 0.3 mm holes | |
| Materials | Acrylic/polycarbonate | | | | | |

¹ Not recommended for applications involving moist air environments or water immersion.