

prosense® F8 Series Barrel Photoelectric Sensors

M8 (8mm) barrel photoelectric sensors



Features

- 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



ProSense 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 | | | | | | | | | | |
| F8RS-LP-2F | \$140.00 | 7-30 mm [0.28 -1.18 in] | 450Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | PDF |
| F8RS-LN-2F | \$140.00 | 7-30 mm [0.28 -1.18 in] | 450Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | PDF |
| Diffuse reflective with fixed background suppression | | | | | | | | | | |
| F8RS-LP-1F | \$140.00 | 0-20 mm [0-0.79 in] | 450Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | PDF |
| F8RS-LN-1F | \$140.00 | 0-20 mm [0-0.79 in] | 450Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | PDF |
| Diffuse reflective | | | | | | | | | | |
| F8R6-LP-1F | \$84.00 | 1-60 mm [0.04 -2.36 in] | 500Hz | Visible red | NA | PNP N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | PDF |
| F8R6-LN-1F | \$84.00 | 1-60 mm [0.04 -2.36 in] | 500Hz | Visible red | NA | NPN N.O. | Light-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | PDF |
| Retroreflective sensor * | | | | | | | | | | |
| F8RP-DP-1F | \$84.00 | 0-1 m [0-3.28 ft] | 500Hz | Visible red | NA | PNP N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | PDF |
| F8RP-DN-1F | \$84.00 | 0-1 m [0-3.28 ft] | 500Hz | Visible red | NA | NPN N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | PDF |
| Through-beam | | | | | | | | | | |
| F8RE-00-1F | \$75.00 | 0-2.2 m [0-7.22 ft] | NA | Visible red | F8RE-DP-1F or F8RR-DN-1F | NA | NA | 2-wire, 3-pin M8 quick-disconnect | Diagram 3 | PDF |
| F8RR-DP-1F | \$75.00 | 0-2.2 m [0-7.22 ft] | 500Hz | NA | F8RE-00-1F | PNP N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 1 | PDF |
| F8RR-DN-1F | \$75.00 | 0-2.2 m [0-7.22 ft] | 500Hz | NA | F8RE-00-1F | NPN N.O. | Dark-on | 3-wire, 3-pin M8 quick-disconnect | Diagram 2 | PDF |

* Purchase reflector separately

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

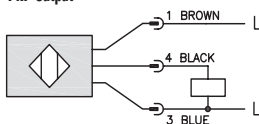
pro^{sense}® F8 Series Barrel Photoelectric Specifications

| ProSense 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 FBRE-00-1F |
| 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 | | | | |

Wiring diagrams

Diagram 1

PNP Output



M8 Connector

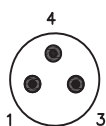


Diagram 2

NPN Output

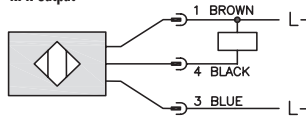
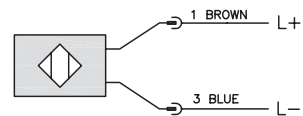


Diagram 3

Emitter



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

Accessories for 8mm Sensors

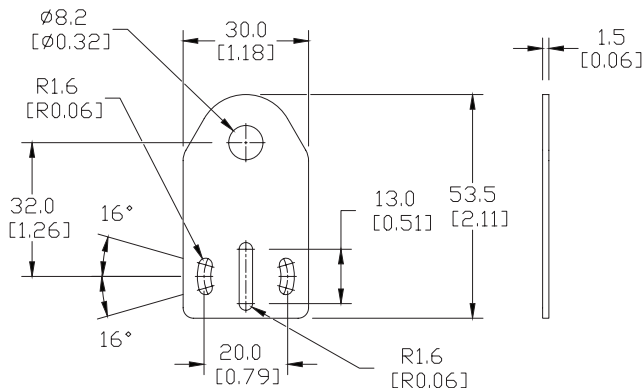
Axial Mounting Bracket

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 | Weight [lb] |
| ST08A | \$2.00 | Mounting bracket, axial, zinc plated steel. For use with 8mm sensors. | 0.04 |

Dimensions

mm [inches]



ST08A

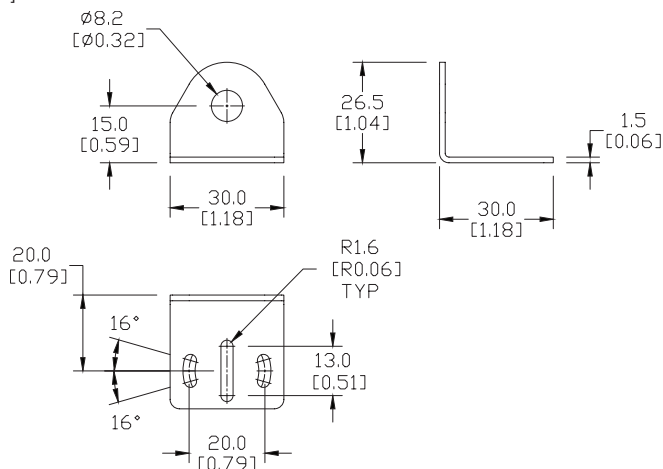
Right-angle Mounting Bracket

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 | Weight [lb] |
| ST08C | \$2.00 | Mounting bracket, right-angle, zinc plated steel. For use with 8mm sensors. | 0.04 |

Dimensions

mm [inches]



ST08C

See our website: www.AutomationDirect.com
for complete engineering drawings

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 | \$7.25 | 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 | \$10.50 | 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 | \$18.50 | 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 |

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



OPT2112 & OPT2113

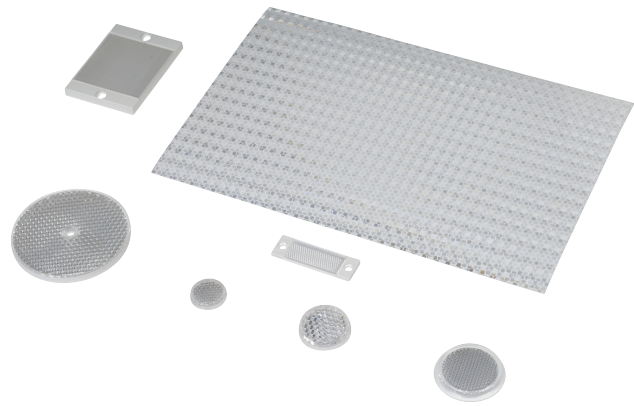
Reflectors

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°.



| Specifications | | | | | | | |
|-----------------|---------|--------------------|------------------|----------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Part number | Price | Quantity | Dimensions | Degree of Protection | Mounting | Materials | |
| RL102 | \$38.00 | 10 per pack | 25mm | IEC IP67 | Customer-supplied adhesive or other mounting method required | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) | |
| RL102-1 | \$3.75 | 1 per pack | [0.98 in] | | | | |
| RL103 | \$43.50 | 10 per pack | 34.5 mm | | | | |
| RL103-1 | \$4.25 | 1 per pack | [1.36 in] | | | | |
| RL104 | \$43.50 | 10 per pack | 46mm | | | | |
| RL104-1 | \$4.25 | 1 per pack | [1.81 in] | | | | |
| RL105G | \$38.00 | 10 per pack | 95 x 38 mm | | Two 4.3 mm holes | | |
| RL105G-1 | \$3.75 | 1 per pack | [3.74 x 1.50 in] | | | | |
| RL106G | \$43.50 | 10 per pack | 182 x 42 mm | | Two 6mm holes | | |
| RL106G-1 | \$4.25 | 1 per pack | [7.17 x 1.65 in] | | | | |
| RL110 | \$19.50 | 10 per pack | 84mm | | One 5mm hole | | |
| RL110-1 | \$2.00 | 1 per pack | [3.31 in] | | | | |
| RL116 | \$19.50 | 10 per pack | 41 x 60 mm | | Two 3mm holes | | |
| RL116-1 | \$2.00 | 1 per pack | [3.54 x 2.36 in] | | | | |
| RL100DA4 | \$35.50 | 1 per pack | 200 x 300 mm | | Self-adhesive | | Paper (Acrylic tape with micro prism) |
| RL100DC4 | \$11.00 | 1 per pack | 50 x 300 mm | | | | |
| RL100DQ1 | \$8.25 | 1 per pack | 100 x 100 mm | | | | |
| RL111G | \$56.00 | 10 per pack | 22.5 x 47 mm | Two 3mm slots | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) | | |
| RL111G-1 | \$6.75 | 1 per pack | [0.89 x 1.85 in] | | | | |
| RL112G | \$43.50 | 10 per pack | 19 x 73 mm | | | | |
| RL112G-1 | \$4.25 | 1 per pack | [0.75 x 2.87 in] | | | | |
| RL113G | \$49.50 | 10 per pack | 51.4 x 60.3 mm | | | | |
| RL113G-1 | \$5.50 | 1 per pack | [2.02 x 2.37 in] | Two 4mm slots | | | |

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

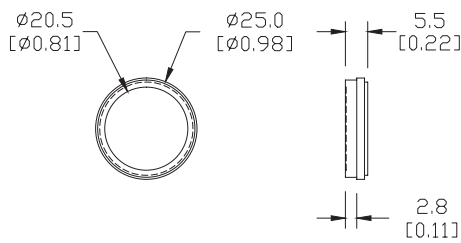
| Specifications | | | | | | |
|-----------------------------------|------------------------------|---------|-----------------------------|---------|----------------------------------|---------|
| Part Number | RL201 | RL201-1 | RL203 | RL203-1 | RL204 | RL204-1 |
| Price | \$35.00 | \$7.75 | \$32.50 | \$7.25 | \$28.00 | \$6.25 |
| Quantity (per package) | 5 | 1 | 5 | 1 | 5 | 1 |
| Dimensions | 60 x 82 mm 2.36 x 3.23 in | | 19 x 6 mm 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.

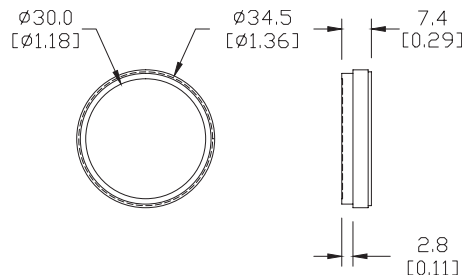
Dimensions

mm [inches]

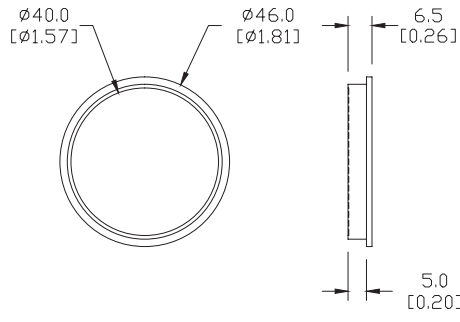
RL102/RL102-1



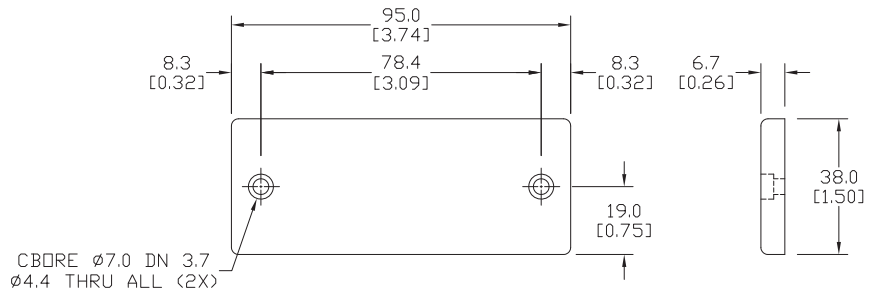
RL103/RL103-1



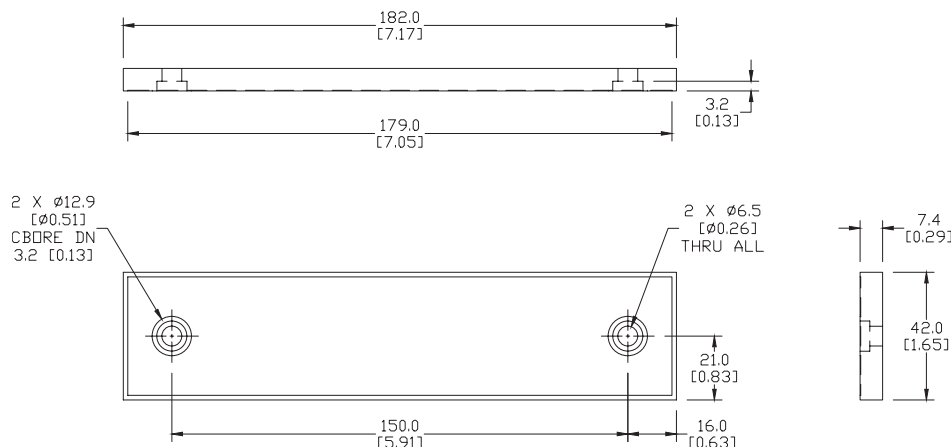
RL104/RL104-1



RL105G/RL105G-1



RL106G/RL106G-1



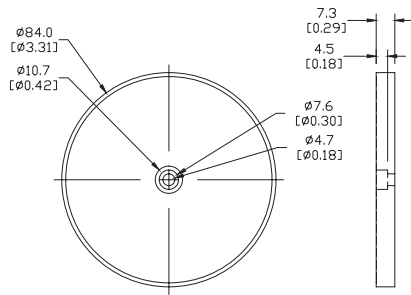
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Reflectors

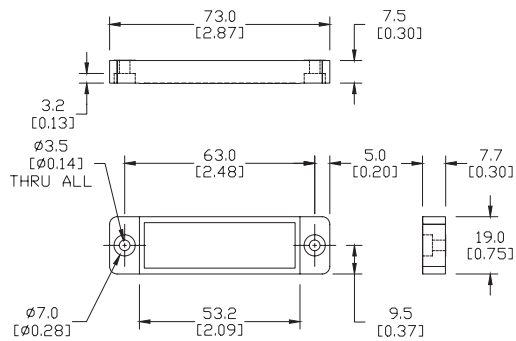
Dimensions

mm [inches]

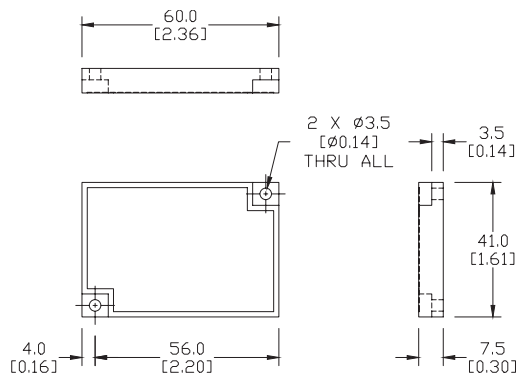
RL110/RL110-1



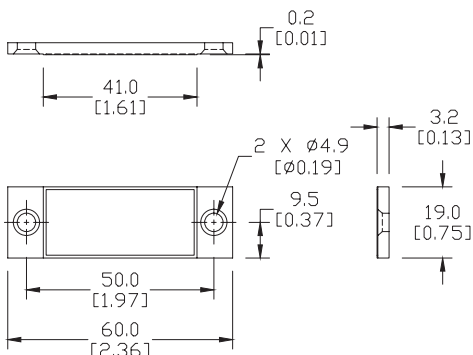
RL112G/RL112G-1



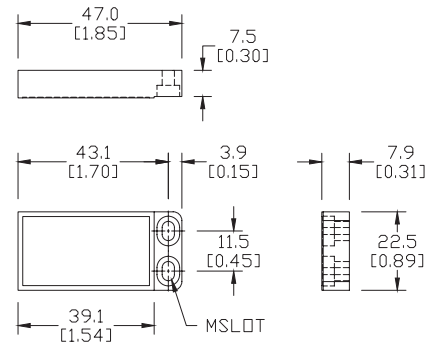
RL116/RL116-1



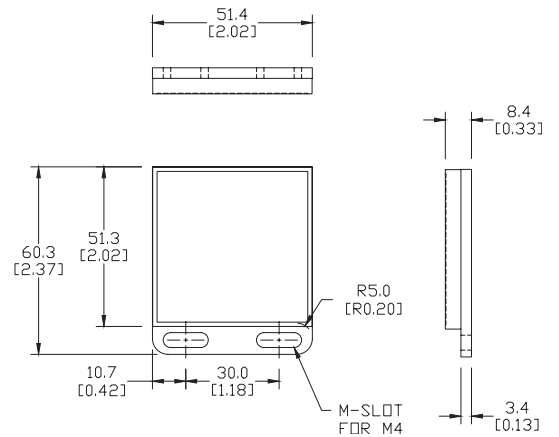
RL203/RL203-1



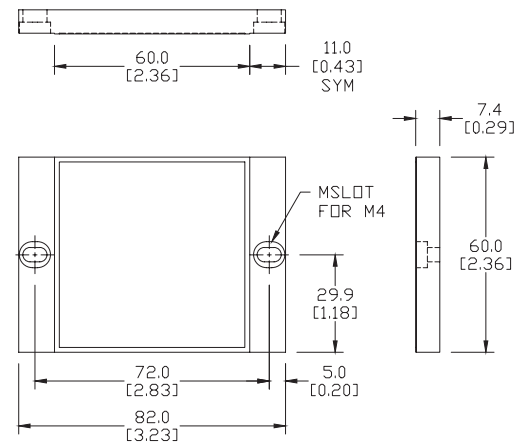
RL111G/RL111G-1



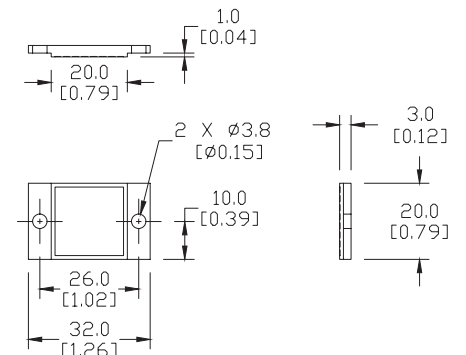
RL113G/RL113G-1



RL201/RL201-1



RL204/RL204-1



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