

# 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
<b>Diffuse reflective with adjustable background suppression</b>										
<b>F8RS-LP-2F</b>		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	<a href="#">PDF</a>
<b>F8RS-LN-2F</b>		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	<a href="#">PDF</a>
<b>Diffuse reflective with fixed background suppression</b>										
<b>F8RS-LP-1F</b>		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	<a href="#">PDF</a>
<b>F8RS-LN-1F</b>		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	<a href="#">PDF</a>
<b>Diffuse reflective</b>										
<b>F8R6-LP-1F</b>		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	<a href="#">PDF</a>
<b>F8R6-LN-1F</b>		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	<a href="#">PDF</a>
<b>Retroreflective sensor *</b>										
<b>F8RP-DP-1F</b>		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	<a href="#">PDF</a>
<b>F8RP-DN-1F</b>		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	<a href="#">PDF</a>
<b>Through-beam</b>										
<b>F8RE-00-1F</b>		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	<a href="#">PDF</a>
<b>F8RR-DP-1F</b>		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	<a href="#">PDF</a>
<b>F8RR-DN-1F</b>		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	<a href="#">PDF</a>

\* Purchase reflector separately

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

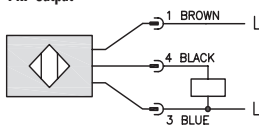
# pro<sup>sense</sup>® F8 Series Barrel Photoelectric Specifications

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

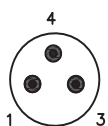
## Wiring diagrams

**Diagram 1**

PNP Output

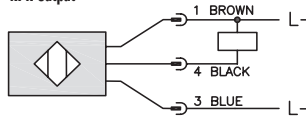


M8 Connector



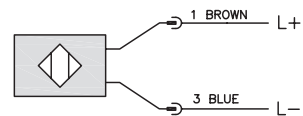
**Diagram 2**

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	Drawing Link	Weight [lb]
<a href="#">ST08A</a>		Micro Detectors mounting bracket, axial, zinc plated steel. For use with 8mm sensors.	<a href="#">PDF</a>	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]
<a href="#">ST08C</a>		Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 8mm sensors.	<a href="#">PDF</a>	0.04



ST08C

# Accessories for 8mm Sensors

## Right-angle Mounting Bracket

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



OPT2101

Accessories for 8mm Sensors				
Part Number	Price	Description	Drawing Link	Weight [lb]
<a href="#">OPT2101</a>		Wenglor mounting bracket, right-angle, plastic. For use with 8mm sensors.	<a href="#">PDF</a>	0.02

## 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.



OPT2112 & OPT2113

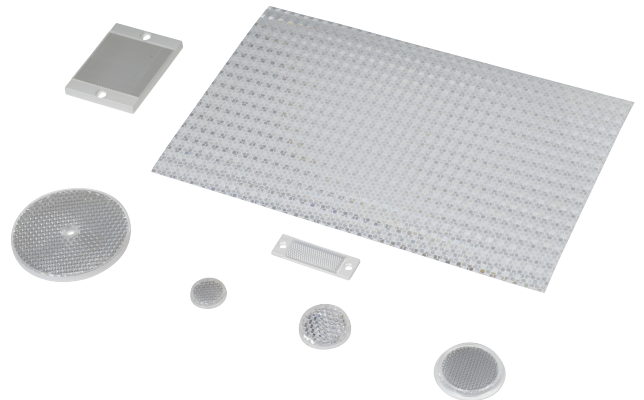
Accessories for 8mm Sensors						
Part Number	Price	Description	Mounting Head	Mounting Plate	Drawing Link	Weight [lb]
<a href="#">OPT2112</a>		Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 8mm sensors.	Aluminum	304 Stainless Steel	<a href="#">PDF</a>	0.14
<a href="#">OPT2113</a>		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	<a href="#">PDF</a>	0.26

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		<a href="#">PDF</a>	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			1	[0.98]			
RL103		<a href="#">PDF</a>	10	34.5			
RL103-1			1	[1.36]			
RL104		<a href="#">PDF</a>	10	46			
RL104-1			1	[1.81]			
RL105G		<a href="#">PDF</a>	10	95 x 38		Two 6mm holes	
RL105G-1			1	[3.74 x 1.50]			
RL106G		<a href="#">PDF</a>	10	182 x 42		One 5mm hole	
RL106G-1			1	[7.17 x 1.65]			
RL110		<a href="#">PDF</a>	10	84		Two 3mm holes	
RL110-1			1	[3.31]			
RL116		<a href="#">PDF</a>	10	41 x 60		Self-adhesive	
RL116-1			1	[3.54 x 2.36]			
RL100DA4		NA	1	200 x 300		Paper (Acrylic tape with micro prism)	
RL100DC4		NA	1	50 x 300			
RL100DQ1		NA	1	100 x 100			
RL111G		<a href="#">PDF</a>	10	22.5 x 47	Two 3mm slots		
RL111G-1			1	[0.89 x 1.85]			
RL112G		<a href="#">PDF</a>	10	19 x 73		Two 4mm slots	
RL112G-1			1	[0.75 x 2.87]			
RL113G		<a href="#">PDF</a>	10	51.4 x 60.3			
RL113G-1			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						
Drawing Link	<a href="#">PDF</a>		<a href="#">PDF</a>		<a href="#">PDF</a>	
Quantity	5	1	5	1	5	1
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 <sup>1</sup>	IEC IP67					
Mounting	Two 0.4 mm holes		Two 0.4 mm holes		Two 0.3 mm holes	
Materials	Acrylic/polycarbonate					

<sup>1</sup> Not recommended for applications involving moist air environments or water immersion.