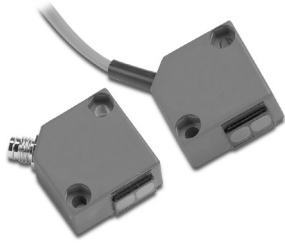


# CX Series Photoelectric Sensors



## Mini-rectangular plastic - DC

- 18 models available
- Long operating distances
- Adjustable sensitivity
- Scratch-resistant and easy to clean glass lens
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- Mounting brackets are not needed
- IP65 rated



### CX Series Mini-Rectangular Photoelectric Sensors Selection Chart

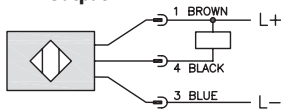
Part Number		Price	Sensing Range	Output State	Logic	Connection	Wiring	Dimensions	Characteristic Curves
Diffuse									
<a href="#">CX3-AN-1A</a>		\$63.00	Up to 600mm [23.62 in]	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 1
<a href="#">CX3-AP-1A</a>		\$63.00			PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 1
<a href="#">CX3-AN-1F</a>		\$63.00			NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 1
<a href="#">CX3-AP-1F</a>		\$63.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 1
Diffuse with background suppression									
<a href="#">CX5-AN-1A</a>		\$86.00	15-150mm [0.59 to 5.91 in]	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 2
<a href="#">CX5-AP-1A</a>		\$86.00			PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 2
<a href="#">CX5-AN-1F</a>		\$86.00			NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 2
<a href="#">CX5-AP-1F</a>		\$86.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 2
Polarized reflective*									
<a href="#">CXP-AN-1A</a>		\$66.00	Up to 2m [6.6 ft]	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 3
<a href="#">CXP-AP-1A</a>		\$66.00			PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 3
<a href="#">CXP-AN-1F</a>		\$66.00			NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 3
<a href="#">CXP-AP-1F</a>		\$66.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 3
Through-beam**									
<a href="#">CXR-AP-1A</a>	Receiver	\$63.00	Up to 6m [19.7 ft]	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 4
<a href="#">CXR-AP-1F</a>	Receiver	\$63.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 4
<a href="#">CXE-0N-1A</a>	Emitter	\$40.50		Receiver dependent	Receiver dependent	2m [6.5 ft] axial cable	Diagram 3	Figure 1	Chart 4
<a href="#">CXE-0N-1F</a>	Emitter	\$40.50				M8 [8mm] connector	Diagram 3	Figure 2	Chart 4

\*Purchase reflectors separately.

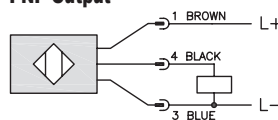
\*\*Purchase one receiver and one emitter for a complete set.

## Wiring Diagrams

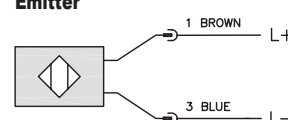
**Diagram 1**  
**NPN Output**



**Diagram 2**  
**PNP Output**



**Diagram 3**  
**Emitter**

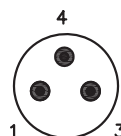


Emitter test input (<4V: OFF / >8V or open: ON) 0.5mA

### 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.

**Connector**  
**M8 connector**



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

CX Series Photoelectric Sensors Specifications				
Specifications	Diffuse Models	Diffuse Models with Background Suppression	Reflective Models	Through-beam Models <sup>1</sup>
Type	Diffuse reflection	Diffuse reflection with background suppression	Polarized reflection	Through-beam
Sensing Distance	600mm²	15 to 150mm³	2m	6m
Light Spot Diameter	See charts			
Emission	IR-LED [880nm]	LED red [660nm]	LED red polarized [660nm]	IR-LED [880nm]
Sensitivity	Adjustable 12-turn pot.			
Output Type	NPN or PNP; N.O. only			
Operating Voltage	10-36 VDC			
No Load Supply Current	15mA	25mA	15mA	15mA (R) / 10mA (E)
Operating (Load) Current	≤ 200mA			
Off-state (Leakage) Current	≤ 10µA			
Voltage Drop	≤ 2.0V			
Switching Frequency	1kHz	500Hz	1kHz	1kHz
Ripple	≤ 20%			
Time Delay Before Availability (tv)	100ms			
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)			
Operating Temperature	-25 to 55°C [-13 to 131°F]			
Protection Degree (DIN 40050)	IEC IP65			
LED Indicators - Switching Status	Yellow (output state, output energized), green (excess light indication)			
Housing Material	PBTP (Crastin)			
Lens Material	Glass			
Shock/Vibration	<a href="#">See terminology section</a>			
Tightening Torque	N/A			
Weight (cable/connector)	84g [2.96 oz] / 49g [1.73 oz]			232g [8.40oz] / 98g [3.46oz]
Connectors	2m [6.5 ft] axial cable; M8 [8mm] connector			
Agency Approvals	cULus E32881			

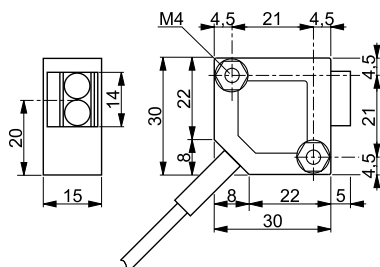
<sup>3</sup> With 100x100mm white matte paper

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

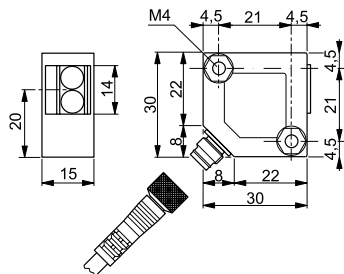
## Characteristic curves

(mm)

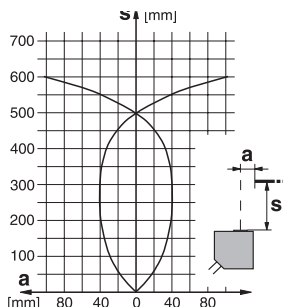
### Figure 1



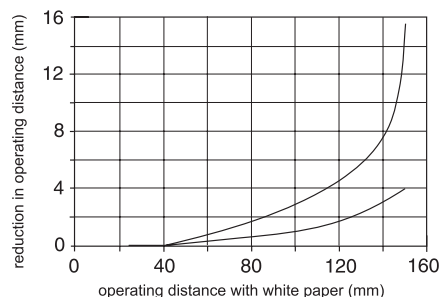
## Figure 2



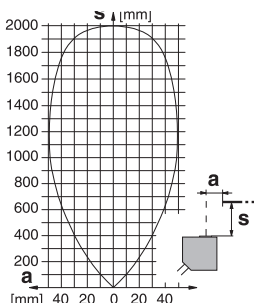
### Chart 1 (Diffuse)



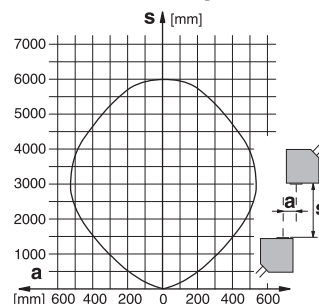
### Chart 2 (Diffuse with background suppression)



### Chart 3 (Polarized reflective)



### Chart 4 (Through-beam)



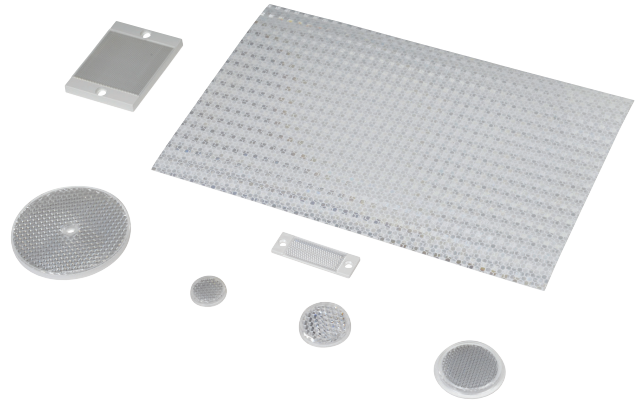
# Reflectors

## 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  $\pm 15^\circ$ .



Reflector Specifications							
Part number	Price	Drawing Link	Quantity	Dimensions mm [in]	Degree of Protection	Mounting	Materials
<a href="#">RL102</a>	\$38.00	<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)
<a href="#">RL102-1</a>	\$4.25		1	[0.98]			
<a href="#">RL103</a>	\$42.50	<a href="#">PDF</a>	10	34.5			
<a href="#">RL103-1</a>	\$4.75		1	[1.36]			
<a href="#">RL104</a>	\$42.50	<a href="#">PDF</a>	10	46			
<a href="#">RL104-1</a>	\$4.75		1	[1.81]			
<a href="#">RL105G</a>	\$38.00	<a href="#">PDF</a>	10	95 x 38		Two 4.3 mm holes	
<a href="#">RL105G-1</a>	\$4.25		1	[3.74 x 1.50]			
<a href="#">RL106G</a>	\$42.50	<a href="#">PDF</a>	10	182 x 42		Two 6mm holes	
<a href="#">RL106G-1</a>	\$4.75		1	[7.17 x 1.65]			
<a href="#">RL110</a>	\$19.00	<a href="#">PDF</a>	10	84		One 5mm hole	
<a href="#">RL110-1</a>	\$2.00		1	[3.31]			
<a href="#">RL116</a>	\$19.00	<a href="#">PDF</a>	10	41 x 60		Two 3mm holes	
<a href="#">RL116-1</a>	\$2.00		1	[3.54 x 2.36]			
<a href="#">RL100DA4</a>	\$38.50	NA	1	200 x 300		Self-adhesive	Paper (Acrylic tape with micro prism)
<a href="#">RL100DC4</a>	\$12.00	NA	1	50 x 300			
<a href="#">RL100DQ1</a>	\$8.75	NA	1	100 x 100			
<a href="#">RL111G</a>	\$60.00	<a href="#">PDF</a>	10	22.5 x 47	Two 3mm slots	Reflective face: PMMA Polymethylmethacrylate (acrylic)  Base material: ABS (Acrylonitrile-butadiene-styren)	
<a href="#">RL111G-1</a>	\$7.25		1	[0.89 x 1.85]			
<a href="#">RL112G</a>	\$44.00	<a href="#">PDF</a>	10	19 x 73			
<a href="#">RL112G-1</a>	\$4.75		1	[0.75 x 2.87]			
<a href="#">RL113G</a>	\$53.00	<a href="#">PDF</a>	10	51.4 x 60.3	Two 4mm slots		
<a href="#">RL113G-1</a>	\$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	<a href="#"><i>RL201</i></a>	<a href="#"><i>RL201-1</i></a>	<a href="#"><i>RL203</i></a>	<a href="#"><i>RL203-1</i></a>	<a href="#"><i>RL204</i></a>	<a href="#"><i>RL204-1</i></a>
Price	\$38.00	\$8.25	\$35.50	\$7.75	\$30.00	\$6.75
Quantity	5	1	5	1	5	1
Drawing Link	<a href="#">PDF</a>		<a href="#">PDF</a>		<a href="#">PDF</a>	
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.