CX Series Photoelectric Sensors



Mini-rectangular Plastic - DC

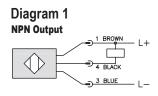
- 18 models available
- Long operating distances
- · Adjustable sensitivity
- Scratch-resistant and easy to clean glass lens
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- Mounting brackets are not needed
- IP65 rated

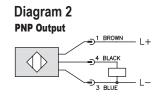


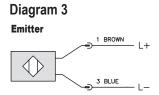
CX Series Mini-Rectangular Photoelectric Sensors Selection Chart									
Part Number		Price	Sensing Range	Output State	Logic	Connection	Wiring	Dimensions	Characteristic Curves
Diffuse									
CX3-AN-1A		\$63.00		N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 1
CX3-AP-1A		\$63.00	Up to 600mm		PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 1
CX3-AN-1F	X3-AN-1F		[23.62 in]		NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 1
CX3-AP-1F		\$63.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 1
Diffuse with background suppression									
CX5-AN-1A	CX5-AN-1A			11.0	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 2
CX5-AP-1A		\$86.00	15-150mm		PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 2
CX5-AN-1F		\$86.00	[0.59 to 5.91 in]	N.O.	NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 2
CX5-AP-1F		\$86.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 2
Polarized reflecti	Polarized reflective*								
CXP-AN-1A		\$66.00			NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1	Chart 3
CXP-AP-1A	CXP-AP-1A		11. 1. 0 10 0 11	NO	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 3
CXP-AN-1F		\$66.00	Up to 2m [6.6 ft]	N.O.	NPN	M8 [8mm] connector	Diagram 1	Figure 2	Chart 3
CXP-AP-1F		\$66.00			PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 3
Through-beam**									
CXR-AP-1A	Receiver	\$63.00		N.O. Receiver dependent	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1	Chart 4
CXR-AP-1F	Receiver	\$63.00	Un to 6m [10 7 ft]		PNP	M8 [8mm] connector	Diagram 2	Figure 2	Chart 4
<u>CXE-0N-1A</u>	Emitter	\$40.50	Up to 6m [19.7 ft]		Receiver	2m [6.5 ft] axial cable	Diagram 3	Figure 1	Chart 4
CXE-0N-1F	Emitter	\$40.50			dependent	M8 [8mm] connector	Diagram 3	Figure 2	Chart 4

^{*}Purchase reflectors separately.

Wiring Diagrams







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

Switching Element Function							
	Diffuse Reflective Models						
Light-on	N.C.	N.O.					
Dark-on	N.O.	N.C.					



Connector M8 connector

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

^{**}Purchase one receiver and one emitter for a complete set.

CX Series Photoelectric Sensors

CX Series Photoelectric Sensors Specifications								
Specifications	Diffuse Models	Diffuse Models with Background Suppression	Reflective Models	Through-beam Models'				
Туре	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-tu	rn 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	1kHz 500Hz		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	See terminology section							
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							

¹ Through-beam sensors must be used in pairs consisting of one receiver and one emitter ² With 200x200mm white matte paper

Dimensions

(mm)

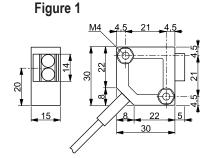
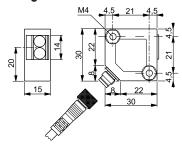


Figure 2



Characteristic curves

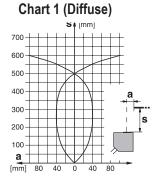


Chart 3 (Polarized reflective)

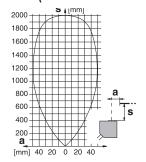


Chart 2 (Diffuse with background suppression)

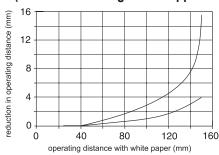
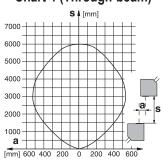


Chart 4 (Through-beam)



Photoelectric Sensors

³ 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.

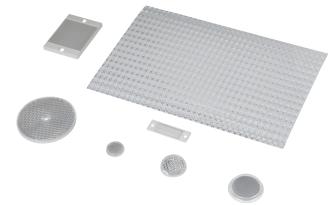
Reflectors

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			
RL102	\$38.00	- PDF	10	25		Customer-supplied adhesive or other mounting method required				
RL102-1	\$4.25	PDF	1	[0.98]						
RL103	\$42.50	- <u>PDF</u>	10	34.5 [1.36]						
RL103-1	\$4.75		1							
RL104	\$42.50	DDE	10	46						
RL104-1	\$4.75	- <u>PDF</u>	1	[1.81]			Reflective face: PMMA			
RL105G	\$38.00	DDE	10	95 x 38		Two 4.3 mm holes	Polymethylmethacrylate (acrylic)			
RL105G-1	\$4.25	- <u>PDF</u>	1	[3.74 x 1.50]			Base material: ABS			
<u>RL106G</u>	\$42.50	- PDF	10	182 x 42	- IEC IP67	Two 6mm holes	(Acrylonitrile-butadiene-styren)			
RL106G-1	\$4.75	<u>FDI</u>	1	[7.17 x 1.65]						
RL110	\$19.00	- <u>PDF</u>	10	84 [3.31]		One 5mm hole				
RL110-1	\$2.00		1							
RL116	\$19.00	- PDF	10	41 x 60		Two 3mm holes				
RL116-1	\$2.00	PDF	1	[3.54 x 2.36]						
RL100DA4	\$38.50	NA	1	200 x 300 [7.87 x 11.81]			Paper (Acrylic tape with micro prism)			
RL100DC4	\$12.00	NA	1	50 x 300 [1.97 x 11.81]		Self-adhesive				
RL100DQ1	\$8.75	NA	1	100 x 100 [3.94 x 3.94]						
<u>RL111G</u>	\$60.00	PDF	10	22.5 x 47		Two 3mm slots	Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS			
<u>RL111G-1</u>	\$7.25		1	[0.89 x 1.85]						
<u>RL112G</u>	\$44.00		10	. 19 x 73 [0.75 x 2.87]						
RL112G-1	\$4.75	FUE	1							
<u>RL113G</u>	\$53.00	- <u>PDF</u>	10	51.4 x 60.3 [2.02 x 2.37]		Two 4mm slots	(Acrylonitrile-butadiene-styren)			
RL113G-1	\$6.00	1.01	1							

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

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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 Specification								
Part Number	<u>RL201</u>	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	<u>P</u> [<u>DF</u>	<u>PI</u>	<u>DF</u>	PDF			
Dimensions	60 x 8 2.36 x					x 32mm 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 hole			mm holes				
Materials Acrylic/polycarbonate								

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

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