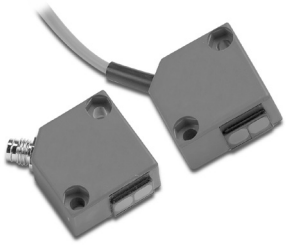
CX Series Photoelectric Sensors



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		Up to 600mm (23.62 in)	N.O.	NPN	2m (6.56 ft) axial cable	Diagram 1	Figure 1	Chart 1
CX3-AP-1A				PNP	2m (6.56 ft) axial cable	Diagram 2	Figure 1	Chart 1
CX3-AN-1F				NPN	M8 (8mm) connector	Diagram 1	Figure 2	Chart 1
CX3-AP-1F				PNP	M8 (8mm) connector	Diagram 2	Figure 2	Chart 1
Diffuse with background suppression								
CX5-AN-1A		15-150 mm (0.59 to 5.91 in)	N.O.	NPN	2m (6.56 ft) axial cable	Diagram 1	Figure 1	Chart 2
CX5-AP-1A				PNP	2m (6.56 ft) axial cable	Diagram 2	Figure 1	Chart 2
CX5-AN-1F				NPN	M8 (8mm) connector	Diagram 1	Figure 2	Chart 2
CX5-AP-1F				PNP	M8 (8mm) connector	Diagram 2	Figure 2	Chart 2
Polarized reflective*								
CXP-AN-1A		Up to 2m (6.6 ft)	N.O.	NPN	2m (6.56 ft) axial cable	Diagram 1	Figure 1	Chart 3
CXP-AP-1A				PNP	2m (6.56 ft) axial cable	Diagram 2	Figure 1	Chart 3
CXP-AN-1F				NPN	M8 (8mm) connector	Diagram 1	Figure 2	Chart 3
CXP-AP-1F				PNP	M8 (8mm) connector	Diagram 2	Figure 2	Chart 3
Through-beam								
CXR-AP-1A	Receiver	Up to 6m (19.7 ft)	N.O.	PNP	2m (6.56 ft) axial cable	Diagram 2	Figure 1	Chart 4
CXR-AP-1F	Receiver			PNP	M8 (8mm) connector	Diagram 2	Figure 2	Chart 4
CXE-0N-1A	Emitter		Receiver dependent	Receiver dependent	2m (6.56 ft) axial cable	Diagram 3	Figure 1	Chart 4
CXE-0N-1F	Emitter				M8 (8mm) connector	Diagram 3	Figure 2	Chart 4

Purchase reflectors separately.

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

Switching Element Function		
	Through-beam and Reflective Models	***Diffuse Reflective Models***
Light on	N.C.	N.O.
Dark on	N.O.	N.C.

Wiring Diagrams

Diagram 1

NPN Output

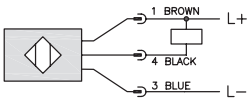


Diagram 2

PNP Output

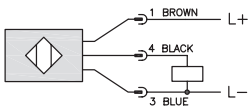
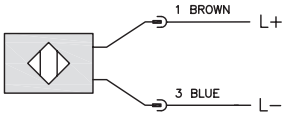


Diagram 3

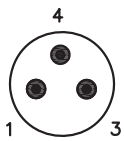
Emitter



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

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	Diffuse Models	Diffuse Models with Background Suppression	Reflective Models	Through-beam Models[1]
Type	Diffuse reflection	Diffuse reflection with background suppression	Polarized reflection	Through-beam
Sensing Distance	600mm[2]	15 to 150mm[3]	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	10-36VDC			
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 autoresets 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') axial cable; M8 (8 mm) 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, [3]With 100x100mm white matte paper

Dimensions

(mm)

Figure 1

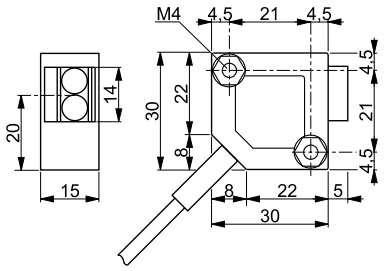
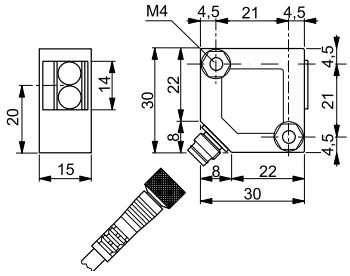


Figure 2



Characteristic curves

Chart 1 (Diffuse)

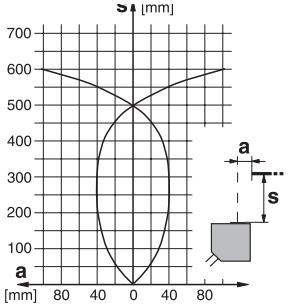


Chart 2 (Diffuse with background suppression)

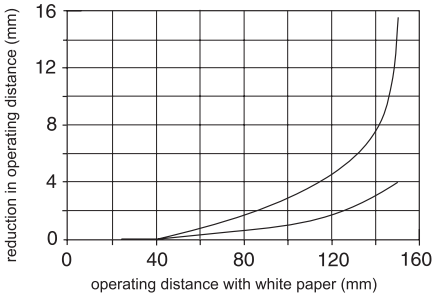


Chart 3 (Polarized reflective)

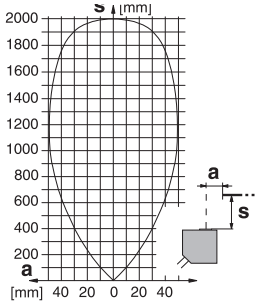
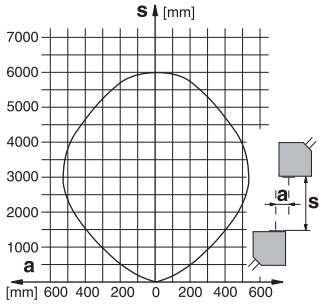


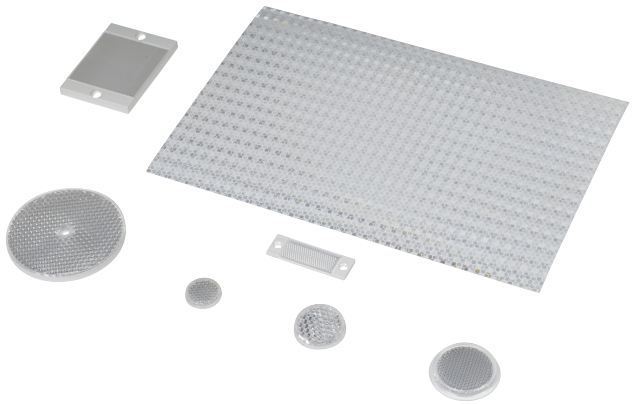
Chart 4 (Through-beam)



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 ±15°.

Reflector Specifications

Part number	Price	Drawing Link	Quantity	Dimensions mm [in]	Degree of Protection	Mounting	Materials
RL102		PDF	10	25 [0.98]	IEC IP67	Customer-supplied adhesive or other mounting method required	Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren)
RL102-1			1				
RL103		PDF	10	34.5 [1.36]			
RL103-1			1				
RL104		PDF	10	46 [1.81]			
RL104-1			1				
RL105G		PDF	10	95 x 38 [3.74 x 1.50]		Two 4.3 mm holes	
RL105G-1			1				
RL106G		PDF	10	182 x 42 [7.17 x 1.65]		Two 6mm holes	
RL106G-1			1				
RL110		PDF	10	84 [3.31]		One 5mm hole	
RL110-1			1				
RL116		PDF	10	41 x 60 [3.54 x 2.36]		Two 3mm holes	
RL116-1			1				
RL100DA4		NA	1	200 x 300 [7.87 x 11.81]		Self-adhesive	Paper (Acrylic tape with micro prism)
RL100DC4		NA	1	50 x 300 [1.97 x 11.81]			
RL100DQ1		NA	1	100 x 100 [3.94 x 3.94]			
RL111G		PDF	10	22.5 x 47 [0.89 x 1.85]		Two 3mm slots	Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren)
RL111G-1			1				
RL112G		PDF	10	19 x 73 [0.75 x 2.87]			
RL112G-1			1				
RL113G		PDF	10	51.4 x 60.3 [2.02 x 2.37]		Two 4mm slots	
RL113G-1			1				

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	PDF		PDF		PDF	
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 [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.**