



# C23 Rectangular Photoelectric Sensors

## Overview

Whatever the application, C23 series sensors meet its highest demands. Their miniature size (20 x 30 x 10 mm), first-class sensing ranges and practical accessories are ideal for limited spaces. Housings have an IP67 enclosure rating and are ECOLAB-approved for use in hygienic areas. Versions with background suppression and pinpoint LED ensure high reliability and extended detection ranges. Versatile mounting brackets ensure ease of installation. All PNP types include IO-Link communication.



## 20 x 30mm plastic – DC

- Diffuse with background suppression, diffuse reflective, retroreflective, through-beam styles
- Axial cable or M8 quick-disconnect models; purchase cable separately
- Complete overload protection
- IP67 rated
- 2-year warranty
- IO-Link v1.0 [PNP and emitters units only]



LHR-C23PA-PMS-603

C23 Rectangular Plastic Photoelectric Sensors									
Part Number	Price	Operating Range <sup>1</sup>	Switching Frequency	Light Type	Logic	Output Function	Connection Type	Wiring	Drawing Link
<b>Diffuse with adjustable background suppression - Potentiometer</b>									
<a href="#">LHR-C23PA-PMK-603</a>	\$39.50	15 to 250 mm [0.59 to 9.84 in]	1000 Hz	Pinpoint LED Red 640nm	PNP	Complementary Light-on / Dark-on	4-wire, 2m [6.5 ft] cable	2	<a href="#">PDF</a>
<a href="#">LHR-C23PA-PMK-101</a>	\$39.50				NPN		4-wire, 2m [6.5 ft] cable	1	<a href="#">PDF</a>
<a href="#">LHR-C23PA-PMS-603</a>	\$39.50				PNP		4-wire, 4-pin M8 quick-disconnect	2	<a href="#">PDF</a>
<a href="#">LHR-C23PA-PMS-101</a>	\$39.50				NPN		4-wire, 4-pin M8 quick-disconnect	1	<a href="#">PDF</a>
<b>Diffuse with adjustable background suppression - Teach-in button</b>									
<a href="#">LHR-C23PA-TMK-603</a>	\$39.50	15 to 250 mm [0.59 to 9.84 in]	1000 Hz	Pinpoint LED Red 640nm	PNP	Complementary Light-on / Dark-on	4-wire, 2m [6.5 ft] cable	2	<a href="#">PDF</a>
<a href="#">LHR-C23PA-TMK-101</a>	\$39.50				NPN		4-wire, 2m [6.5 ft] cable	1	<a href="#">PDF</a>
<a href="#">LHR-C23PA-TMS-603</a>	\$39.50				PNP		4-wire, 4-pin M8 quick-disconnect	2	<a href="#">PDF</a>
<a href="#">LHR-C23PA-TMS-101</a>	\$39.50				NPN		4-wire, 4-pin M8 quick-disconnect	1	<a href="#">PDF</a>
<b>Diffuse reflective</b>									
<a href="#">LTR-C23PA-PMK-603</a>	\$32.00	5 to 1200 mm [0.19 to 47.24 in]	1.5 kHz	LED, Red 630nm	PNP	Complementary Light-on / Dark-on	4-wire, 2m [6.5 ft] cable	2	<a href="#">PDF</a>
<a href="#">LTR-C23PA-PMK-101</a>	\$32.00				NPN		4-wire, 2m [6.5 ft] cable	1	<a href="#">PDF</a>
<a href="#">LTR-C23PA-PMS-603</a>	\$32.00				PNP		4-wire, 4-pin M8 quick-disconnect	2	<a href="#">PDF</a>
<a href="#">LTR-C23PA-PMS-101</a>	\$32.00				NPN		4-wire, 4-pin M8 quick-disconnect	1	<a href="#">PDF</a>
<b>*Retroreflective</b>									
<a href="#">LRR-C23PA-NMK-603</a>	\$35.00	30 to 6000 mm [1.18 to 236.22 in]	1.5 kHz	LED, Red 630nm	PNP	Complementary Light-on / Dark-on	4-wire, 2m [6.5 ft] cable	2	<a href="#">PDF</a>
<a href="#">LRR-C23PA-NMK-101</a>	\$35.00				NPN		4-wire, 2m [6.5 ft] cable	1	<a href="#">PDF</a>
<a href="#">LRR-C23PA-NMS-603</a>	\$35.00				PNP		4-wire, 4-pin M8 quick-disconnect	2	<a href="#">PDF</a>
<a href="#">LRR-C23PA-NMS-101</a>	\$35.00				NPN		4-wire, 4-pin M8 quick-disconnect	1	<a href="#">PDF</a>
<b>*Purchase reflector separately</b>									
<b>Through-beam emitters</b>									
<a href="#">LLR-C23PA-NMK-400</a>	\$21.00	25m [82.02 ft]	1 kHz	LED, Red 630nm	N/A	N/A	3-wire, 2m [6.5 ft] cable	3	<a href="#">PDF</a>
<a href="#">LLR-C23PA-NMS-400</a>	\$21.00				N/A		3-wire, 3-pin M8 quick-disconnect	3	<a href="#">PDF</a>
<b>Through-beam receivers</b>									
<a href="#">LLR-C23PA-NMK-603</a>	\$28.00	25m [82.02 ft]	1 kHz	LED, Red 630nm	PNP	Complementary Light-on / Dark-on	4-wire, 2m [6.5 ft] cable	2	<a href="#">PDF</a>
<a href="#">LLR-C23PA-NMK-101</a>	\$28.00				NPN		4-wire, 2m [6.5 ft] cable	1	<a href="#">PDF</a>
<a href="#">LLR-C23PA-NMS-603</a>	\$28.00				PNP		4-wire, 4-pin M8 quick-disconnect	2	<a href="#">PDF</a>
<a href="#">LLR-C23PA-NMS-101</a>	\$28.00				NPN		4-wire, 4-pin M8 quick-disconnect	1	<a href="#">PDF</a>

<sup>1</sup> Object with 90% reflectance (standard white paper)

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

# C23 Rectangular Photoelectric Sensors



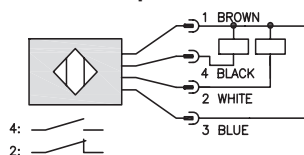
C23 20 x 30mm Plastic Photoelectric Sensors Specifications				
Sensor type	Diffuse reflective with adjustable background suppression	Diffuse reflective	Retroreflective	Through-beam
<b>Sensing Distance <sup>1</sup></b>	10 to 250mm [0.39 to 9.84 in]	3 to 1200mm [0.11 to 47.24 in]	20 to 8000 mm [0.78 to 314.96 in]	0 to 30m [0 to 98.43 ft]
<b>Light Spot Diameter (Distance)</b>	6mm [100mm] 10mm [250mm]	15mm [500mm] 26mm [1m]	30mm [1m] 140mm [6m]	15mm [300mm] 120mm [4m] 300mm [10m]
<b>Emission</b>	Pinpoint LED, red 640nm	LED, Red 630nm		
<b>Sensitivity</b>	Potentiometer models: 30 to 300 mm, 3/4 turn pot (PM) Teach-in button models: 30 to 300 mm, teach button (TM)	30 to 1500 mm, 3/4 turn pot	via IO-Link Only	
<b>Output Types</b>	NPN or PNP			
<b>Operating Voltage</b>	10-30 VDC			
<b>No Load Supply Current</b>	≤ 30mA	≤ 15mA	≤ 7 mA (emitter) ≤ 9 mA (receiver)	
<b>Operating (Load) Current</b>	≤ 100 mA			
<b>Response Time <sup>2</sup></b>	≤ 500 μs (normal) ≤ 1ms / ≤ 340 μs	≤ 340 μs (normal) ≤ 1 ms / ≤ 100 μs	≤ 500 μs (normal) ≤ 1 ms / ≤ 250 μs	
<b>Switching Frequency <sup>2</sup></b>	≤ 1 kHz (normal) ≤ 500 Hz / ≤ 1.5 kHz	≤ 1.5 kHz (normal) ≤ 500Hz / ≤ 5kHz		
<b>Ripple</b>	≤ 10%Vpp			
<b>Voltage Reversal Protection</b>	Yes			
<b>Short-circuit Protection</b>	Yes			
<b>Operating Temperature</b>	-25 to 65°C [-13 to 149°F]			
<b>Protection Degree</b>	IP67			
<b>LED Indicators - Switching Status</b>	Green LED: excess gain; yellow LED sensing state			
<b>Housing Material</b>	ABS - Acrylonitrile Butadiene Styrene			
<b>Lens Material</b>	PMMA - Poly (methyl methacrylate)			
<b>Shock/Vibration</b>	IEC 60947-5-2			
<b>Tightening Torque</b>	0.2 N·m [0.14 lb·ft]			
<b>Weight</b>	6g [0.21 oz] Connector version 42g [1.48 oz.] Cable version			
<b>IO-Link</b>	IO-Link v1.0, PNP and Emitter units only			
<b>Connectors</b>	PVC, 2m [6.5 ft] 3-wire or 4-wire; M8 3-pin or 4-pin connector			
<b>Agency Approvals</b>	cULus, CE, Ecolab			

<sup>1</sup> Object with 90% reflectance (standard white paper)

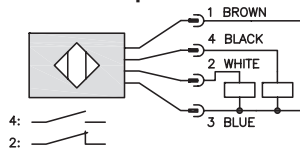
<sup>2</sup> By default, "Normal" mode. "Fine" and "Fast" modes selectable via IO-Link.

## Wiring Diagrams

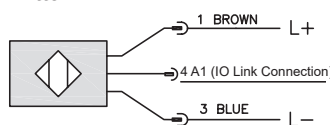
**Diagram 1**  
4-Wire NPN Output



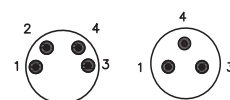
**Diagram 2**  
4-Wire PNP Output



**Diagram 3**  
Emitter



**M8 connectors**



Note: Pin 4 also used for IO link



# C23 Mounting Brackets

## C23 Mounting Brackets



**LXW-C23PA-000**



**LXW-C23PA-001**



**LXW-C23PA-002**



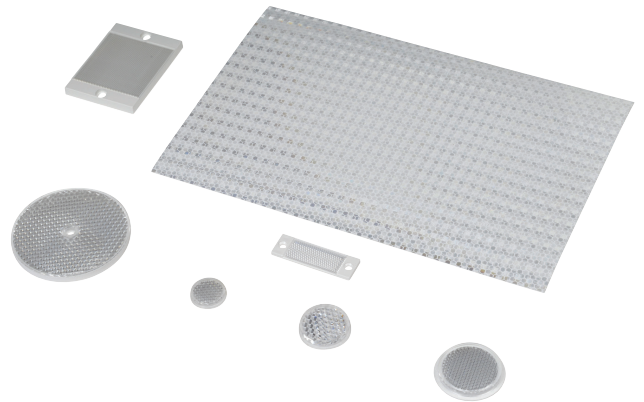
**LXW-C23PA-003**

C23 Mounting Brackets				
Part Number	Price	Description	Weight	Drawing Link
<b><u>LXW-C23PA-000</u></b>	\$5.50	Contrinex mounting bracket, right-angle horizontal, 304 stainless steel. For use with Contrinex C23 photoelectric sensors.	13g	<a href="#">PDF</a>
<b><u>LXW-C23PA-001</u></b>	\$5.50	Contrinex mounting bracket, right-angle vertical, 304 stainless steel. For use with Contrinex C23 photoelectric sensors.	20g	<a href="#">PDF</a>
<b><u>LXW-C23PA-002</u></b>	\$6.50	Contrinex mounting bracket, protective, 304 stainless steel. For use with Contrinex C23 photoelectric sensors.	16g	<a href="#">PDF</a>
<b><u>LXW-C23PA-003</u></b>	\$14.00	Contrinex mounting bracket, protective dual-axis, 304 stainless steel. For use with Contrinex C23 photoelectric sensors.	49g	<a href="#">PDF</a>

# 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	
<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.