



# M18 Plastic Photoelectric Sensors



## M18 (18mm) plastic – DC

- Diffuse with background suppression, retroreflective, through-beam styles
- Axial cable or M12 quick-disconnect models; purchase cable separately
- Complete overload protection
- IP67 rated
- 2-year warranty
- IO-Link V 1.0 on PNP models



M18 Plastic Photoelectric Sensors									
Part Number	Price	Sensing Range	Switching Frequency	Light Emission	Logic	Output Function	Connection Type	Wiring	Drawing Link
<b>Diffuse Reflective with Adjustable Background Suppression</b>									
<a href="#">LHR-M18PA-PMS-603</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	<a href="#">PDF</a>
<a href="#">LHR-M18PA-TMS-603</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	<a href="#">PDF</a>
<a href="#">LHR-M18PA-PMK-603</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	PNP	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 2	<a href="#">PDF</a>
<a href="#">LHR-M18PA-TMK-603</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED;640nm	PNP	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 2	<a href="#">PDF</a>
<a href="#">LHR-M18PA-PMS-101</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED;640nm	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	<a href="#">PDF</a>
<a href="#">LHR-M18PA-TMS-101</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	<a href="#">PDF</a>
<a href="#">LHR-M18PA-PMK-101</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	NPN	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 1	<a href="#">PDF</a>
<a href="#">LHR-M18PA-TMK-101</a>	\$35.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red LED 640nm	NPN	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 1	<a href="#">PDF</a>
<b>Diffuse Reflective</b>									
<a href="#">LTR-M18PA-PMS-603</a>	\$23.00	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red; LED 630nm	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	<a href="#">PDF</a>
<a href="#">LTR-M18PA-PMK-603</a>	\$23.00	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red LED 630nm	PNP	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 2	<a href="#">PDF</a>
<a href="#">LTR-M18PA-PMS-101</a>	\$23.00	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red LED 630nm	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	<a href="#">PDF</a>
<a href="#">LTR-M18PA-PMK-101</a>	\$23.00	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red LED 630nm	NPN	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 1	<a href="#">PDF</a>
<b>*Retroreflective Sensor</b>									
<a href="#">LRR-M18PA-NMS-603</a>	\$27.00	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red LED 630nm	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	<a href="#">PDF</a>
<a href="#">LRR-M18PA-NMK-603</a>	\$27.00	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red LED 630nm	PNP	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 2	<a href="#">PDF</a>
<a href="#">LRR-M18PA-NMS-101</a>	\$27.00	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red LED 630nm	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	<a href="#">PDF</a>
<a href="#">LRR-M18PA-NMK-101</a>	\$27.00	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red LED 630nm	NPN	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 1	<a href="#">PDF</a>
<b>*Purchase reflector separately</b>									
<b>Through-beam Emitters</b>									
<a href="#">LLR-M18PA-NMS-400</a>	\$20.00	0-30m [0-98.43 ft]	N/A	Visible red LED 630nm	N/A	N/A	4-pin M12 quick-disconnect	Diagram 3	<a href="#">PDF</a>
<a href="#">LLR-M18PA-NMK-400</a>	\$20.00	0-30m [0-98.43 ft]	N/A	Visible red LED 630nm	N/A	N/A	PVC, 2m [6.5 ft] 3-wire	Diagram 3	<a href="#">PDF</a>
<b>Through-beam Receivers</b>									
<a href="#">LLR-M18PA-NMS-603</a>	\$23.00	0-30m [0-98.43 ft]	1000Hz	N/A	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	<a href="#">PDF</a>
<a href="#">LLR-M18PA-NMK-603</a>	\$23.00	0-30m [0-98.43 ft]	1000Hz	N/A	PNP	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 2	<a href="#">PDF</a>
<a href="#">LLR-M18PA-NMS-101</a>	\$23.00	0-30m [0-98.43 ft]	1000Hz	N/A	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	<a href="#">PDF</a>
<a href="#">LLR-M18PA-NMK-101</a>	\$23.00	0-30m [0-98.43 ft]	1000Hz	N/A	NPN	Complementary Light-on / Dark-on	PVC, 2m [6.5 ft] 4-wire	Diagram 1	<a href="#">PDF</a>

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





# M18 Plastic Photoelectric Sensors Specifications



M18 Plastic Photoelectric Sensors Specifications				
Sensor type	Diffuse Reflective with Adjustable Background Suppression	Diffuse Reflective	Retroreflective	Through-Beam
Sensing Distance <sup>1</sup>	10-250mm [0.39-9.84 in]	3-1200mm [0.11-47.24 in]	00.02-7m [0.06-22.96 ft]	0-30m [0-98.43 ft]
Light Spot Diameter (Distance)	6mm [100mm] 10mm [250mm]	11mm [500mm] 21mm [1000mm]	21mm [1000mm] 110mm [6000mm]	35mm [500mm] 250mm [6000mm] 1000mm [25,000mm]
Emission	Pinpoint Red	Red LED	Red LED	Red LED
Sensitivity	30-250 mm, 3/4 turn pot (TM) 30-250 mm, teach button (TM)	30-1200 mm, 3/4 turn pot	via IO-Link Only	
Output Types	NPN or PNP			
Operating Voltage	10-30 VDC			
No Load Supply Current	≤ 30mA	≤ 15mA		
Operating (Load) Current	≤ 200 mA			
Response Time	≤ 700us	≤ 300us	≤ 340us	≤ 500us
Switching Frequency	≤ 700Hz (normal) ≤ 450Hz / ≤ 1kHz	≤ 1.5 kHz (normal) ≤ 500Hz / ≤ 5kHz	≤ 1.5 kHz (normal) ≤ 500Hz / ≤ 4.5 kHz	≤ 1.5 kHz (normal) ≤ 500 Hz /≤ 5kHzF
Ripple	10%Vpp			
Voltage Reversal Protection	Yes			
Short-circuit Protection	Yes			
Operating Temperature	-25 to +65°C [-13 to +149°F]			
Protection Degree	IP67			
LED Indicators - Switching Status	Green LED: excess gain; yellow LED sensing state			
Housing Material	ABS			
Lens Material	PMMA - Poly (methyl methacrylate)			
Shock/Vibration	IEC 60947-5-2			
Tightening Torque	1 N•m [0.73 lb•ft]			
Weight	6g [0.21 oz.] Connector version 71g [2.50 oz.] Cable version			
IO-Link	IO-Link version 1.0, PNP units only			
Connectors	PVC, 2m [6.5 ft] 3-wire or 4-wire; M12 4-pin connector			
Agency Approvals	cULus, CE			

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

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

## Wiring Diagrams

Diagram 1  
4-Wire NPN Output

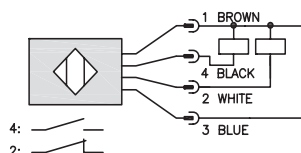


Diagram 2  
4-Wire PNP Output

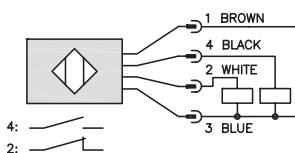
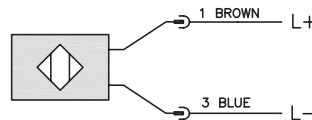
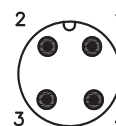


Diagram 3  
Emitter



M12 connector







# M18 Plastic Accessories



**LLW-M18PA-000**

M18 Plastic Right-Angle Adapters				
Part Number	Price	Description	Weight	Drawing Link
<b><u>LHW-M18PA-000</u></b>	\$7.25	Contrinex right-angle beam adapter, ABS plastic, 18mm. For use with Contrinex LHR 18mm photoelectrics. Mirror allows 90 degree light detection.	2g	<a href="#">PDF</a>
<b><u>LTW-M18PA-000</u></b>	\$7.25	Contrinex right-angle beam adapter, ABS plastic, 18mm. For use with Contrinex LTR/LRR 18mm photoelectrics. Mirror allows 90 degree light detection.	2g	<a href="#">PDF</a>
<b><u>LLW-M18PA-000</u></b>	\$7.25	Contrinex right-angle beam adapter, ABS plastic, 18mm. For use with Contrinex LLR 18mm photoelectrics. Mirror allows 90 degree light detection.	2g	<a href="#">PDF</a>







# Accessories for 18mm Sensors

## Right-angle Mounting Brackets

Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. Available with or without fixed insertion stop.

Accessories for 18mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<a href="#">OPT2104</a>	\$10.50	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	<a href="#">PDF</a>	0.06 [27.2]
<a href="#">OPT2105</a>	\$10.50	Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors.	<a href="#">PDF</a>	0.06 [27.2]



[OPT2104](#), [OPT2105](#)

## Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 18mm sensors. Available in all 304 stainless steel or with an aluminum head and a stainless steel mounting plate.

Accessories for 18mm Sensors						
Part Number	Price	Description	Mounting Head	Mounting Plate	Drawing Link	Weight lb [g]
<a href="#">OPT2116</a>	\$11.50	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.	Aluminum	304 Stainless steel	<a href="#">PDF</a>	0.15 [68.0]
<a href="#">OPT2117</a>	\$21.00	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors.	304 Stainless steel	304 Stainless steel	<a href="#">PDF</a>	0.28 [127.0]



[OPT2116](#), [OPT2117](#)

Note: 304 Stainless steel mounting rods sold separately: [OPT2109](#) (200mm [7.87 in] length), [OPT2110](#) (300mm [11.81 in] length), and [OPT2111](#) (500mm [19.69 in] length).



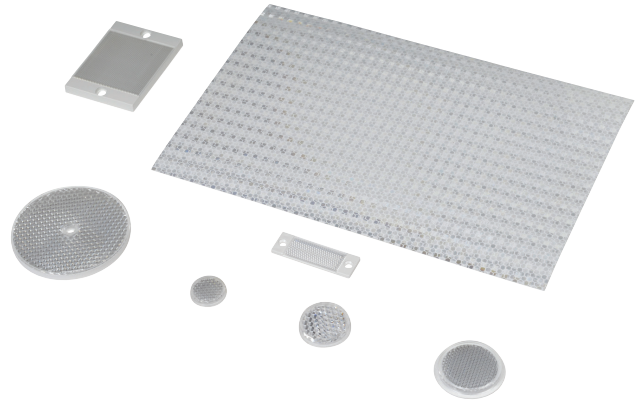
# Reflectors

## 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  $\pm 15^\circ$ .



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.