



M18 Metal Photoelectric Sensors



LTR-M18MA-PMS-603

M18 (18mm) Metal – DC

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



M18 Metal Photoelectric Sensors									
Part Number	Price	Sensing Range	Switching Frequency	Light Emission	Logic	Output Function	Connection Type	Wiring	Drawing Link
Diffuse Reflective									
LTR-M18MA-PMS-603	\$40.50	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	PDF
LTR-M18MA-PMS-101	\$40.50	3-1200mm [0.11-47.24 in]	1.5 kHz	Visible red	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	PDF
*Retroreflective Sensor									
LRR-M18MA-NMS-603	\$41.50	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	PDF
LRR-M18MA-NMS-101	\$41.50	0.02-7m [0.06-22.96 ft]	1.5 kHz	Visible red	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	PDF
*Purchase reflector separately									
Background Suppression									
LHR-M18MA-PMS-603	\$51.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	PDF
LHR-M18MA-TMS-603	\$51.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	PDF
LHR-M18MA-PMS-101	\$51.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	PDF
LHR-M18MA-TMS-101	\$51.50	10-250mm [0.39-9.84 in]	700 Hz	Visible red	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	PDF
Through-beam Emitters									
LLR-M18MA-NMS-400	\$27.50	0-30m [0-98.43 ft]	1 kHz	Visible red	N/A	N/A	4-pin M12 quick-disconnect	Diagram 3	PDF
Through-beam Receivers									
LLR-M18MA-NMS-603	\$38.00	0-30m [0-98.43 ft]	1 kHz	N/A	PNP	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 2	PDF
LLR-M18MA-NMS-101	\$38.00	0-30m [0-98.43 ft]	1 kHz	N/A	NPN	Complementary Light-on / Dark-on	4-pin M12 quick-disconnect	Diagram 1	PDF

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

Wiring Diagrams

Diagram 1
4-Wire NPN Output

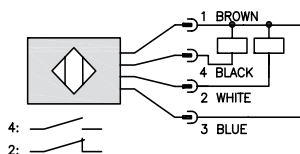


Diagram 2
4-Wire PNP Output

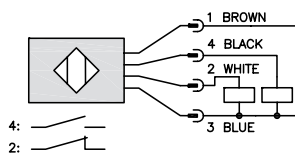
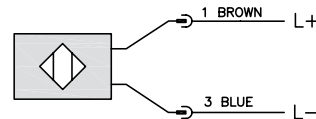
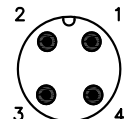


Diagram 3
Emitter



M12 connector





M18 Metal Photoelectric Sensors Specifications



M18 Metal Photoelectric Sensors Specifications				
Sensor type	Diffuse reflective (LTR)	Retroreflective (LRR)	Diffuse reflective with adjustable background suppression (LHR)	Through-Beam (LLR)
Sensing Distance ¹ (Except LRR)	3 - 1200 mm [0.11 - 47.24 in]	20 - 7,000 mm [0.78 - 275.59 in]	10 - 250 mm [0.39 - 9.84 in]	0 - 30,000 mm [0 - 1181.10 in]
Operating Range ¹ (Except LRR)	5 - 1,000 mm [0.19 - 39.37 in]	30 - 5,500 mm [1.18 - 216.53 in]	15 - 210 mm [0.59 - 8.26 in]	0 - 25,000 mm [0 - 984.25 in]
Light Spot Diameter (Distance)	Ø 11 mm [500mm] Ø 21 mm [1m]	Ø 21 mm [1m] Ø 110 mm [6m]	Ø 6 mm [100mm] Ø 10 mm [250mm]	Ø 35mm [500mm] Ø 250mm [6m] 1000mm [25m]
Emission	LED, red 630nm	LED, red 630nm	Pinpoint LED, red 640nm	LED, red 630nm
Sensitivity	30 - 1,200 mm, 3/4-turn pot.	2,500 - 7,000 mm, IO-Link	30 - 250 mm, PM models 3/4-turn pot TM models pushbutton teach	7,000 - 30,000 mm via IO-Link Only
Output Types	NPN or PNP			
Operating Voltage	10-30 VDC			
No Load Supply Current	≤ 15mA	≤ 15mA	≤ 30mA	≤ 7mA (emitter)/ ≤ 13mA (receiver)
Operating (Load) Current	≤ 200mA			
Response Time ²	≤ 300ms (normal)/ ≤ 1ms/≤ 100 µs	≤ 340ms (normal)/ ≤ 1ms/≤ 115 µs	≤ 700ms (normal)/ ≤ 1.1 ms/≤ 500 µs	≤ 500ms (normal)/ ≤ 1ms/≤ 250 µs
Switching Frequency ²	≤ 1.5 kHz (normal)/ ≤ 500Hz/≤ 5 kHz	≤ 1.5 kHz (normal)/ ≤ 500Hz/≤ 4.5 kHz	≤ 700Hz (normal)/ ≤ 450Hz/≤ 1 kHz	≤ 1kHz (normal)/ ≤ 500Hz/≤ 2 kHz
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	Stainless Steel			
Lens Material	PMMA - Poly (methyl methacrylate)			
Shock/Vibration	IEC 60947-5-2			
Tightening Torque	20 N•m max			
Weight	14g [0.49 oz]			
IO-Link	IO-Link version 1.0, PNP units only			
Connectors	4-pin M12 quick-disconnect			
Agency Approvals	cULus file E239373, CE			

¹ Object with 90% reflectance (standard white paper)

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

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

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]
OPT2104	\$10.50	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	PDF	0.06 [27.2]
OPT2105	\$10.50	Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors.	PDF	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]
OPT2116	\$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	PDF	0.15 [68.0]
OPT2117	\$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	PDF	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).

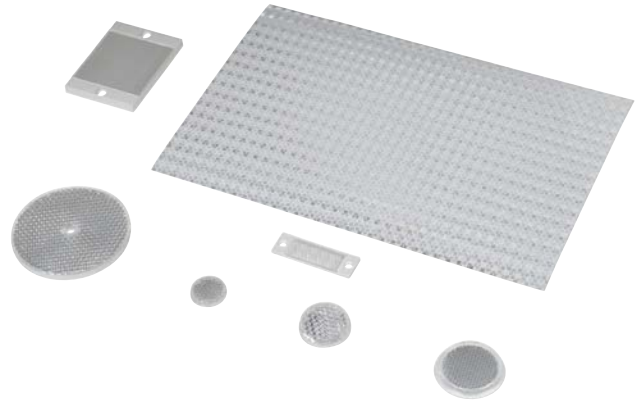
Reflectors

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

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