

Leuze M18 Plastic Photoelectric Sensors

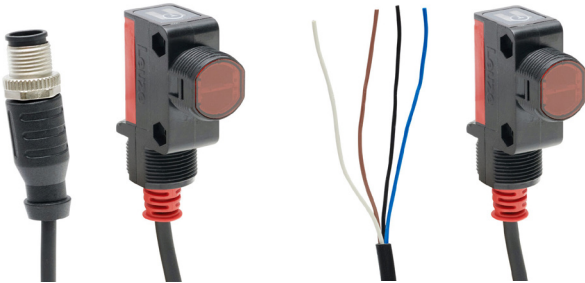
M18 (18mm) Rectangular Plastic Photoelectric Sensors – 28 Series

Overview

The Leuze 28 series photoelectric sensors are reliable and powerful for standard detection tasks in material handling, packaging, and other applications. The 28 series offers large ranges, highly visible red LED and Infrared models, and the ultimate in mounting flexibility with front and bottom 18mm threads or rugged through-holes. Strong opto performance and various electrical options make the 28 series photoelectric sensors a solid performer even in rough industrial environments.

Features

- Diffuse, polarized retroreflective, and through-beam models available
- Operating voltage 10-30VDC
- Complete overload protection
- IP67 rated
- M12 quick-disconnect (purchase cable separately) or pigtail models
- Includes mounting hardware
- 2-year warranty



ET28.3-4P-200-M12

ET28.3-4P



M18 (18mm) Rectangular Plastic Photoelectric Sensors - 28 Series

Part Number	Price	Sensing Distance	Light Type	Logic	Output Function	Connection Type	Wiring Diagram	Drawing Link
Diffuse, teach-in button								
ET28.3-4P-200-M12	\$68.00	1-650mm [0.03-25.59 in]	Visible red LED 620nm	PNP	Complementary Light-on / Dark-on	4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	2	PDF
ET28.3-4P	\$62.00			PNP		4-wire, pigtail 2m [6.5 ft] cable, PUR	2	PDF
ET28.3-2N-200-M12	\$68.00			NPN		4 wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	1	PDF
ET28.3-2N	\$62.00			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	1	PDF
Polarized Retroreflective *								
PRK28-4P-200-M12	\$68.00	0.02-4.5m [0.06-14.76 ft]	Visible red LED 620nm	PNP	Complementary Light-on / Dark-on	4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	2	PDF
PRK28-4P	\$62.00			PNP		4-wire, pigtail, 2m [6.5 ft] cable, PUR	2	PDF
PRK28-2N-200-M12	\$68.00			NPN		4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	1	PDF
PRK28-2N	\$62.00			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	1	PDF
* Purchase reflector separately.								
Through-beam Emitters								
LS28-9D-M12	\$42.00	0-10m [0 to 32.80 ft]	Visible red LED 620nm	—	—	2-wire, 4-pin M12 quick-disconnect	3	PDF
LS28-9D	\$49.00			—	—	2-wire, pigtail, 2m [6.5 ft] cable, PUR	3	PDF
LS28I	\$55.00		Infrared	—	—	2-wire, pigtail, 2m [6.5 ft] cable, PUR	3	PDF
Through-beam Receivers								
LE28-4P-M12	\$54.00	0-10m [0 to 32.80 ft]	—	PNP	Complementary Light-on / Dark-on	4-wire, 4-pin M12 quick-disconnect	2	PDF
LE28-4P	\$62.00			PNP		4-wire, pigtail, 2m [6.5 ft] cable, PUR	2	PDF
LE28-2N-M12	\$54.00			NPN		4-wire, 4-pin M12 quick-disconnect	1	PDF
LE28-2N	\$62.00			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	1	PDF

Note: Purchase cable separately for the M12 quick-disconnect models.

The 28 Series Photoelectric Sensors are not intended for safety applications.

Leuze M18 Plastic Photoelectric Sensors

M18 (18mm) Rectangular Plastic Photoelectric Sensors – 28 Series

M18 (18mm) Rectangular Plastic Photoelectric Sensors - 28 Series Specifications				
Sensor type	Diffuse, teach-in button	Polarized Retroreflective	Through-beam Emitters	Through-beam Receivers
Operating Voltage	10-30 VDC			
Residual Ripple	0 to 15%, From U_B			
Open-circuit Current	0-20mA		0-15mA	
Switching Current (maximum)	100mA		–	100mA
Switching Voltage High	$\geq(U_B-2.5V)$		–	$\geq(U_B-2.5V)$
Switching Voltage Low	$\leq 2.5 V$		–	$\leq 2.5 V$
Switching Frequency	500Hz	500Hz	–	500Hz
Response Time	1ms		–	1ms
Time Delay Before Availability (tv)	300ms			
Voltage Reversal Protection	Yes			
Short-circuit Protection	Yes			
Operating Temperature	-40 to 60°C [-40 to 140°F]			
Storage Temperature	-40 to 70°C [-40 to 158°F]			
Degree of Protection	IP67			
Protection Class	III			
LED Indicators - Switching Status	Green LED: Operation ready Yellow LED: Object detected	Green LED: Operation ready Yellow continuous LED: Light path free Yellow flashing LED: No function reserve	Green LED: Operation ready Yellow LED: Transmitted beam active	Green LED: Operation ready Yellow continuous LED: Light path free Yellow flashing LED: No function reserve
Housing Material	ABS plastic (Acrylonitrile butadiene styrene)			
Lens Material	Plastic			
Shock/Vibration	See terminology section			
Tightening Torque	1 N•m [0.74 ft•lb]			
Weight	75g [2.64 oz] Connector models 40g [1.41 oz] Cable models			
Connectors	4-pin M12 quick-disconnect, wire cross 0.2 mm ² or 4-wire, pigtail, A-coded, wire cross 0.2 mm ² 24 AWG			
Agency Approvals	cULus File: E203683, CE			

Wiring Diagrams

Diagram 1
4-Wire NPN Output

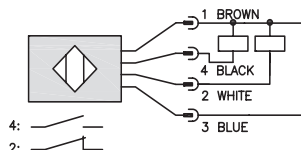


Diagram 2
4-Wire PNP Output

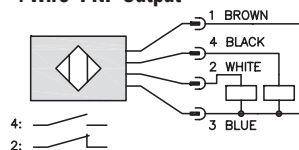
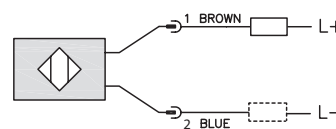
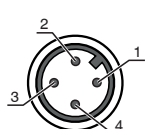


Diagram 3
Emitter



M12 connector



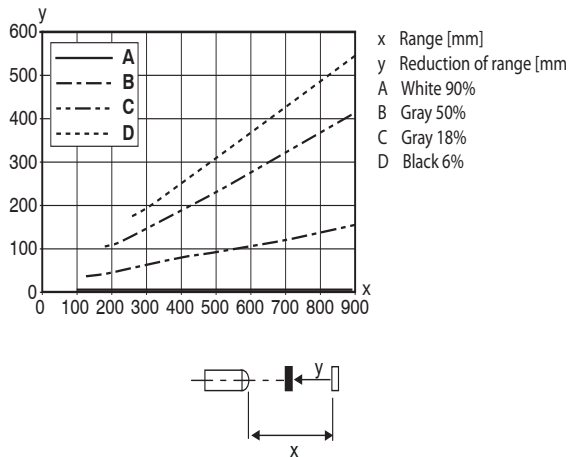
Leuze M18 Plastic Photoelectric Sensors

M18 (18mm) Rectangular Plastic Photoelectric Sensors – 28 Series

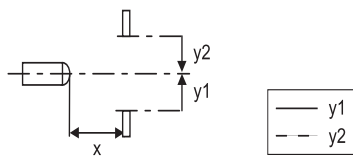
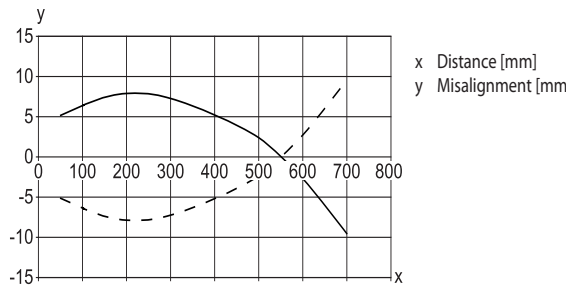
Characteristic Curves

Diffuse Models

Typical black/white behavior

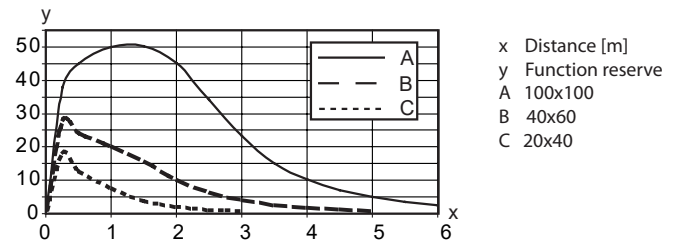
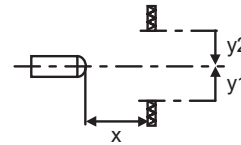
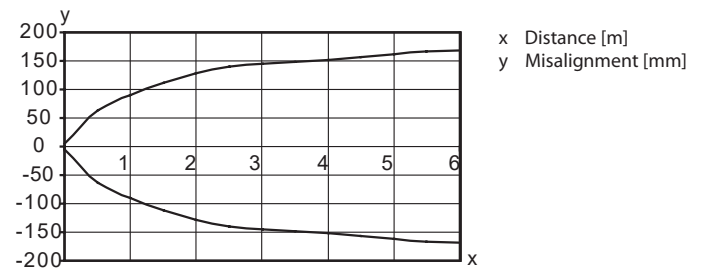


Typical response behavior (white 90%)



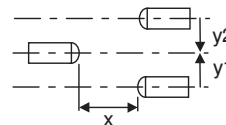
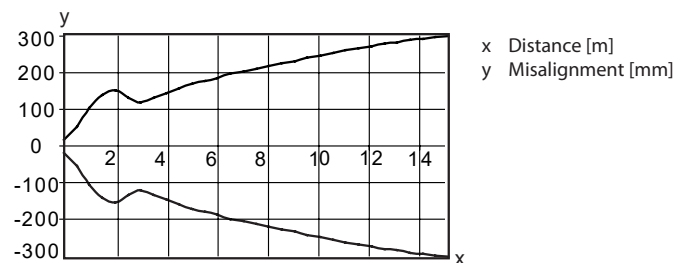
Polarized Retroreflective Models

Typical response behavior 100x100



Through-beam Models

Typical response behavior



Accessories for 18mm Sensors

Axial Mounting Bracket

Axial mounting bracket available in zinc plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included. For use with 18mm sensors.

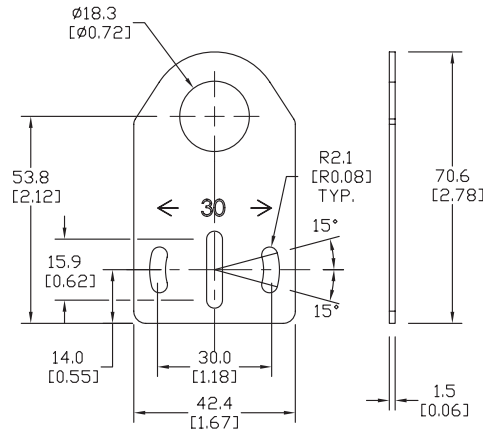
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<u>ST18A</u>	\$2.00	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<u>ST18A7W</u>	\$7.25	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



ST18A

Dimensions

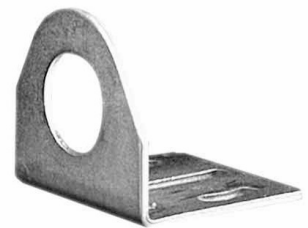
mm [inches]



Right-angle Mounting Bracket

Right-angle mounting bracket for use with 18mm sensors. Has two mounting holes (use 4mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

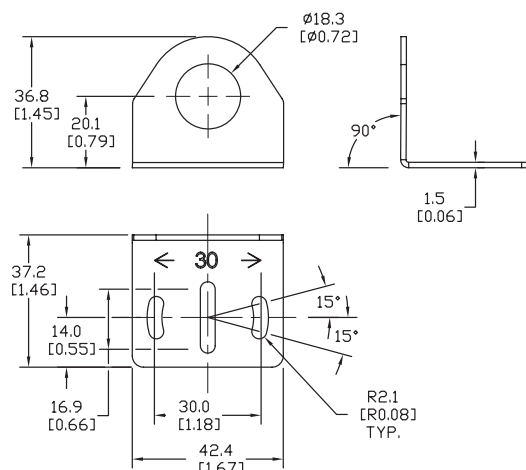
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<u>ST18C</u>	\$2.00	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<u>ST18C7W</u>	\$7.25	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



ST18C

Dimensions

mm [inches]



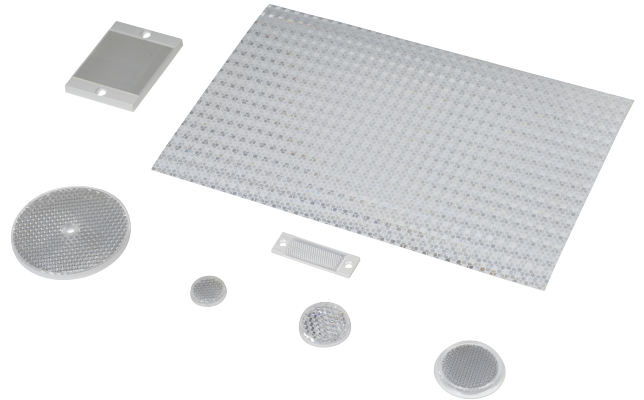
Reflectors

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.