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 Emission***	***Logic***	***Output Function***	***Connection Type***	***Wiring***	***Drawing Link***
Diffuse, Teach-in Button								
ET28.3-4P-200-M12	$-64id:	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	Diagram 2	PDF
ET28.3-4P	$-64ie:			PNP		4-wire, pigtail 2m [6.5 ft] cable, PUR	Diagram 2	PDF
ET28.3-2N-200-M12	$;-64if:			NPN		4 wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	Diagram 1	PDF
ET28.3-2N	$-64ig:			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 1	PDF
Polarized Retroreflective *								
PRK28-4P-200-M12	$-64ic:	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	Diagram 2	PDF
PRK28-4P	$--64ij:			PNP		4-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 2	PDF
PRK28-2N-200-M12	$-64ik:			NPN		4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR	Diagram 1	PDF
PRK28-2N	$--64il:			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 1	PDF
*** Purchase reflector separately.**								
Through-beam Emitters								
LS28-9D-M12	$-64ih:	0-10m [0 to 32.80 ft]	Visible red LED 620nm	—	—	2-wire, 4-pin M12 quick-disconnect	Diagram 3	PDF
LS28-9D	$--64ii:			—	—	2-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 3	PDF
LS28I	$-64in:		Infrared	—	—	2-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 3	PDF
Through-beam Receivers								
LE28-4P-M12	$-64io:	0-10m [0 to 32.80 ft]	—	PNP	Complementary Light-on / Dark-on	4-wire, 4-pin M12 quick-disconnect	Diagram 2	PDF
LE28-4P	$-64ip:			PNP		4-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 2	PDF
LE28-2N-M12	$-64iq:			NPN		4-wire, 4-pin M12 quick-disconnect	Diagram 1	PDF
LE28-2N	$-64is:			NPN		4-wire, pigtail, 2m [6.5 ft] cable, PUR	Diagram 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 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	≥(U_B-2.5V)		–	≥(U_B-2.5V)
Switching Voltage Low	≤ 2.5 V		–	≤ 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 mm² or 4-wire, pigtail, A-coded, wire cross 0.2 mm² 24 AWG			
Agency Approvals	cULus File: E203683, CE			

Wiring Diagrams

Diagram 1
4-Wire NPN Output

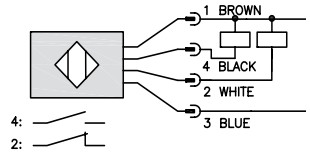


Diagram 2
4-Wire PNP Output

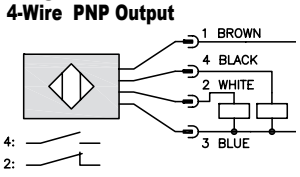
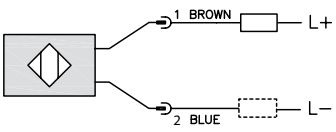
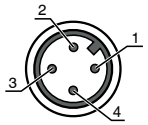


Diagram 3
Emitter



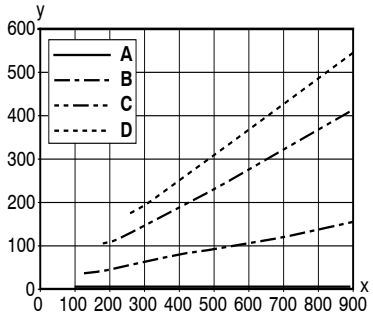
M12 connector



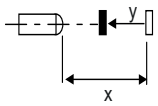
Characteristic Curves

Diffuse Models

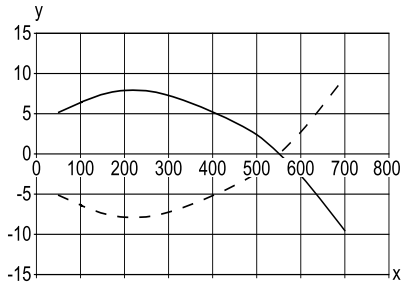
Typical black/white behavior



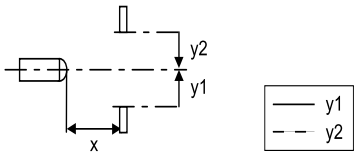
x Range [mm]
y Reduction of range [mm
A White 90%
B Gray 50%
C Gray 18%
D Black 6%



Typical response behavior (white 90%)

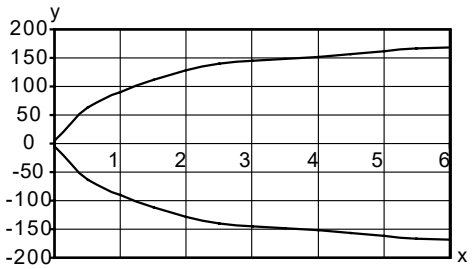


x Distance [mm]
y Misalignment [mm

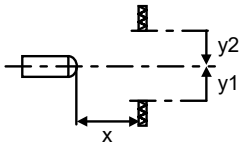


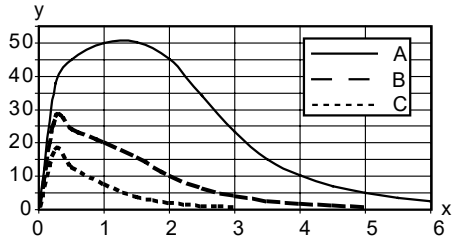
Polarized Retroreflective Models

Typical response behavior 100x100



x Distance [m]
y Misalignment [mm]

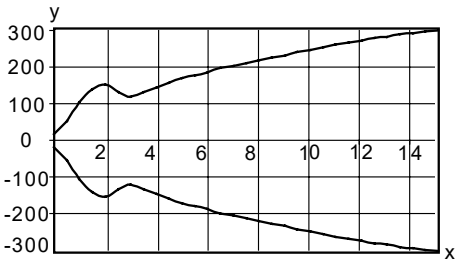




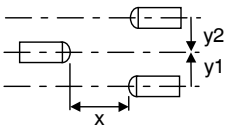
x Distance [m]
y Function reserve
A 100x100
B 40x60
C 20x40

Through-beam Models

Typical response behavior



x Distance [m]
y Misalignment [mm]



Accessories for 18mm Sensors

Axial Mounting Bracket

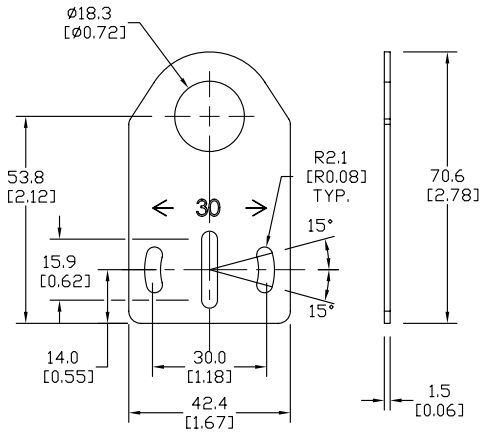
Axial mounting bracket available in zinc plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adapter sensors. Hexagonal nuts not included. For use with 18mm sensors.

Accessories for 18mm Sensors			
Part Number	***Price***	***Description***	***Weight lb [g]***
ST18A	$;97,:	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
ST18A7W	$980:	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]

ST18A

Dimensions

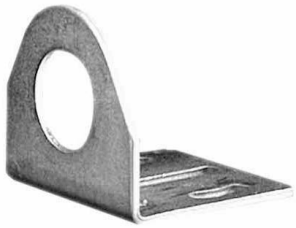
mm [inches]



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.

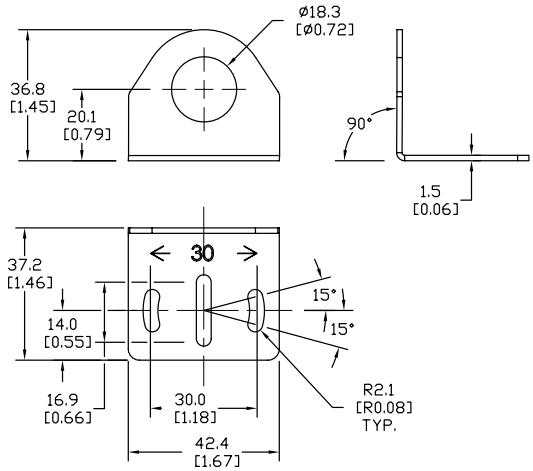
Accessories for 18mm Sensors			
Part Number	***Price***	***Description***	***Weight lb [g]***
ST18C	$981:	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
ST18C7W	$982:	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



ST18C

Dimensions

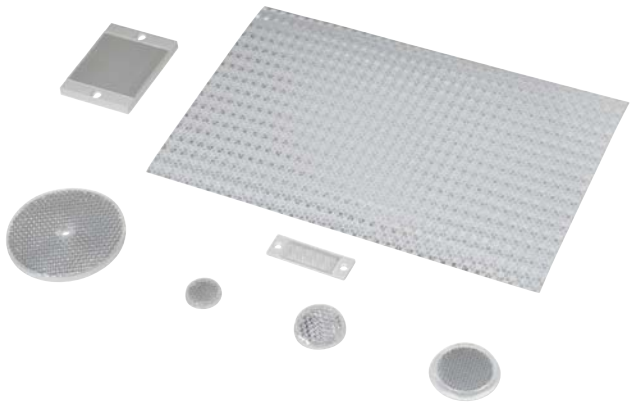
mm [inches]



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 ±15°.

Reflector Specifications

Part number	Price	Drawing Link	Quantity	Dimensions mm [in]	Degree of Protection	Mounting	Materials
RL102	$;09[h:	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	$?6y:		1				
RL103	$;-09[i:	PDF	10	34.5 [1.36]			
RL103-1	$?6z:		1				
RL104	$;-09[j:	PDF	10	46 [1.81]			
RL104-1	$;?6]:		1				
RL105G	$-2e_j:	PDF	10	95 x 38 [3.74 x 1.50]		Two 4.3 mm holes	
RL105G-1	$2e_k:		1				
RL106G	$;-09[l:	PDF	10	182 x 42 [7.17 x 1.65]		Two 6mm holes	
RL106G-1	$?6_:		1				
RL110	$;09[n:	PDF	10	84 [3.31]		One 5mm hole	
RL110-1	$?6#:		1				
RL116	$05yv:	PDF	10	41 x 60 [3.54 x 2.36]		Two 3mm holes	
RL116-1	$;?6!:		1				
RL100DA4	$0?77:	NA	1	200 x 300 [7.87 x 11.81]		Self-adhesive	Paper (Acrylic tape with micro prism)
RL100DC4	$0?78:	NA	1	50 x 300 [1.97 x 11.81]			
RL100DQ1	$?79:	NA	1	100 x 100 [3.94 x 3.94]			
RL111G	$;0?6,:	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	$?6?:		1				
RL112G	$0?71:	PDF	10	19 x 73 [0.75 x 2.87]			
RL112G-1	$?70:		1				
RL113G	$0?73:	PDF	10	51.4 x 60.3 [2.02 x 2.37]		Two 4mm slots	
RL113G-1	$?72:		1				

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