

GX Series Photoelectric Sensors



GX3-AP-2E

M18 (18 mm) rectangular plastic - DC

- 12 models available
- Diffuse with background suppression, polarized reflective, and through-beam models
- Fixed sensing ranges, no adjustment required
- 18 mm diameter threaded lens with mounting hex nut included
- NPN or PNP, Light-on, Dark-on output models
- Visible red LED emission
- M12 quick-disconnect; order cable separately
- IP67 rated



GX Series Photoelectric Sensors Selection Chart							
Part Number	Price	Sensing Range	Output State	Logic	Connection	Wiring	Characteristic Curves
Diffuse with background suppression							
GX3-AN-1E	\$49.50	Up to 100 mm (3.93 in)	N.O.	NPN	M12 (12 mm) connector	Diagram 1	N/A
GX3-AP-1E	\$49.50			PNP	M12 (12 mm) connector	Diagram 2	
GX3-AN-2E	\$49.50	Up to 150 mm (5.90 in)	N.O.	NPN	M12 (12 mm) connector	Diagram 1	
GX3-AP-2E	\$49.50			PNP	M12 (12 mm) connector	Diagram 2	
Polarized reflective *							
GXP-AN-1E	\$39.50	Up to 4 m (13.12 ft) with RL110 reflector	N.C.	NPN	M12 (12 mm) connector	Diagram 1	Chart 1
GXP-AP-1E	\$39.50			PNP	M12 (12 mm) connector	Diagram 2	
GXP-CN-1E	\$39.50		N.O.	NPN	M12 (12 mm) connector	Diagram 1	
GXP-CP-1E	\$39.50			PNP	M12 (12 mm) connector	Diagram 2	
Through-beam							
GXR-AP-1E	Receiver - must be used with Emitter \$35.50	Up to 20 m (65.62 ft)	N.C.	PNP	M12 (12 mm) connector	Diagram 2	Chart 2
GXR-CN-1E			N.O.	NPN	M12 (12 mm) connector	Diagram 1	
GXR-CP-1E				PNP	M12 (12 mm) connector	Diagram 2	
GXE-00-1E	Emitter		Receiver dependent	Receiver dependent	M12 (12 mm) connector	Diagram 3	

*Note: Purchase reflectors separately.

Wiring Diagrams

Diagram 1

NPN Output

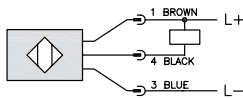


Diagram 2

PNP Output

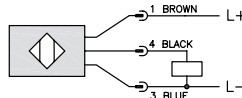
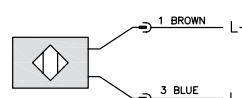


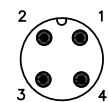
Diagram 3

Emitter



Connector

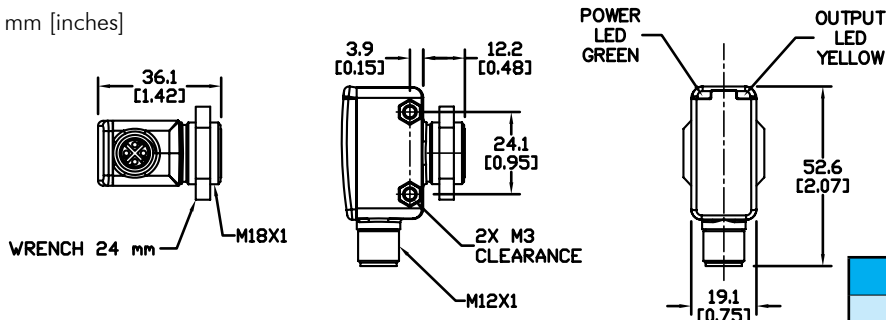
M12 connector



NOTE: CLASS 2 POWER SOURCE REQUIRED

Dimensions

mm [inches]



Switching Element Function

	Thru-Beam and Reflective Models	Diffuse Models
Light-on	N.C.	N.O.
Dark-on	N.O.	N.C.

GX Series Photoelectric Sensors

Specifications	Diffuse Models with Background Suppression	Reflective Models	Through-Beam Models
Type	Diffuse reflection	Polarized reflection	Through-beam ³
Sensing Distance	GX3-AN-1E, GX3-AP-1E: up to 100 mm ¹ GX3-AN-2E, GX3-AP-2E: up to 150 mm ¹	4m with RL110 ²	20m
Light Spot Diameter	GX3-AN-1E, GX3-AP-1E: 7mm at maximum range GX3-AN-2E, GX3-AP-2E: 11mm at maximum range	160mm at maximum range	GXE-00-1E: 800mm at maximum range
Emission	Red LED (visible)		
Sensitivity	Fixed		
Output Type	NPN or PNP - Light-on or Dark-on		
Operating Voltage	10 to 30 VDC		
No Load Supply Current	30 mA	25 mA	20 mA
Operating (Load) Current	<200 mA		
Off-state (Leakage) Current	N/A		
Voltage Drop	<2.5 V		
Switching Frequency	1kHz		
Ripple	-		
Time Delay Before Availability (tv)	Minimal		
Short-Circuit Protection	Yes (non-latching)		
Operating Temperature	-25 to 60°C (-13° to 140°F)		
Protection Degree (DIN 40050)	IEC IP67		
LED Indicators - Switching Status	Yellow (output energized)		
LED Indicators - Power	Green		
Housing Material	LCP (Liquid Crystal Polymer); PEI (Polyether imide)		
Lens Material	(Polymethyl methacrylate PMMA)		
Shock/Vibration	See terminology section		
Tightening Torque	2.25 Nm (1.66 lb-ft)		
Weight (cable/connector)	45.36 g (1.6 oz)		
Connectors	M12 connector		
Accessories	1 mounting hex nut included		
Agency Approvals	cULus listed UL file E328811, CE		
¹ With 200x200mm white matte paper, 90% remission			
² With standard diameter 84mm RL110 reflector. Purchase reflector separately.			
³ An emitter and receiver pair must be ordered for a complete sensor set.			

Characteristic Curves

Chart 1 - GXP

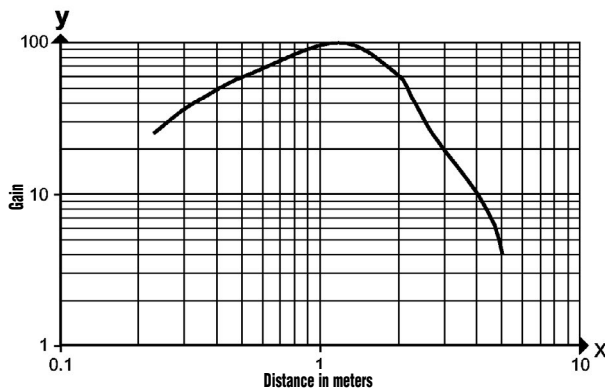
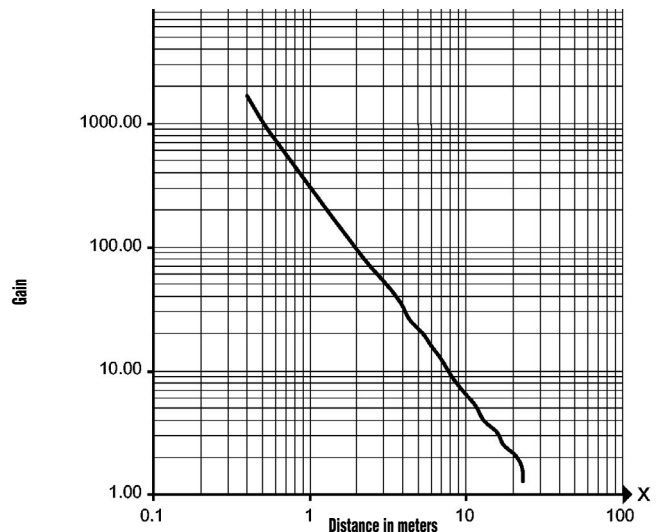


Chart 2 - GXE, GXR



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

Accessories for 18mm Sensors

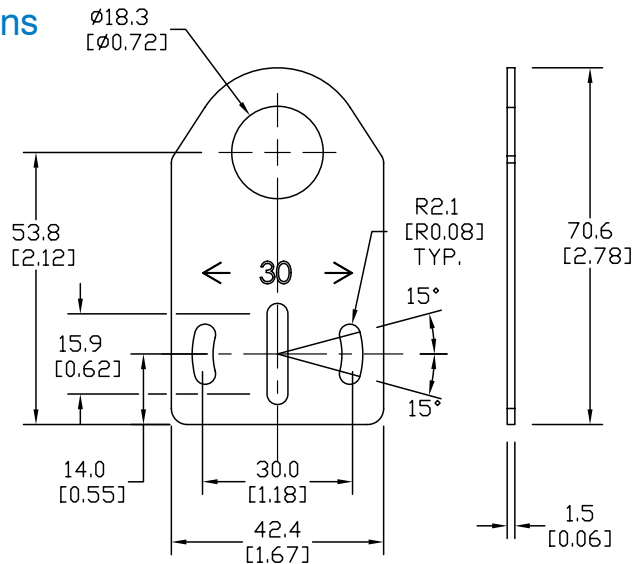
Axial Mounting Bracket

Axial mounting bracket for use with 18mm sensors. 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.

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
ST18A	\$2.00	Mounting bracket, axial, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18A7W	\$2.00	Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

Dimensions

mm [inches]



ST18A

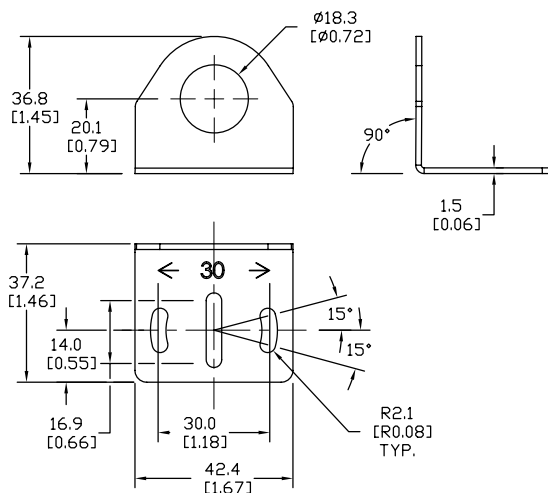
Right-angle Mounting Bracket

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]
ST18C	\$2.00	Mounting bracket, right angle, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18C7W	\$2.00	Mounting bracket, right angle, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

Dimensions

mm [inches]



ST18C

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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.

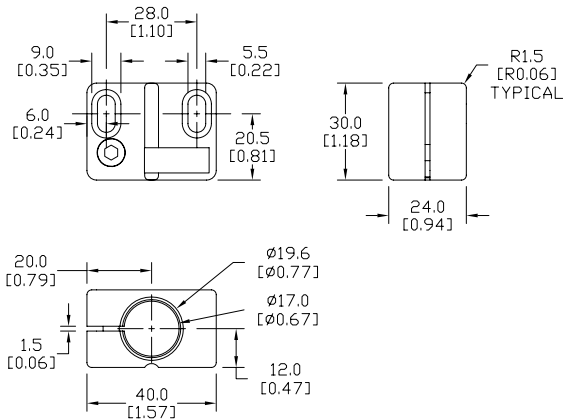
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
OPT2104	\$8.25	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
OPT2105	\$8.25	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



OPT2104, OPT2105

Dimensions

mm [inches]



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	Weight [lb]
OPT2116	\$9.25	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.	Aluminum	304 Stainless Steel	0.15
OPT2117	\$16.50	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors.	304 Stainless Steel	304 Stainless Steel	0.28

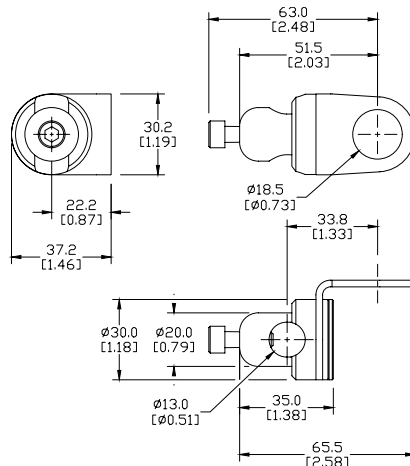
Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).



OPT2116, OPT2117

Dimensions

mm [inches]



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Mounting Rods

Mounting Rods

304 Stainless steel rods for mounting swivel brackets OPT2112 - OPT2127. Available in three lengths: 200mm, 300mm, and 500mm. 12mm diameter.

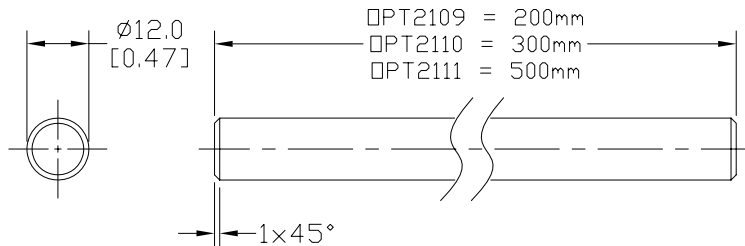
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
OPT2109	\$10.50	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
OPT2110	\$12.50	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
OPT2111	\$16.50	Mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	0.98



OPT2109, OPT2110, OPT2111

Dimensions

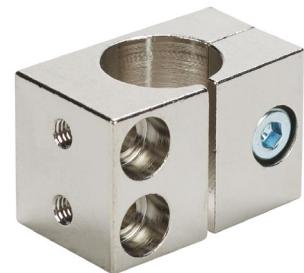
mm [inches]



Right-angle Mounting Bracket

Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.

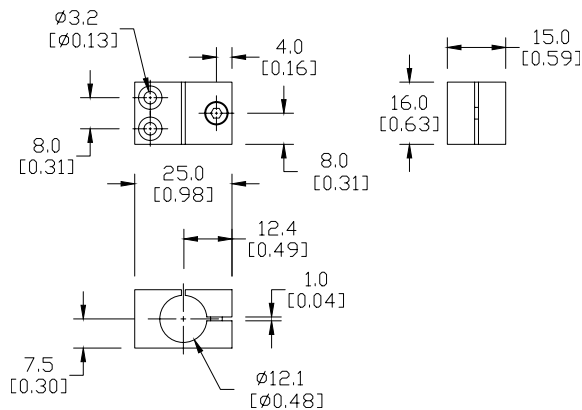
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
OPT2108	\$12.50	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



OPT2108

Dimensions

mm [inches]



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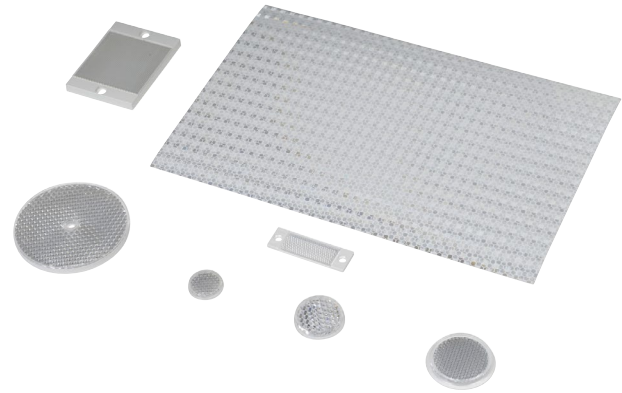
Reflectors

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 $\pm 15^\circ$.



Specifications						
Model	Price	Quantity	Dimensions	Degree of Protection	Mounting	Materials
RL102	\$35.50	10 per pack	25mm [0.98 in]	IEC IP67	Customer-supplied adhesive or other mounting method required	Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren)
RL102-1	\$3.75	1 per pack				
RL103	\$40.50	10 per pack	34.5 mm [1.36 in]			
RL103-1	\$4.25	1 per pack				
RL104	\$40.50	10 per pack	46mm [1.81 in]			
RL104-1	\$4.25	1 per pack				
RL105 *	retired	10 per pack	90 x 40 mm [3.54 x 1.58 in]		Two 4.3 mm holes	
RL105-1 *	retired	1 per pack				
RL105G *	\$35.50	10 per pack	95 x 38 mm [3.74 x 1.50 in]		Two 6mm holes	
RL105G-1 *	\$3.75	1 per pack				
RL106G	\$40.50	10 per pack	182 x 42 mm [7.17 x 1.65 in]		One 5mm hole	
RL106G-1	\$4.25	1 per pack				
RL110	\$18.50	10 per pack	84mm [3.31 in]		Two 3mm holes	
RL110-1	\$2.00	1 per pack				
RL116	\$18.50	10 per pack	41 x 60 mm [3.54 x 2.36 in]		Self-adhesive	
RL116-1	\$2.00	1 per pack				
RL100DA4	\$33.00	1 per pack	200 x 300 mm [7.87 x 11.81 in]		Paper (Acrylic tape with micro prism)	
RL100DC4	\$10.50	1 per pack	50 x 300 mm [1.97 x 11.81 in]			
RL100DQ1	\$7.75	1 per pack	100 x 100 mm [3.94 x 3.94 in]		Two 3mm slots	
RL111G	\$52.00	10 per pack	22.5 x 47 mm [0.89 x 21.85 in]			
RL111G-1	\$6.25	1 per pack		Two 4mm slots		
RL112G	\$40.50	10 per pack	19 x 73 mm [0.75 x 2.87 in]			
RL112G-1	\$4.25	1 per pack		Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren)		
RL113G	\$46.50	10 per pack	51.4 x 60.3 mm [2.02 x 2.37 in]			
RL113G-1	\$5.25	1 per pack				

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

* Note: RL105 and RL105-1 reflectors are being replaced by the RL105G and RL105G-1 models, and will no longer be available once our current stock is depleted.

The new reflectors function the same but the dimensions are slightly different. Compare the outside dimensions shown in this table and the dimensional drawings on the next page.

Reflectors

RL Series Reflectors for Polarized Reflective Laser Photoelectric Sensors (FALN series)

- Suitable for use with polarized light laser photoelectric sensors
- Sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- Single and 5-packs available

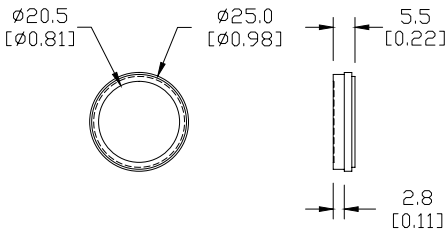
Specifications						
Model	RL201	RL201-1	RL203	RL203-1	RL204	RL204-1
Price	\$32.50	\$7.25	\$30.00	\$6.75	\$26.00	\$6.00
Quantity (per package)	5	1	5	1	5	1
Dimensions	60 x 82 mm 2.36 x 3.23 in		19 x 6mm 0.75 x 2.36 in		20mm x 32mm 0.80 in x 1.26 in	
Degree of Protection ¹	IEC IP67					
Mounting	Two 0.4 mm holes		Two 0.4 mm holes		Two 0.3 mm holes	
Materials	Acrylic/polycarbonate					

¹ Not recommended for applications involving moist air environments or water immersion.

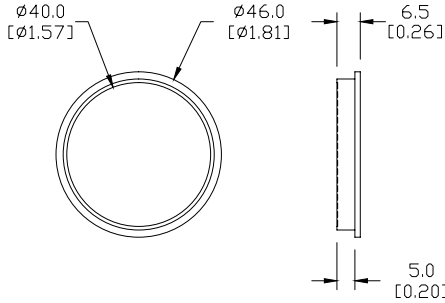
Dimensions

mm [inches]

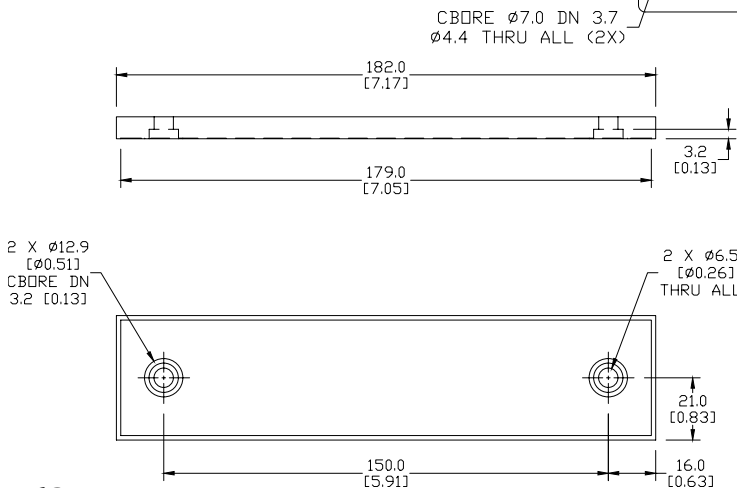
RL102/RL102-1



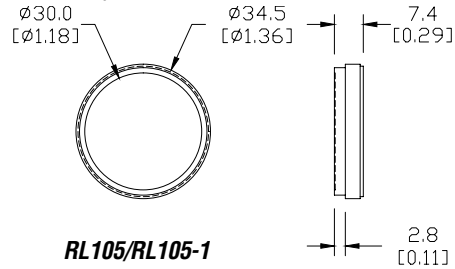
RL104/RL104-1



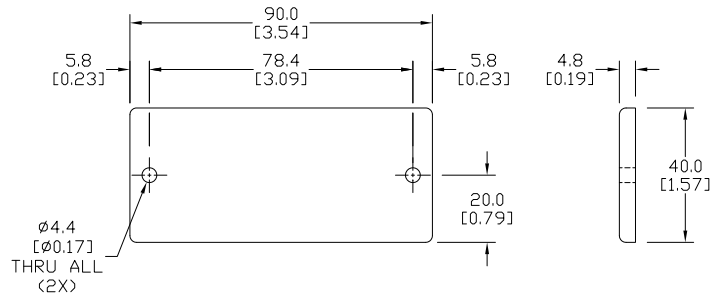
RL106G/RL106G-1



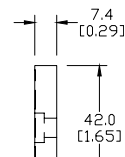
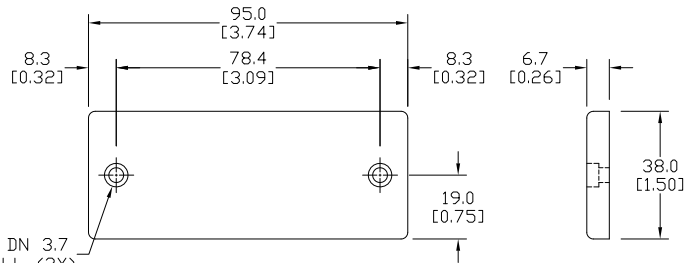
RL103/RL103-1



RL105/RL105-1



RL105G/RL105G-1



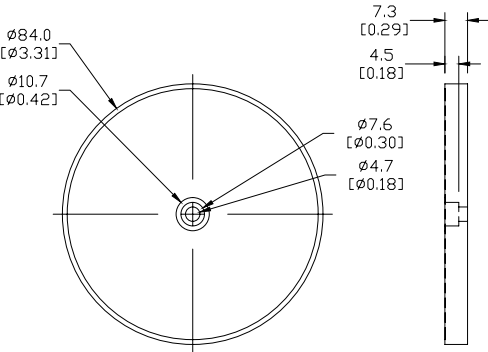
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Reflectors

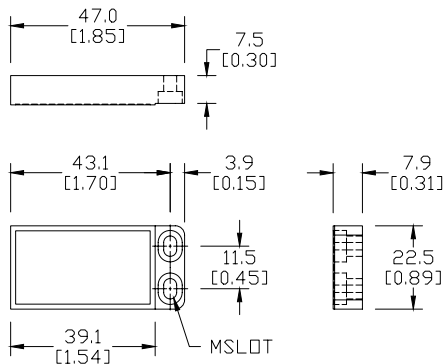
Dimensions

mm [inches]

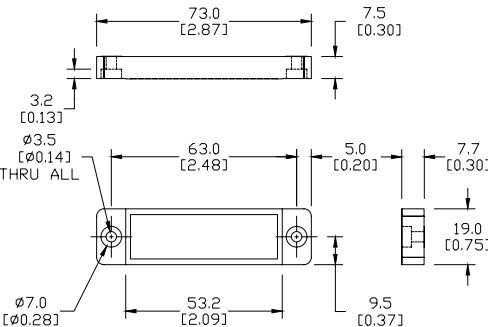
RL110/RL110-1



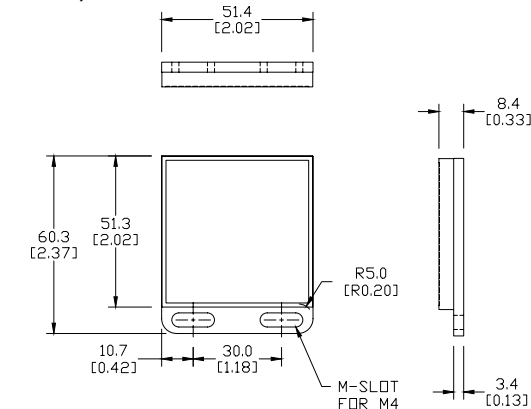
RL111G/RL111G-1



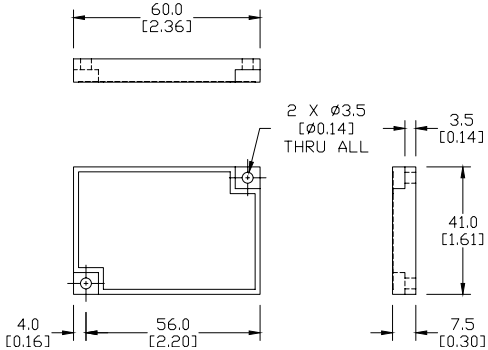
RL112G/RL112G-1



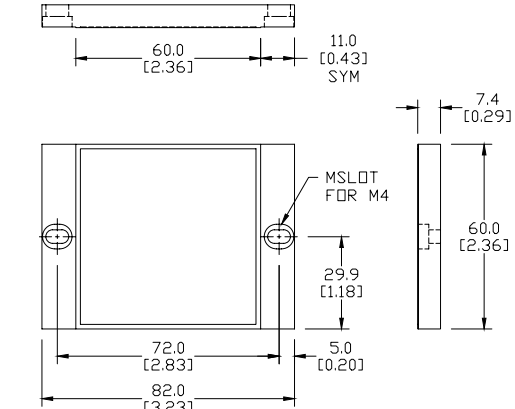
RL113G/RL113G-1



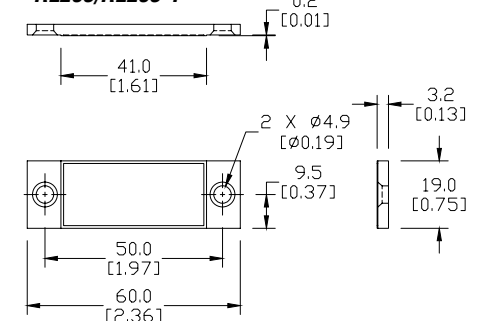
RL116/RL116-1



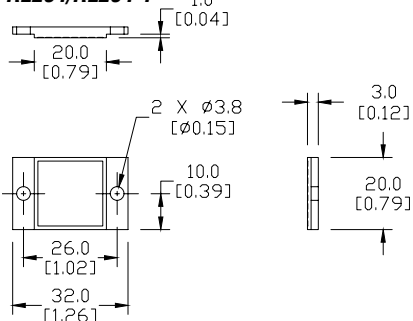
RL201/RL201-1



RL203/RL203-1



RL204/RL204-1



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