

MV Series AC Powered Photoelectric Sensors



M18 (18 mm) plastic- AC

- 12 models available
- Diffuse, polarized reflective, and through-beam models
- Plastic housing
- Axial cable or M12 quick-disconnect models
- Operates on 20 to 253 VAC
- IP67 rated



MV Series Photoelectric Selection Chart							
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Dimensions	Characteristic Curves
Diffuse							
MV2-A0-0A	\$38.50	100mm (3.9 in.)	N.O.	2m (6.5 ft) axial cable	Diagram1	Figure 1	Chart 1
MV2-A0-0E	\$38.50			M12 (12mm) connector	Diagram1	Figure 2	
MV4-A0-0A	\$38.50	200mm (7.9 in.)		2m (6.5 ft) axial cable	Diagram1	Figure 1	Chart 2
MV4-A0-0E	\$38.50			M12 (12mm) connector	Diagram1	Figure 2	
MV6-A0-0A	\$38.50	400mm (15.7 in.)	2m (6.5 ft) axial cable	Diagram1	Figure 1	Chart 3	
MV6-A0-0E	\$38.50		M12 (12mm) connector	Diagram1	Figure 2		
Polarized reflective*							
MVP-A0-0A	\$40.50	3m (9.8 ft)	N.O.	2m (6.5 ft) axial cable	Diagram1	Figure 1	Chart 4
MVP-A0-0E	\$40.50			M12 (12mm) connector	Diagram1	Figure 2	
Through-beam**							
MVE-00-0A	Emitter	16m (52.5 ft)	Receiver dependent	2m (6.5 ft) axial cable	Diagram 2	Figure 1	Chart 5
MVE-00-0E	Emitter			M12 (12mm) connector	Diagram 2	Figure 2	
MVR-A0-0A	Receiver		N.O.	2m (6.5 ft) axial cable	Diagram1	Figure 1	Chart 5
MVR-A0-0E	Receiver		N.O.	M12 (12mm) connector	Diagram1	Figure 2	

*Purchase reflectors separately. **Purchase one receiver and one emitter for a complete set.

Wiring diagrams

Diagram 1 Receiver

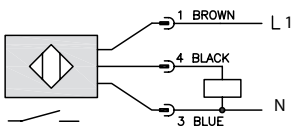
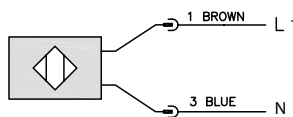
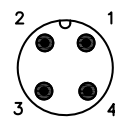


Diagram 2 Emitter



Connector

M12 Connector



Dimensions

(mm)

Figure 1

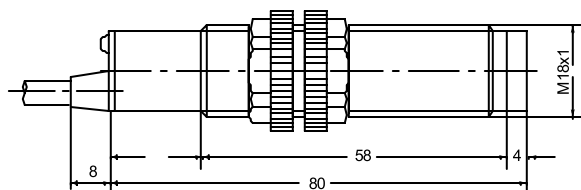
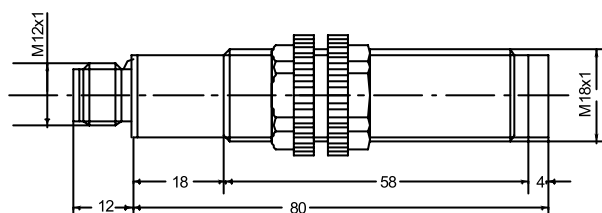


Figure 2



MV Series AC Powered Photoelectric Sensors

Specifications	Diffuse Models	Reflective Models	Through-Beam Models
Type	Diffuse reflection	Polarized reflective ⁴	Through-beam ⁵
Sensing Distance	MV2 models: 100mm ¹ MV4 models: 200mm ¹ MV6 models: 400mm ²	3m ³	16m
Light Spot Diameter	MV2 models: 50 mm @ 100 mm MV4 models 90 mm @ 200 mm MV6 models: 240mm @ 400 mm	80 mm @ 3 m	1200 mm @ 20 m
Emission	Infrared (880nm)	Red (660nm)	Infrared (880nm)
Tolerance	+15/ -5% Sn		N/A
Sensitivity	Fixed		
Output Type	TRIAC		
Operating Voltage	20-253VAC, 50/60Hz		
No-load Supply Current	30mA (rms)	Emitter: 30mA (rms) Receiver: 15mA (rms)	
Operating (Load) Current	5-300mA (rms) (Ta=50°C)		
Off-state (Leakage) Current	1.5mA (rms) max. at 250VAC		
Voltage Drop	3V max. I _L =300mA		
Switching Frequency	25Hz		
Ripple	≤10%		
Time Delay Before Availability (tv)	200 ms		
Short-Circuit Protection	Yes		
Operating Temperature	-25° to +70°C (-13° to +158°F)		
Protection Degree (DIN 40050)	IEC IP67		
LED Indicators - Switching Status	red (output energized)		
Housing Material	Polybutylene Terephthalate (PBT) plastic housing, polycarbonate (PC) cable exit		
Lens Material	Plexiglas 7N		
Shock/Vibration	See terminology section		
Tightening Torque	1 Nm (0.737 lb-ft)		
Weight	35-100g	70-200g	
Connectors	2m (6.5') axial cable; M12 (12mm) connector		
Agency Approvals	UL Recognized E130644, CE		

¹With 100x100mm white matte paper
²With 200x200mm white matte paper
³With standard Ø84mm RL110 reflector
⁴Purchase reflectors separately.
⁵An emitter (SSE) and receiver (SSR) pair must be ordered for a complete sensor set.

Switching Element Function		
	Thru-beam and Reflective Models	Diffuse Reflective Models
Light on	N.C.	N.O.
Dark on	N.O.	N.C.

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

MV Series AC Powered Photoelectric Sensors

Characteristic curves

Chart 1 (Diffuse MV2)

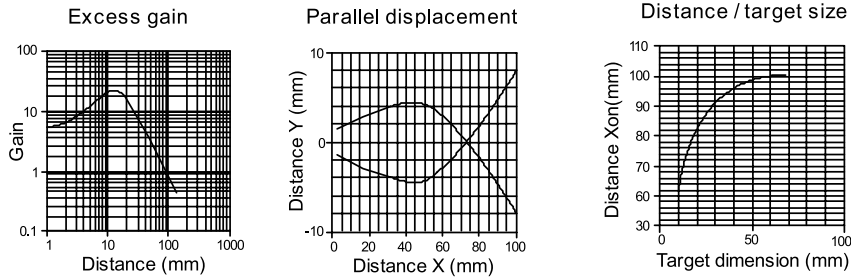


Chart 2 (Diffuse MV4)

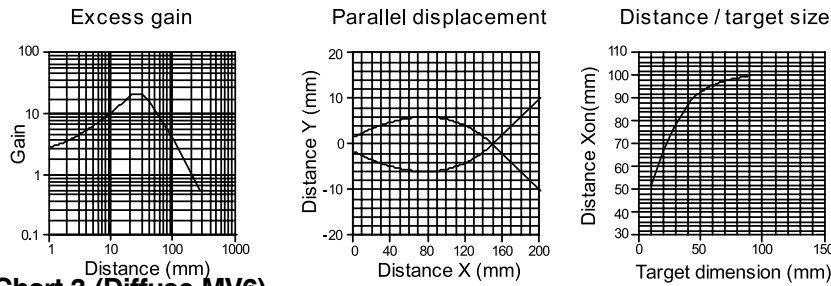


Chart 3 (Diffuse MV6)

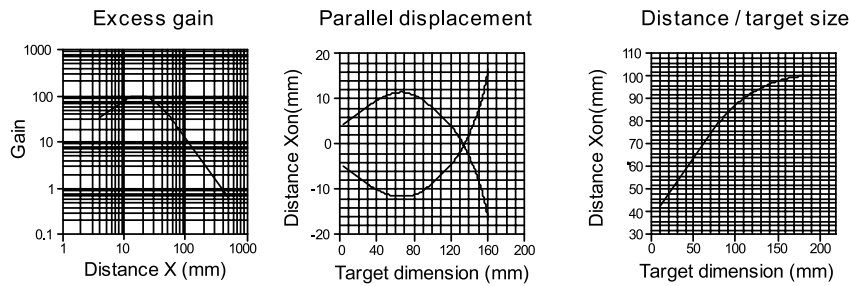


Chart 4 (Polarized reflective)

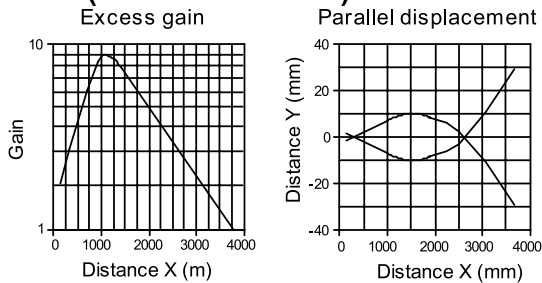
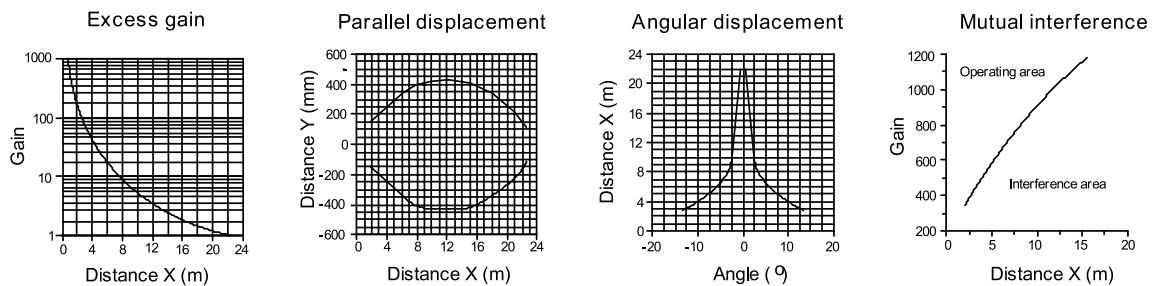


Chart 5 (Through-beam)



Accessories for 18mm Sensors

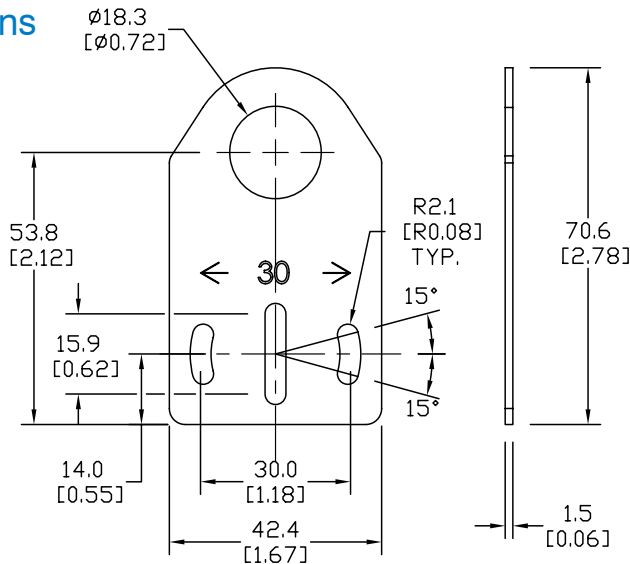
Axial Mounting Bracket

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

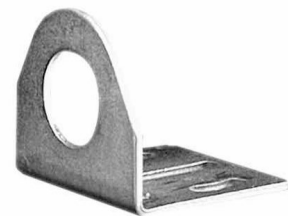
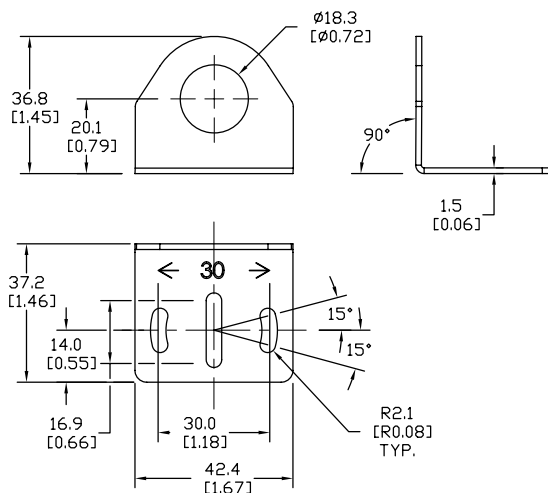
Right-angle Mounting Bracket

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

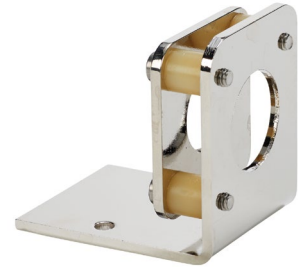
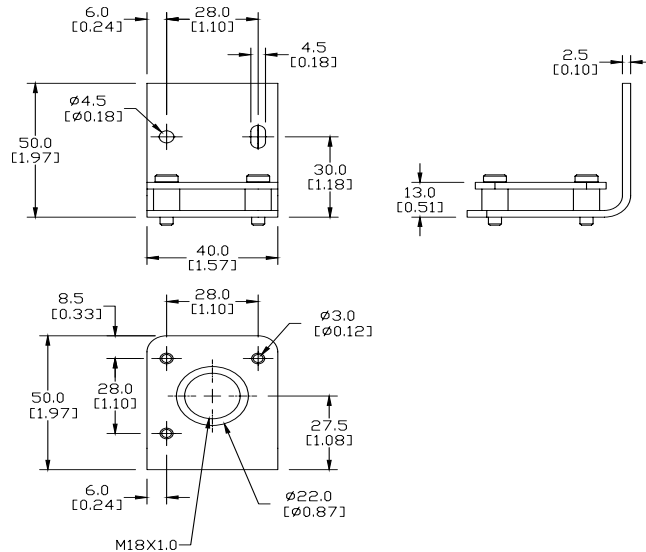
Right-angle Fine Tune Mounting Bracket

Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors. Allows for fine tuning vertical and horizontal placement.

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
OPT2036	\$30.00	Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors.	0.02

Dimensions

mm [inches]



OPT2036

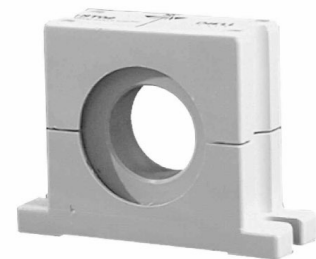
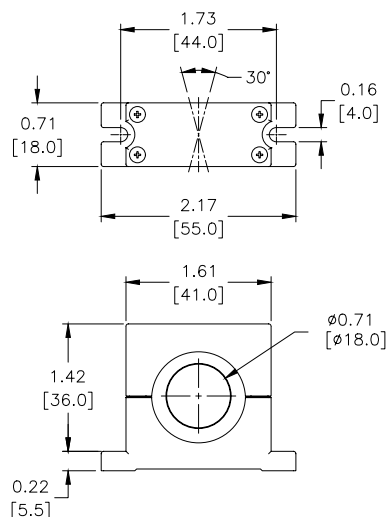
Swivel Mounting Bracket

Mounting bracket, ball swivel, plastic. For use with 18mm sensors. Has a ball-joint and set screws to adjust sensor orientation. Allows angular orientation up to 15 degrees (from center) in all directions for photoelectric sensors (Will not work with C18 series).

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
ST02	\$2.00	Mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06

Dimensions

mm [inches]



ST02

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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.

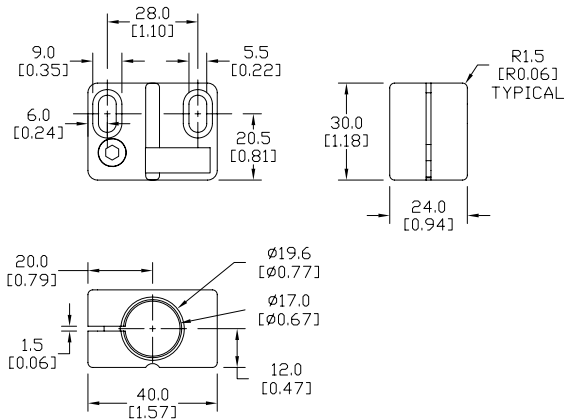
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
OPT2104	\$8.25	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
OPT2105	\$8.25	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



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

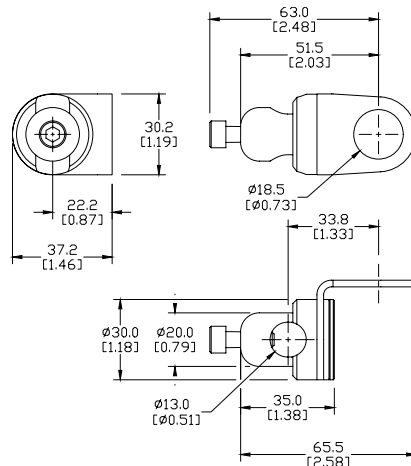


OPT2116, OPT2117

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

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.

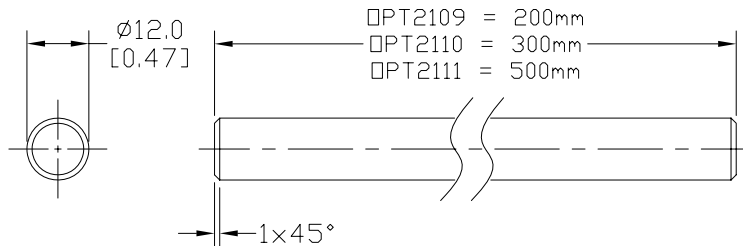
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
OPT2109	\$10.50	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
OPT2110	\$12.50	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
OPT2111	\$16.50	Mounting rod,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

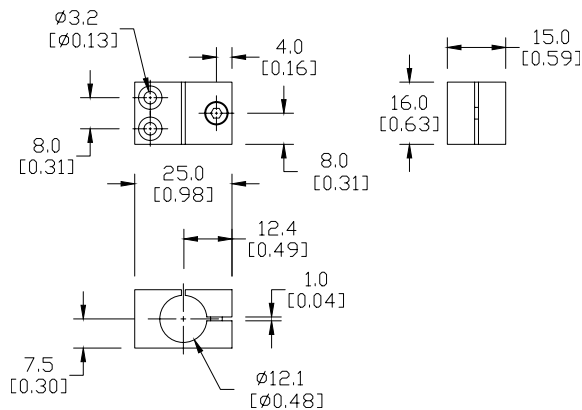
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
OPT2108	\$12.50	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



OPT2108

Dimensions

mm [inches]



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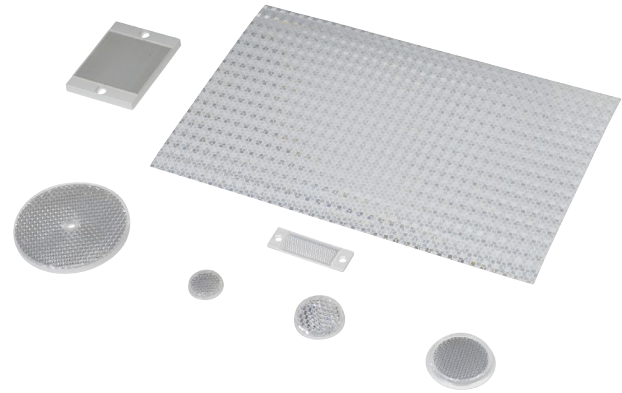
Reflectors

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 ±15°.



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]				
RL105G-1 *	\$3.75	1 per pack					
RL106G	\$40.50	10 per pack	182 x 42 mm [7.17 x 1.65 in]		Two 6mm holes		
RL106G-1	\$4.25	1 per pack					
RL110	\$18.50	10 per pack	84mm [3.31 in]		One 5mm hole		
RL110-1	\$2.00	1 per pack					
RL116	\$18.50	10 per pack	41 x 60 mm [3.54 x 2.36 in]		Two 3mm holes		
RL116-1	\$2.00	1 per pack					
RL100DA4	\$33.00	1 per pack	200 x 300 mm [7.87 x 11.81 in]		Self-adhesive		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]				
RL111G	\$52.00	10 per pack	22.5 x 47 mm [0.89 x 21.85 in]		Two 3mm slots		Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren)
RL111G-1	\$6.25	1 per pack					
RL112G	\$40.50	10 per pack	19 x 73 mm [0.75 x 2.87 in]				
RL112G-1	\$4.25	1 per pack					
RL113G	\$46.50	10 per pack	51.4 x 60.3 mm [2.02 x 2.37 in]	Two 4mm slots			
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

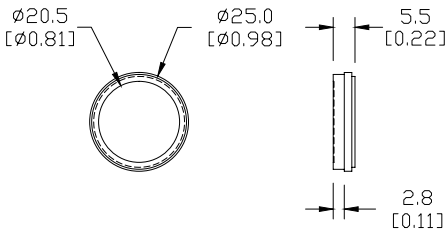
Specifications						
Model	RL201	RL201-1	RL203	RL203-1	RL204	RL204-1
Price	\$32.50	\$7.25	\$30.00	\$6.75	\$26.00	\$6.00
Quantity (per package)	5	1	5	1	5	1
Dimensions	60 x 82 mm 2.36 x 3.23 in		19 x 6mm 0.75 x 2.36 in		20mm x 32mm 0.80 in x 1.26 in	
Degree of Protection ¹	IEC IP67					
Mounting	Two 0.4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

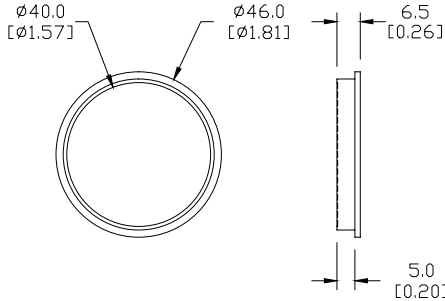
Dimensions

mm [inches]

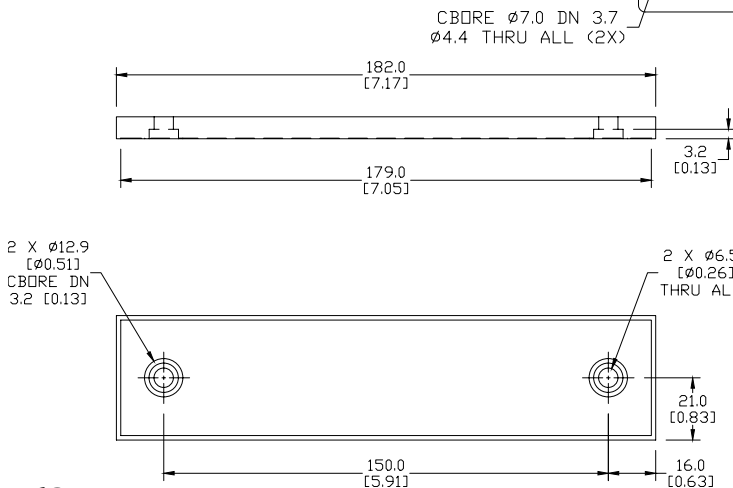
RL102/RL102-1



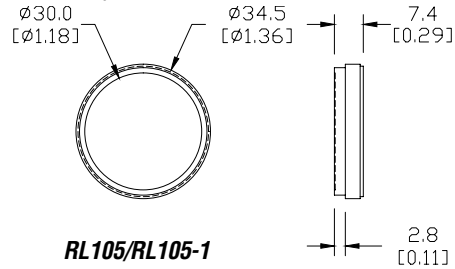
RL104/RL104-1



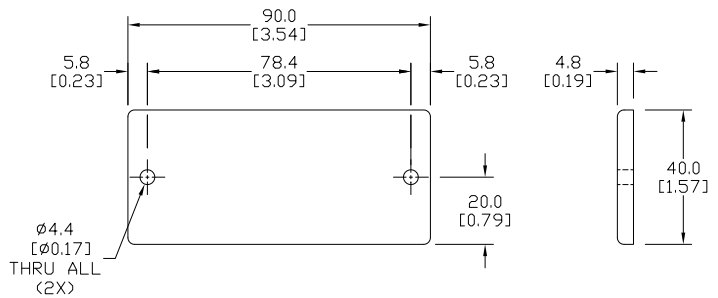
RL106G/RL106G-1



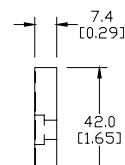
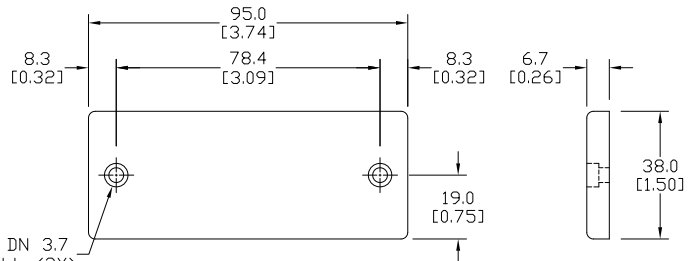
RL103/RL103-1



RL105/RL105-1



RL105G/RL105G-1



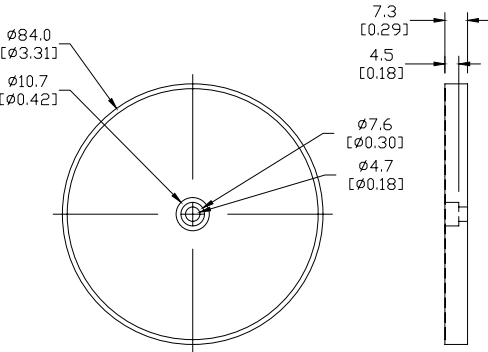
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Reflectors

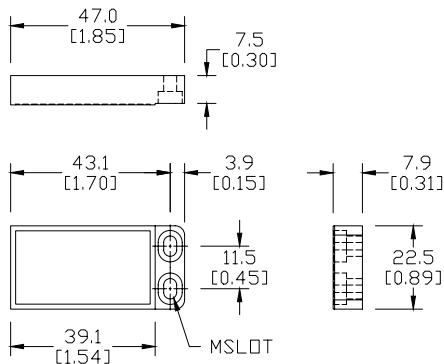
Dimensions

mm [inches]

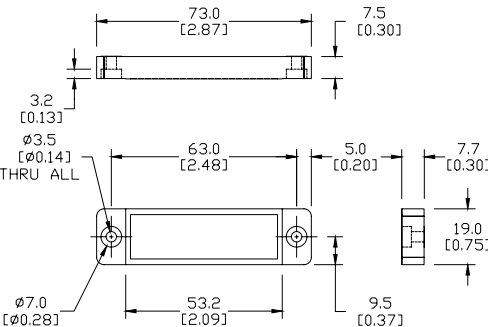
RL110/RL110-1



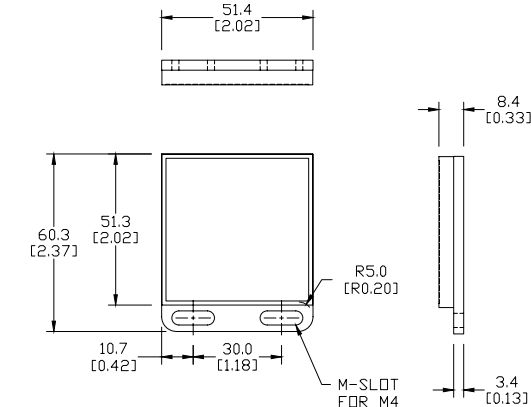
RL111G/RL111G-1



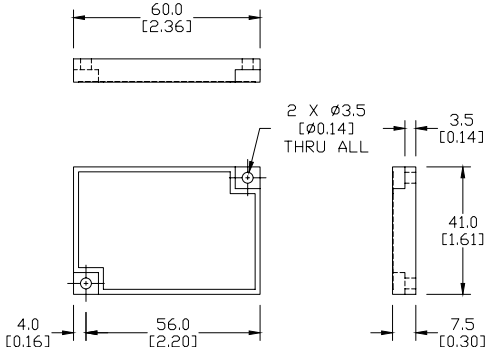
RL112G/RL112G-1



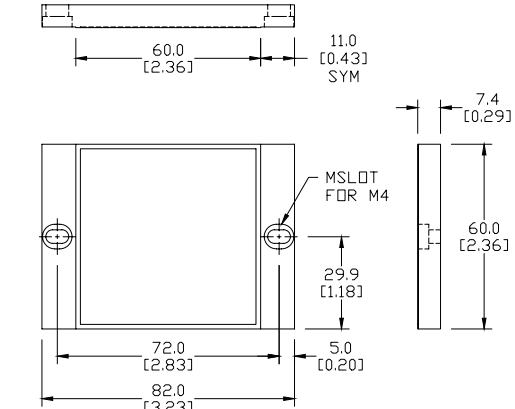
RL113G/RL113G-1



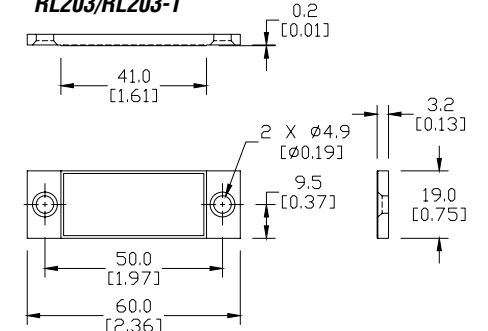
RL116/RL116-1



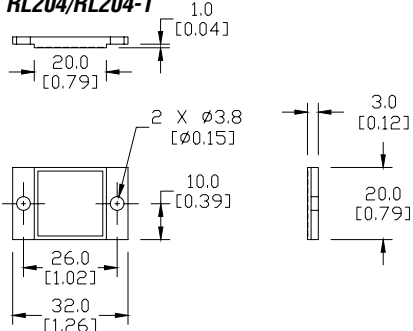
RL201/RL201-1



RL203/RL203-1



RL204/RL204-1



See our website: www.AutomationDirect.com for complete engineering drawings