

FA Series Laser Photoelectric Sensors



M18 (18 mm) plastic - DC

- 14 models available
- Diffuse, polarized reflective, and through-beam models with long sensing distances
- Plastic housing
- Axial cable or M12 quick-disconnect models
- NPN or PNP, complementary N.O./N.C. outputs
- IP67 rated



FA Series Photoelectric Sensors Selection Chart

Part Number	Price	Sensing Range	Output State	Logic	Connection	Wiring	Dimensions	Characteristic Curves
Diffuse								
FAL4-BN-OA	<--->	300mm (11.81in)	Complementary N.O./N.C.	NPN	2m (6.5) axial cable	Diagram 1	Figure 1	Chart 1
FAL4-BP-OA	<--->			PNP	2m (6.5) axial cable	Diagram 2	Figure 1	Chart 1
FAL4-BN-OE	<--->			NPN	M12 (12mm) connector	Diagram 1	Figure 2	Chart 1
FAL4-BP-OE	<--->			PNP	M12 (12mm) connector	Diagram 2	Figure 2	Chart 1
Polarized reflective*								
FALN-BN-OA	<--->	20m (65.61ft) with RL110	Complementary N.O./N.C.	NPN	2m (6.5) axial cable	Diagram 1	Figure 1	Chart 2
FALN-BP-OA	<--->			PNP	2m (6.5) axial cable	Diagram 2	Figure 1	Chart 2
FALN-BN-OE	<--->	30m (98.43ft) with RL201	Complementary N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 2	Chart 2
FALN-BP-OE	<--->			PNP	M12 (12mm) connector	Diagram 2	Figure 2	Chart 2
Through-beam**								
FALD-BN-OA	Receiver <--->	50m (164.04ft)	Complementary N.O./N.C.	NPN	2m (6.5) axial cable	Diagram 1	Figure 1	Chart 3
FALD-BP-OA	Receiver <--->			PNP	2m (6.5) axial cable	Diagram 2	Figure 1	Chart 3
FALD-BN-OE	Receiver <--->			NPN	M12 (12mm) connector	Diagram 1	Figure 2	Chart 3
FALD-BP-OE	Receiver <--->			PNP	M12 (12mm) connector	Diagram 2	Figure 2	Chart 3
FALH-XO-OA	Emitter <--->			Receiver dependent	2m (6.5) axial cable	Diagram 3	Figure 1	Chart 3
FALH-XO-OE	Emitter <--->			M12 (12mm) connector	Diagram 3	Figure 2	Chart 3	

*Receivers include one round (84mm dia.) RL110 reflector. Purchase additional reflectors separately.

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

Wiring diagrams

Diagram 1

NPN Output

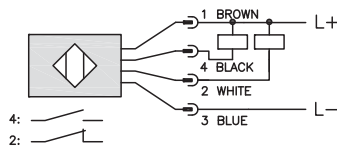


Diagram 2

PNP Output

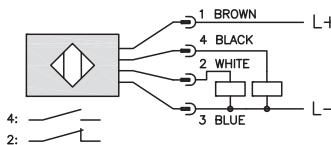
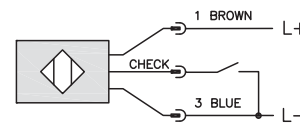


Diagram 3

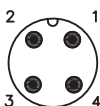
Emitter with check



2-meter Axial Cable version: check is black
M12 Connector: check is Pin 2 (white)

Connector

M12 connector



Switching Element Function

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

Note: N.O. = Signal ON when emitter is NOT sensing receiver.

N.C. = Signal ON when emitter is sensing receiver.

FA Series Laser Photoelectric Sensors

Specifications	Diffuse Models	Reflective Models	Through-Beam Models
Type	Diffuse reflection	Polarized reflection ³	Through-beam ⁴
Sensing Distance	300mm ¹	20m with RL110 reflector ² 30m with RL201 reflector	50m
Light Spot Diameter	1 mm @100 mm	15 mm @ 800 mm	22x5 mm @ 20 m
Emission	Visible red Class 1 Laser (650nm); see note below		
Sensitivity	Adjustable		
Output Type	NPN or PNP - Complementary NO/NC		
Operating Voltage	10-30 VDC		
No-load Supply Current	≤30mA	≤20mA	≤25mA
Operating (Load) Current	≤100mA		
Off-state (Leakage) Current	≤10μA		
Voltage Drop	2V max at 100mA		
Switching Frequency	800Hz		1kHz
Ripple	≤10%		
Time Delay Before Availability (tv)	200ms		
Short-Circuit Protection	Yes, switch autoresets after load is removed		
Operating Temperature	-15 to 55°C (5° to 131°F)		
Protection Degree (DIN 40050)	IEC IP67		
LED Indicators/Switch Status	Yellow (output energized) Green (power ON)		Receiver: Yellow (output energized) Emitter: Green (power ON)
Housing Material	Polybutylene Terephthalate (PBT)		
Lens Material	Polycarbonate (PC)		
Shock/Vibration	See terminology section		
Tightening Torque	1 Nm (0.737 lb-ft)		
Weight	200g (7.05 oz)		
Connectors	2m (6.5') axial cable; M12 (12mm) connector. Two lock nuts included.		
Agency Approvals	UL E187310, CE		
¹ With 100x100mm white matte paper ² With standard Ø84mm RL110 reflector ³ Each sensor includes one reflector (RL110). Purchase additional reflectors separately. ⁴ An emitter (FALH) and receiver (FALD) pair must be ordered for a complete sensor set.			

IMPORTANT NOTE

Class 1 Laser Product

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice Number 50, dated July 26, 2001.

Note: FA-L sensors are equipped with a visible red light laser diode and are classified as CLASS 1 LASER DEVICES. According to the CEIEN60825-1 norms, the class 1 laser devices are safe in operating conditions that can be reasonably foreseen. The FA-L sensors emit visible laser light impulses with a maximum peak power of 0.4 milliwatt. The laser output maximum power level is checked through a circuit that is always working, so it can detect any single failure. The FA-L Class 1 laser always emits a beam of intense and very concentrated light. The intentional and prolonged observation of this light can cause eye problems. As a result, it is advisable, where possible, to install the laser sensors so the beam cannot exceed the operating area. Avoid laser beam contact with eyes.

FA Series Laser Photoelectric Sensors

Dimensions

mm

Figure 1

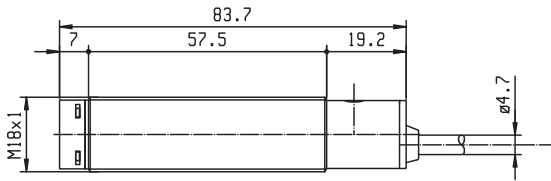
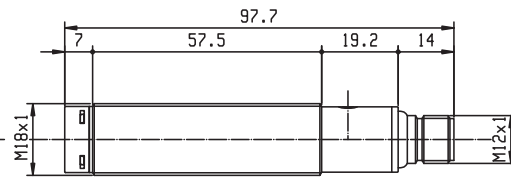


Figure 2



Characteristic curves

Chart 1

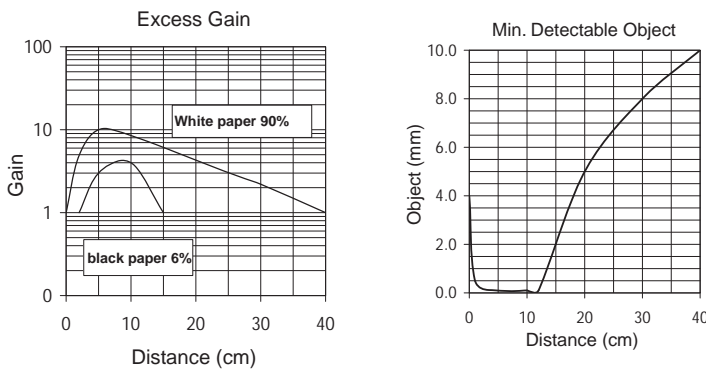


Chart 2

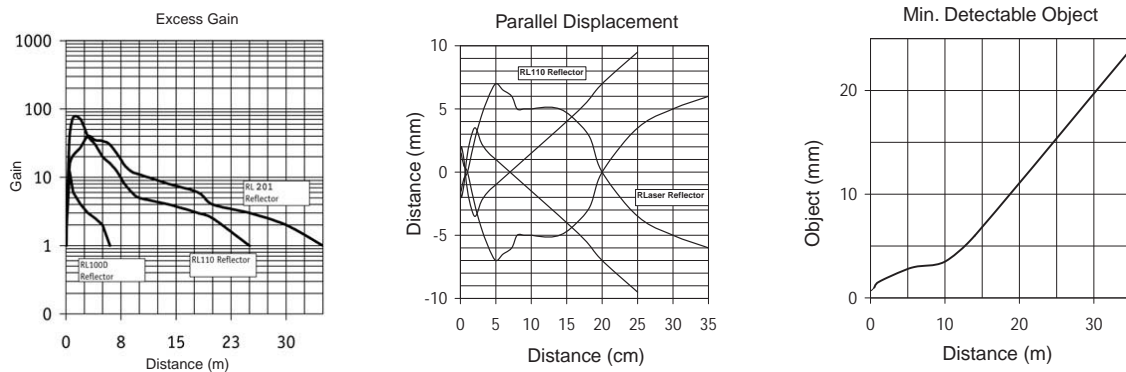
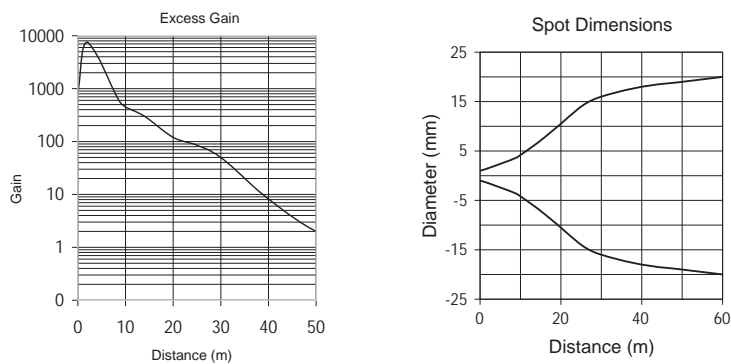


Chart 3





Company Information

Systems Overview

Programmable Controllers

Field I/O

Software

C-more & other HMI

Drives

Soft Starters

Motors & Gearbox

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temperature Sensors

Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

Terminal Blocks & Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

Safety

Appendix

Product Index

Part # Index

Sensor Cables and Connectors

Cables with quick-disconnect plugs

- Industry standard axial and right-angle M8/M12 screw-lock connectors with open leads. The cables listed can be used with patch cables
- 2m, 5m, 7m and 10m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 rated



CD12M-0B-050-C1 and -A1 shown

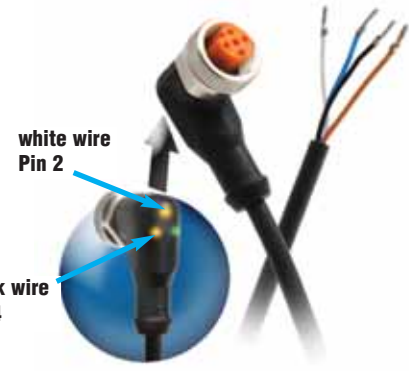
M8 Quick-Disconnect Cables (Pico, Nano)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M8 Quick-Disconnects							
CD08-0A-020-A1	<--->	2m (6.5ft.)	3	Axial	No	PVC	Figure 1
CD08-0A-020-C1	<--->	2m (6.5ft.)	3	Right-angle	No	PVC	Figure 2
CD08-0A-050-A1	<--->	5m (16.4ft.)	3	Axial	No	PVC	Figure 4
CD08-0C-050-A1	<--->	5m (16.4ft.)	3	Axial	No	PUR	Figure 3
CD08-0A-050-C1	<--->	5m (16.4ft.)	3	Right-angle	No	PVC	Figure 5
CD08-0C-050-C1	<--->	5m (16.4ft.)	3	Right-angle	No	PUR	Figure 5
CD08-0A-070-A1	<--->	7m (23ft.)	3	Axial	No	PVC	Figure 1
CD08-0A-070-C1	<--->	7m (23ft.)	3	Right-angle	No	PVC	Figure 2

M12 Quick-Disconnect Cables (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M12 Quick-Disconnects							
CD12L-0B-020-A0	<--->	2m (6.5ft)	4	Axial	No	PVC	Figure 6
CD12L-0B-020-C0	<--->	2m (6.5ft)	4	Right-angle	No	PVC	Figure 7
CD12M-0B-050-A1*	<--->	5m (16.4ft)	3	Axial	No	PVC	Figure 8
CD12M-0D-050-A1*	<--->	5m (16.4ft)	3	Axial	No	PUR	Figure 9
CD12M-0B-050-C1*	<--->	5m (16.4ft)	3	Right-angle	No	PVC	Figure 10
CD12M-0D-050-C1*	<--->	5m (16.4ft)	3	Right-angle	No	PUR	Figure 11
CD12M-0B-070-A1	<--->	7m (23ft)	4	Axial	No	PVC	Figure 6
CD12M-0B-070-C1	<--->	7m (23ft)	4	Right-angle	No	PVC	Figure 7

* Note: Do not use with sensors that require 4-pole cables.

Cables with LED and quick-disconnect plugs

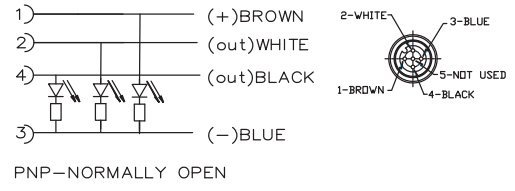
- Industry standard M12 right angle female plug with open leads
- These cables can be used with patch cables
- 2m, 5m and 10m cable lengths
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 /IP68 / IP69K, II rated
- LED indication for 10 -36 VDC PNP sensors only



M12 Quick-Disconnect Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M12 Quick-Disconnects							
EVC178*	<--->	2m (6.5ft)	4	Right-angle	Yes	PUR	Figure 12
EVC179*	<--->	5m (16.4ft)	4	Right-angle	Yes	PUR	Figure 12
EVC180*	<--->	10m (32.8ft)	4	Right-angle	Yes	PUR	Figure 12

*Note: LED for 10 to 36 VDC PNP only.
 Do not use with NPN or analog output devices.
 Do not use when white wire (Pin 2) is used for selection of a sensor function.
 Do not use when emitter has check function.

LED Models' Wiring



Sensor Cables and Connectors

Cable Specifications					
Specification	M8		M12		M12 with LED
Length	2m (6.5ft) / 7m (23ft)	5m (16.4ft)	2m (6.5ft) / 7m (23ft)	5m (16.4ft)	2m (6.5 ft) / 5m (16.4ft) / 10m (32.8ft)
Nominal Voltage	50VAC/75VDC	60VAC/DC	300VAC	250VAC/DC	10 to 36VDC
Max Current	4A		4A		4A
LED Current Loading	N/A	N/A	N/A	N/A	10V input Brown wire LED: 1.7mA White and/or Black LED: 0.9mA 36V input Brown wire LED: 7.3mA White and/or Black LED: 4.7mA
Protection Degree	IP67	IP65 / IP68 / IP69K	IP67	PVC: IP68 PUR: IP68 / IP69K	IP67 / IP68 / IP69K
Material Nut	brass; nickel plated		brass; nickel plated		brass; nickel plated
Jacket Material	PolyVinyl Chloride, (PVC)	PVC:CD08-0A-xxx. PUR:CD08-0C-xxx	PVC	PVC:CD12M-0B-xxx. PUR:CD12M-0D-xxx	PolyURethane (PUR)
Housing Material	Polyurethane (PUR)		Polyurethane (PUR)		Polyurethane (PUR)
Contacts Material	Copper-Tin Alloy (CuSn) -gold plated		Copper-Tin Alloy (CuSn) -gold plated		Gold plated brass
Tightening Torque	0.5 Nm	≤ 0.4 Nm	0.5 Nm	≤ 0.4 Nm	0.6 to 1.5 Nm
Conductors Cross Section (AWG)	0.25mm ² (24 AWG)	0.25mm ² (24 AWG)	0.25mm ² (24 AWG)	0.34mm ² (22 AWG)	4 x 0.34mm ² (4 x 22 AWG)
Ø Outer Cable	5mm	PVC: 4 mm PUR: 4 mm	5mm	PVC: 4.2 mm PUR: 4.3 mm	5mm
Temperature Range	-25° to +80°C (-13° to 176°F)	-25° to 90°C (-13° to 194°F)	-25° to +80°C (-13° to 176°F)	PVC: -30° to 70°C (-22° to 158°F) PUR: -50° to 90°C (-58° to 194°F)	-25° to +90°C (-13° to 194°F)
Environmental	N/A	Halogen free, Silicone free	N/A	Halogen free, Silicone free	Halogen free, Silicone free
Function Display Power LED	N/A	N/A	N/A	N/A	Green
Switching Status LED	N/A	N/A	N/A	N/A	2 x Yellow
Drag Chain (Roller Cable Tray) Suitability	Bending Radius	min. 10 x cable diameter			
	Bending Cycles	N/A	N/A	N/A	>5 million
	Travel Speed	N/A	N/A	N/A	Max. 3.3 m/s for a horizontal travel length of 5 meters and max. acceleration of 5 m/s ²
	Torsional Strain	N/A	N/A	N/A	±180°/m
Agency Approvals	RoHS				UL File E191684, RoHS

UL Reference	
Part Number	Mini-Series Female Cord Connectors Series M12, UL Catalog Number
EVC178	ADOAH043MSS0002H04
EVC179	ADOAH043MSS0005H04
EVC180	ADOAH043MSS0010H04
Note: Shown in UL file under Mini-series Female Cord Connectors using catalog number	

Dimensions

mm [inches]

Figure 1

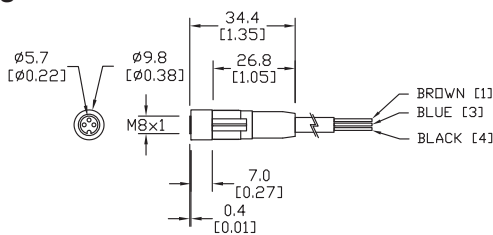
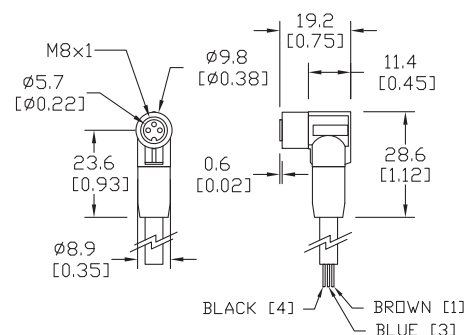


Figure 2



Sensor Cables and Connectors



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C-more & other HMI

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Dimensions

mm [inches]

Figure 3

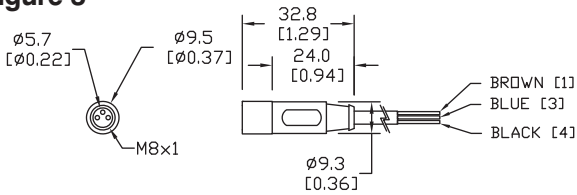


Figure 4

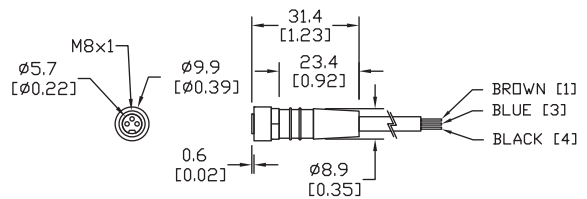


Figure 5

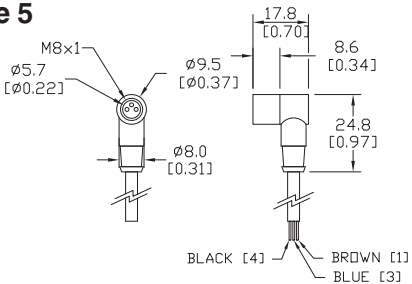


Figure 6

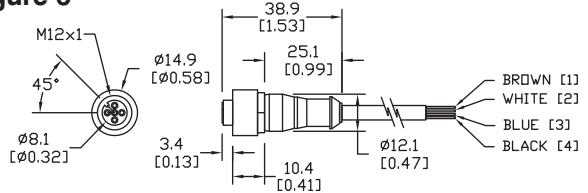


Figure 7

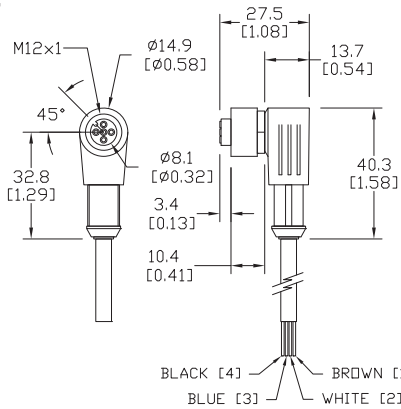


Figure 8

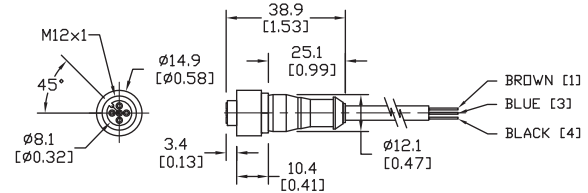


Figure 10

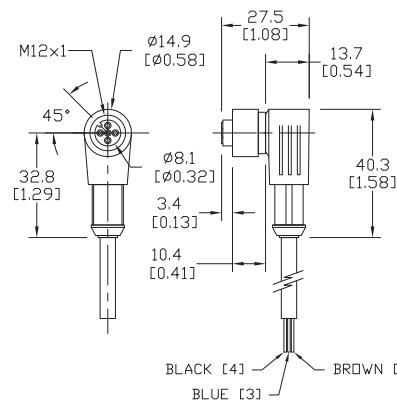


Figure 9

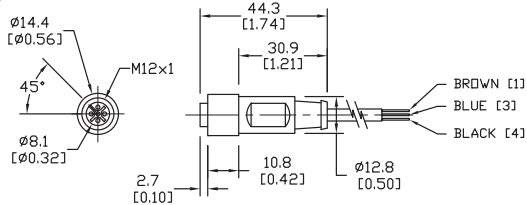


Figure 11

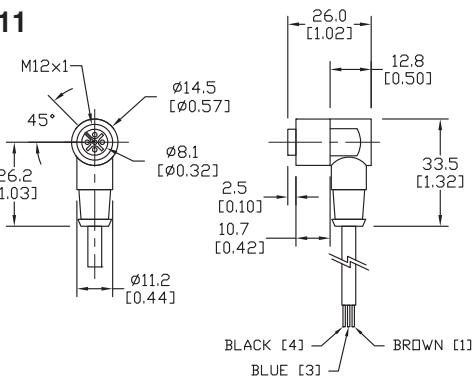
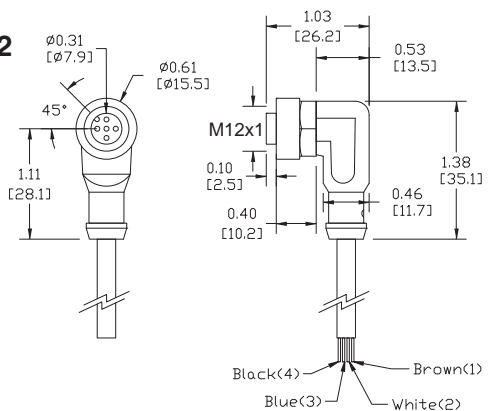


Figure 12



Sensor Cables and Connectors

Patch cables with quick-disconnect plugs on each end

Available patch cables include:

- Industry standard M8 and M12 screw-lock connectors
- One male and one female connector

- Axial and right-angle connector models
- 1m and 3m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP67 rated



M8 Patch Cables with Quick-Disconnect on Each End (Pico, Nano)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M8 Quick-Disconnect Patch Cables						
CDP08-0A-010-AA	<--->	1m (3.28ft)	3	2 Axial. One male and one female connector	PVC	Figure 1
CDP08-0A-010-BB	<--->	1m (3.28ft)	3	2 Right-angle. One male and one female connector	PVC	Figure 3
CDP08-0A-030-AA	<--->	3m (9.84ft)	3	2 Axial. One male and one female connector	PVC	Figure 2
CDP08-0A-030-BB	<--->	3m (9.84ft)	3	2 Right-angle. One male and one female connector	PVC	Figure 3

M12 Patch Cables with Quick-Disconnect on Each End (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M12 Quick-disconnect Patch Cables						
CDP12-0B-010-AA	<--->	1m (3.28ft.)	4	2 Axial. One male and one female connector	PVC	Figure 4
CDP12-0B-010-BB	<--->	1m (3.28ft.)	4	2 Right-angle. One male and one female connector	PVC	Figure 5
CDP12-0B-030-AA	<--->	3m (9.84ft.)	4	2 Axial. One male and one female connector	PVC	Figure 4
CDP12-0B-030-BB	<--->	3m (9.84ft.)	4	2 Right-angle. One male and one female connector	PVC	Figure 5

Patch Cables with LED

Available patch cables with LED include:

- Right-angle M12 female plug with LED indication on one end and axial male plug on the other end
- 0.3m, 0.6m, 1m, 2m, 5m, and 10m cable lengths

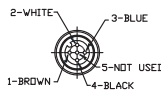
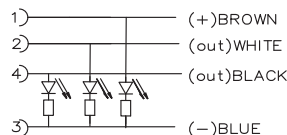
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 /IP68 / IP69K, II rated
- LED indication for 10 -36 VDC PNP sensors only



white wire
Pin 2

black wire
Pin 4

LED Models' Wiring



PNP-NORMALLY OPEN

M12 Patch Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connectors	LED	Jacket	Dimensions
M12 Patch Cables							
EVC322*	<--->	0.3m (0.98ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC323*	<--->	0.6m (1.97ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC324*	<--->	1m (3.28ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC325*	<--->	2m (6.5ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC326*	<--->	5m (16.4ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC327*	<--->	10m (32.8ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6

***Note: LED for 10 to 36 VDC PNP only.
Do not use with NPN or analog output devices.
Do not use when white wire (Pin 2) is used for selection of a sensor function.
Do not use when emitter has check function.**

Sensor Cables and Connectors



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- Motor Controls
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- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
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- Power
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Cable Specifications				
Specification	M8	M12	M12 with LED	
Length	1m (3.28ft.) / 3m (9.84ft.)		0.3m (0.98ft) / 0.6m (1.97ft) / 1m (3.28ft) 2m (6.5ft) / 5m (16.4ft) / 10m (32.8ft)	
Nominal Voltage	60 VAC/DC	250 VAC/DC	10 to 36VDC	
Max Current	4A		4A	
LED Current Consumption	N/A		10V input Brown wire LED: 1.7mA White and/or Black LED: 0.9mA 36V input Brown wire LED: 7.3mA White and/or Black LED: 4.7mA	
Protection Degree	IEC IP67		IEC IP67/IP68/IP69K	
Material Nut	Brass: nickel plated		Brass: nickel plated	
Jacket Material	PolyVinyl Chlorided (PVC)		PolyURethane (PUR)	
Housing Material	PolyURethane (PUR)		Connector: Orange PUR, Socket: Black PUR	
Contacts Material	Copper-tin(CuSn)=Brass		Brass; gold plated	
Conductors Cross Section (AWG)	0.34mm ²		0.34mm ² (22 AWG)	
Tightening Torque	0.5 Nm		Plug: 0.6 to 1.5 Nm (take into account the maximum value of the counterpart) Socket: 0.6 to 1.5 Nm	
Ø Outer Cable	5mm		5mm	
Temperature Range	-25° to +70°C (-13° to 158°F)		-25° to +90°C (-13° to 194°F)	
Function Display LED	N/A		Green	
Switching Status LED	N/A		2 x Yellow	
Drag Chain (Roller Cable Tray) Suitability	Bending Radius	min. 10 x cable diameter		
	Bending Cycles	>5 million		
	Travel Speed	N/A	Max. 3.3 m/s for a horizontal travel length of 5 m and max. acceleration of 5 m/s ²	
	Torsional Strain	N/A	±180°/m	
Agency Approvals	RoHS		UL File E191684, RoHS	

UL Reference	
Part Number	Cable Assemblies Series M12, UL Catalog Number
EVC322	VDOAH043MSS00.3H04STGH040MSS
EVC323	VDOAH043MSS00.6H04STGH040MSS
EVC324	VDOAH043MSS0001H04STGH040MSS
EVC325	VDOAH043MSS0002H04STGH040MSS
EVC326	VDOAH043MSS0005H04STGH040MSS
EVC327	VDOAH043MSS0010H04STGH040MSS
Note: Shown in UL file under Cable Assemblies using catalog number	

Sensor Cables and Connectors

Dimensions mm [inches]

Figure 1

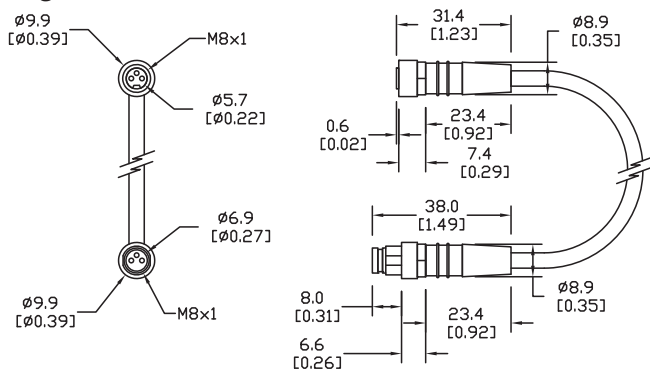


Figure 2

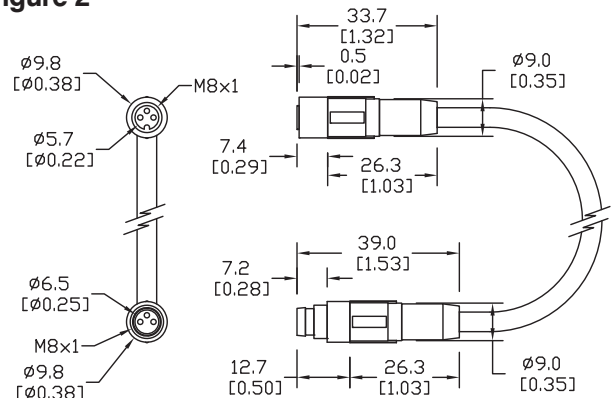


Figure 3

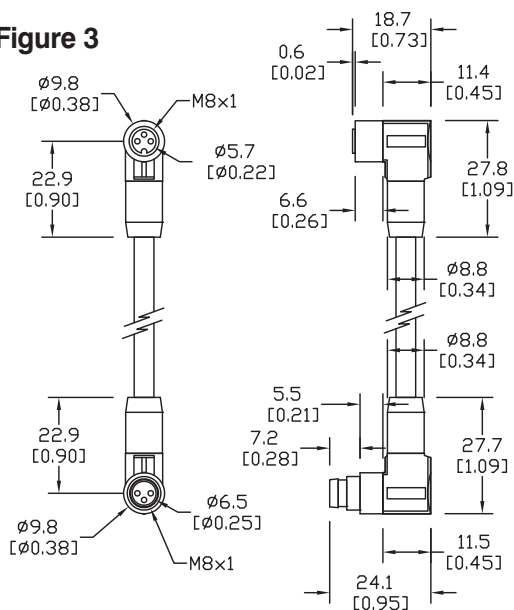


Figure 4

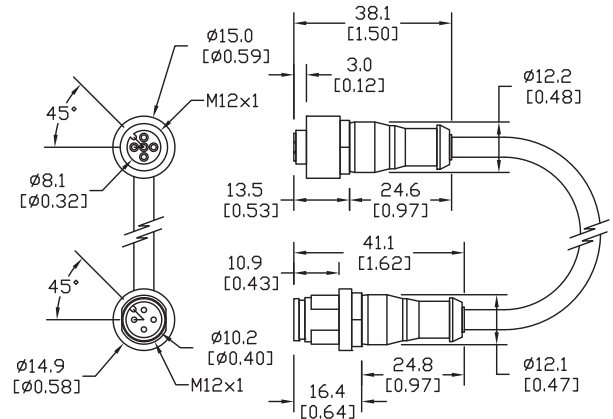


Figure 5

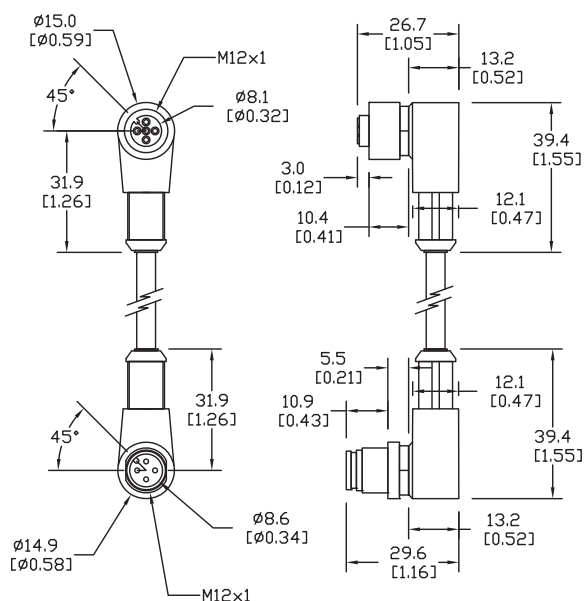
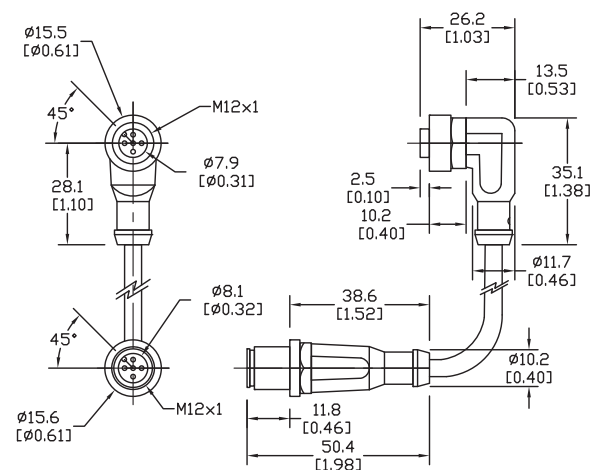


Figure 6



Accessories: Reflectors and Shutters

RL series reflectors for polarized reflective photoelectric sensors (all models)

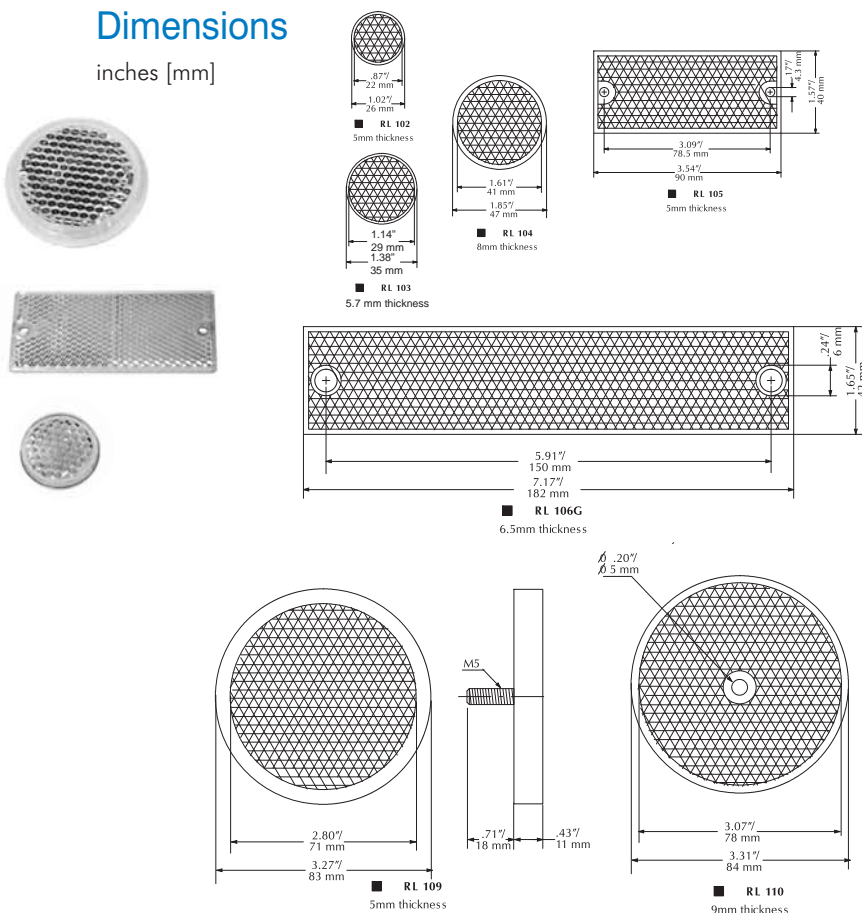
- Suitable for use with polarized light photoelectric sensors
- Shapes and sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- Single hole, dual hole and stud mounting types available
- 10 reflectors per package

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°.

Dimensions

inches [mm]



Specifications	RL102	RL103	RL104	RL105	RL106G	RL110 ³
Model	RL102	RL103	RL104	RL105	RL106G	RL110 ³
Price (10 per pack)	<--->	<--->	<--->	<--->	<--->	<--->
% Sensing Range Using SSP¹	50%	40%	50%	50%	50%	100%
% Sensing Range Using QXP¹	--	35%	60%	50%	45%	100%
Dimensions	Ø26mm	Ø36mm	Ø47mm	90x40mm	182x42mm	Ø84mm
Degree of Protection²	IEC IP67					
Mounting	Customer-supplied adhesive or other mounting method required			two Ø4.3mm holes	two Ø6mm holes	one Ø5mm hole
Materials	Reflective face: PMMA Polymethylmethacrylate (acrylic); base material: ABS (Acrylonitrile-butadiene-styren)					
1 Refer to individual catalog pages for detailed explanations of these photoelectric sensors.						
2 Not recommended for applications involving moist air environments or water immersion.						
3 All reflective sensors are shipped with an RL110 reflector.						

ST0S1 through ST0S8 shutters for M18 (18 mm) through-beam sensors (SSE / SSR)

- Reduces the emitted beam, allowing the detection of small targets
- Shutter consists of a threaded ring-nut, a protective lens, an O-ring and an aperture, which can screw onto the optical head of either the emitter or receiver. The table above shows the sensing distance and minimal detectable object.

Sensing Distance (when used with SSE / SSR Model Photoelectric switches)

Model	ST0S1	ST0S2	ST0S3	ST0S4	ST0S6	ST0S8
Pieces Per Pack	1	1	1	1	1	1
Price	<--->	<--->	Discontinued	<--->	<--->	<--->
Ø x shutter (mm)	1	2	3	4	6	8
Distance (m)	N/A	N/A	1	1.5	3.5	6.5
object (mm)	N/A	N/A	1.5	2	3	4



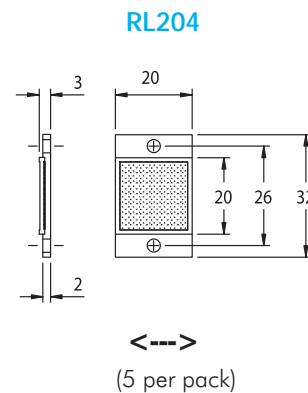
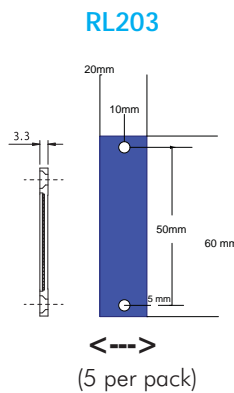
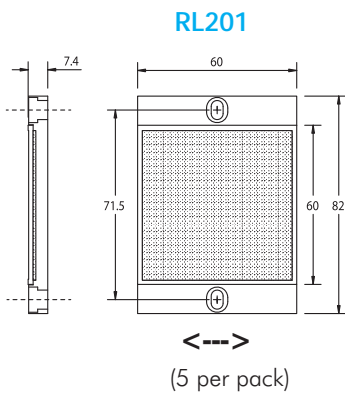
Accessories: Reflectors, Adapters & Mounting Brackets

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
- 5 reflectors per package

Specifications			
Model	RL201	RL203	RL204
Sensing Range Using FALN¹	30m	7m	7m
Dimensions	60mm x 82mm	19mm x 60mm	20mm x 32mm
Mounting	two Ø4mm holes	two Ø5mm holes	two Ø3mm holes
Degree of Protection²	IEC IP67		
Materials	Acrylic/polycarbonate		

1 Refer to individual catalog pages for detailed explanations of these photoelectric sensors.
2 Not recommended for applications involving moist air environments or water immersion.
Note: All reflective sensors are shipped with an RL110 reflector. Purchase additional reflectors separately.



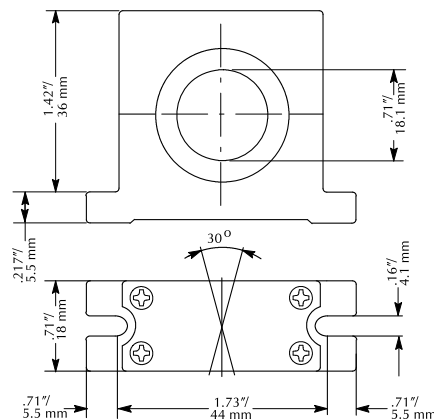
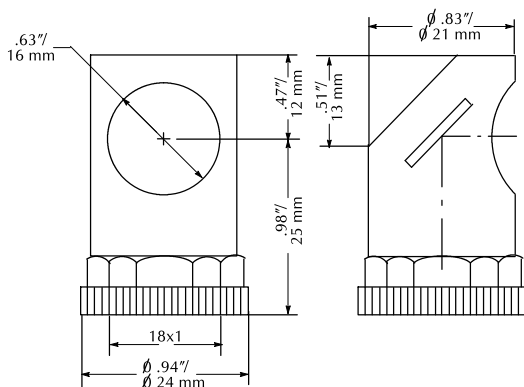
ST03 right-angle M18 (18 mm) beam adapter

For use with M18 retroreflective and through-beam photoelectric switches (not for use with diffuse reflection sensors). Allows 90° light detection using an internal mirror set at 45° to the optical axis. Sensitivity loss is about 20-30%.



ST02 plastic swivel bracket M18 (18 mm)

Plastic mounting bracket for use with M18 photoelectric switches. Has a ball-joint and set screws to adjust sensor orientation. Allows orientation in all directions for retroreflective and through-beam sensors. (Will not work with C18 series).



Accessories: Mounting Brackets

ST12A axial bracket

For mounting M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for right-beam angle adapter sensors.

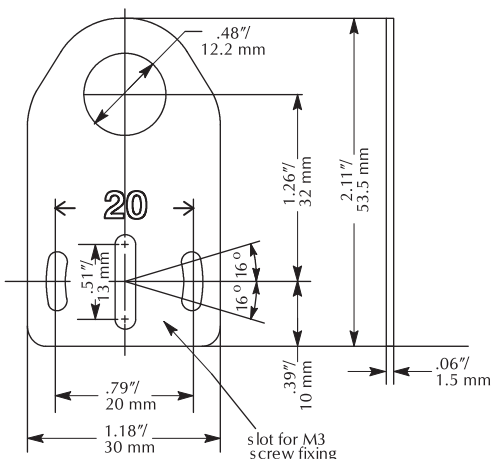


ST12C right-angle bracket

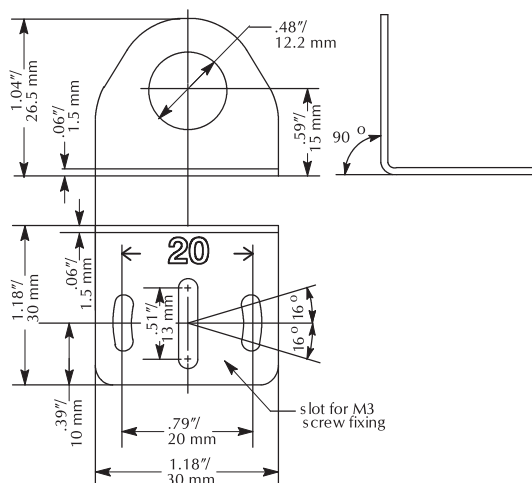
Angular mounting bracket for use with M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for axial sensors.



Brackets		
Part Number	Price	Description
ST12A	<-->	Metal axial bracket for 12 mm sensors, 1/pk
ST12A7W	<-->	316L stainless steel axial bracket for 12 mm sensors, 1/pk



Brackets		
Part Number	Price	Description
ST12C	<-->	Metal right angle bracket for 12 mm sensors, 1/pk
ST12C7W	<-->	316L stainless steel right angle bracket for 12 mm sensors, 1/pk



ST18A axial bracket

Mounting bracket for M18 (18mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for right-beam angle adapter sensors.

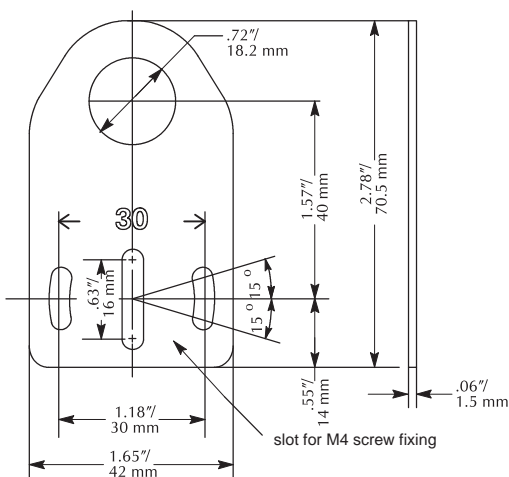


ST18C right-angle bracket

Angular mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for axial sensors.



Brackets		
Part Number	Price	Description
ST18A	<-->	Metal axial bracket for 18 mm sensors, 1/pk
ST18A7W	<-->	316L stainless steel axial bracket for 18 mm sensors, 1/pk



Brackets		
Part Number	Price	Description
ST18C	<-->	Metal right angle bracket for 18 mm sensors, 1/pk
ST18C7W	<-->	316L stainless steel right angle bracket for 18 mm sensors, 1/pk

