QX Series Photoelectric Sensors

Rectangular plastic - DC

- 16 models available, including diffuse, polarized reflective, and through-beam detection
- Axial or right-angle optics
- Fast response time
- NPN/PNP selectable output
- 2 LED indicators (threshold and signal margin)
- IP65 rated

Automation Direct

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Part # Index

| Part Number		Sensing Range	Output State*	Optics	Logic	Connection	Wiring	Dimensions	Characteristic Curves	Price
QX Series Photoelectric Sensor Selection Chart										
Diffuse										
QX3-A0-1A		300mm (11.81in)	N.O.	Axial	NPN/PNP selectable	2m (6.5') axial cable	Diagram 1	Figure 1	Chart 1	<--->
QX3-A0-1E				Axial		M12 (12mm) connector	Diagram 1	Figure 2	Chart 1	<--->
QX3-A0-2A		300mm (11.81in)	N.O.	Right-angle		2m (6.5') axial cable	Diagram 1	Figure 3	Chart 1	<--->
QX3-A0-2E				Right-angle		M12 (12mm) connector	Diagram 1	Figure 4	Chart 1	<--->
*Polarized reflective**										
QXP-A0-1A		2.5m (78.74in)	N.O.	Axial	NPN/PNP selectable	2m (6.5') axial cable	Diagram 1	Figure 1	Chart 2	<--->
QXP-A0-1E				Axial		M12 (12mm) connector	Diagram 1	Figure 2	Chart 2	<--->
QXP-A0-2A		2.5m (78.74in)	N.O.	Right-angle		2m (6.5') axial cable	Diagram 1	Figure 3	Chart 2	<--->
*Through-beam***										
QXR-A0-1A	Receiver	8m (26.25ft)	N.O.	Axial	NPN/PNP selectable	2m (6.5') axial cable	Diagram 1	Figure 1	Chart 3	<--->
QXR-A0-1E	Receiver			Axial		M12 (12mm) connector	Diagram 1	Figure 2	Chart 3	<--->
QXX-00-1A	Emitter		Receiver dependent	Axial	Receiver dependent	2m (6.5') axial cable	Diagram 2	Figure 1	Chart 3	<--->
QXX-00-1E	Emitter			Axial		M12 (12mm) connector	Diagram 2	Figure 2	Chart 3	<--->
QXR-A0-2A	Receiver	8m (26.25ft)	N.O.	Right-angle	NPN/PNP selectable	2m (6.5') axial cable	Diagram 1	Figure 3	Chart 3	<--->
QXR-A0-2E	Receiver			Right-angle		M12 (12mm) connector	Diagram 1	Figure 4	Chart 3	<--->
QXX-00-2A	Emitter		Receiver dependent	Right-angle	Receiver dependent	2m (6.5') axial cable	Diagram 2	Figure 3	Chart 3	<--->
QXX-00-2E	Emitter			Right-angle		M12 (12mm) connector	Diagram 2	Figure 4	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/PNP output (All QX series outputs are NPN/PNP selectable) **QX*-A0-***

NPN   10.8...30Vdc ±10%

PNP   10.8...30Vdc ±10%
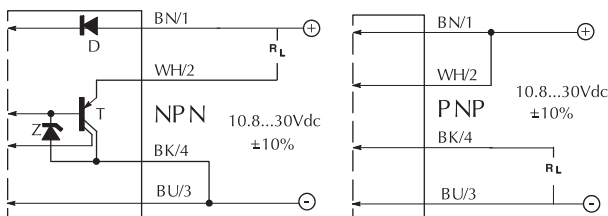
Check input test circuit (QXX models only): To test that the sensor is operating correctly, apply 10.8-30VDC across the WH/2 (+) and BK/4 (-) leads, which are decoupled from the power supply. In light state, light pulses are interrupted, which simulates the presence of a target and causes the output to switch. If switching does not occur, check for a fault in the system.

Diagram 2

Emitter with check **QXX-00-***

CHECK input 10.8.....30Vdc

R 4.7K

M12 connector

BK/4 (PNP) (OUT NO)   Supply (-)

Supply (+)   WH/2 (NPN) (OUT)

> **Warning: These products are not safety sensors and are not suitable for use in personal safety applications.**
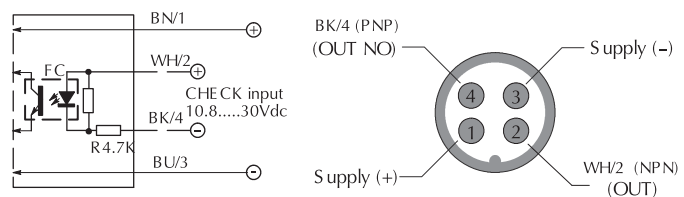
QX Series Photoelectric Sensors

Dimensions (in/mm)

(M3 x 0.5 screws included with sensor)

Figure 1

Axial Cable

QXR Optical Axis
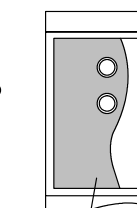
.91"/ 23 mm

.52"/ 13.2 mm

.24"/ 6.2 mm

QX3, QXP Optical Axis
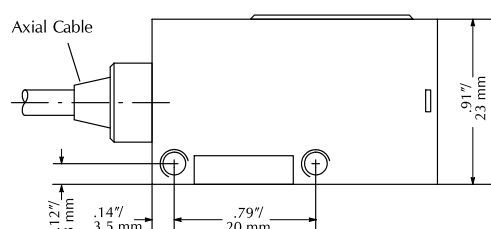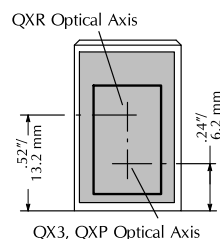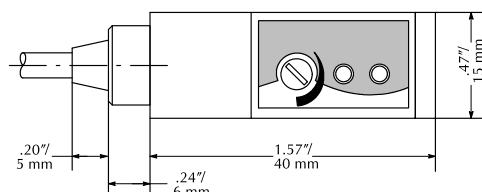
Receiver, retro-reflective, diffuse models

Red LED

Green LED

Sens. Adj.

Emitter with check models

.12"/ 3 mm

.14"/ 3.5 mm

.79"/ 20 mm

.20"/ 5 mm

.24"/ 6 mm

1.57"/ 40 mm

.47"/ 15 mm

.12"/ 3 mm

.20"/ 5 mm

1.06"/ 27 mm

.55"/ 14 mm
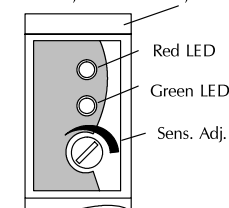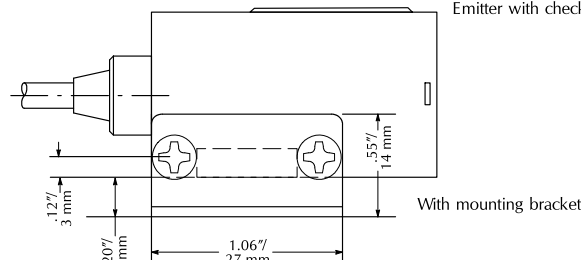
With mounting bracket

Figure 2

M12 Connector

M12x1

.43"/ 11 mm

1.57"/ 40 mm

.59"/ 15 mm

.14"/ 3.5 mm

.79"/ 20 mm

.67"/ 17 mm

.61"/ 15.5 mm

.55"/ 14 mm

10°

Figure 3

QXR Optical Axis

QX3, QXP Optical Axis

.59"/ 15 mm

.91"/ 23 mm

.28"/ 7 mm

.89"/ 22.5 mm

1.57"/ 40 mm

.24"/ 6 mm

.20"/ 5 mm

.79"/ 20 mm

.14"/ 3.5 mm

.12"/ 3 mm

Axial Cable

Figure 4

.55"/ 14 mm

.61"/ 15.5 mm

With mounting bracket

10°

.67"/ 17 mm

.79"/ 20 mm

.43"/ 11 mm

.14"/ 3.5 mm

M12x1

M12 Connector

.55"/ 14 mm

1.06"/ 27 mm

.20"/ 5 mm

.12"/ 3 mm

M3x.5x12 included

Red LED

Green LED

Sens. Adj.

Emitter with check models

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Specifications	Diffuse Models	Reflective Models	Through-Beam Models
Type	Diffuse reflection[1]	Polarized reflection[2]	Through-beam[3]
Sensing Distance	300mm[4]	2.5m[5]	8m
Emission	infrared (880nm)	red (660nm)	
Minimum Detectable Object	-		2mm
Sensitivity	Adjustable one-turn pot.		
Tolerance	+15/-5% Sn		
Differential Travel	10%		
Repeat Accuracy	5%		
Operating Voltage	10.8-30VDC		
Ripple	10% max.		
No-load Supply Current	20mA		20mA (emitter), 5mA (receiver)
Check Voltage	-		10.8-30VDC (QXX)
Load Current	300mA		
Leakage Current	10µA max at 30VDC		
Voltage Drop	1.2volt maximum at 100mA		
Output Type	NPN/PNP selectable/N.O. only		
Switching Frequency	750Hz (Tr=0.5ms)		500Hz (Tr=0.75ms)
(tv) Time Delay Before Availability	200 ms		
Protection From Input Voltage Transients	Yes, as long as the transient peak does not exceed 30VDC		
Protection From Input Power Polarity Reversal	Yes		
Output Power Short-Circuit Protection	Yes, (switch autoresets after overload is removed)		
Temperature Range	-25° to+70°C (-13° to 158°F)		
Interference to External Light	3,000 lux (incandescent lamp) 10,000 lux (sunlight)		
Protection Degree (DIN 40050)	IEC IP65		
LED Indicators	See Dimensions on previous page		
Housing Material	ABS (glass reinforced)		
Lens Material	Acrylic		
Weight	70g (2.47oz)		

[1]Mounting bracket included   [2]Mounting bracket and Ø84mm round reflector included (RL110). Purchase additional reflectors separately.
[3]An emitter (QXX) and receiver (QXR) pair is needed for a complete sensor set.
[4]With 100X100mm white matte paper   [5]With standard Ø84mm reflector (RL110)
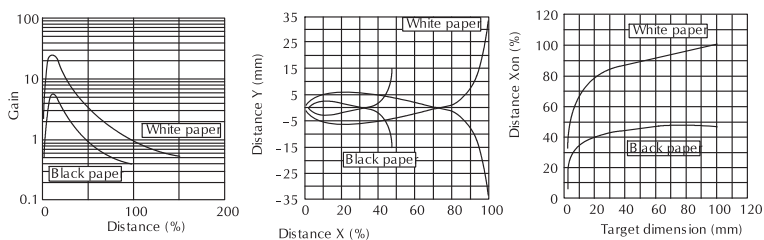
Characteristic curves

Chart 1

Chart 3

Excess gain

Parallel displacement

Chart 2

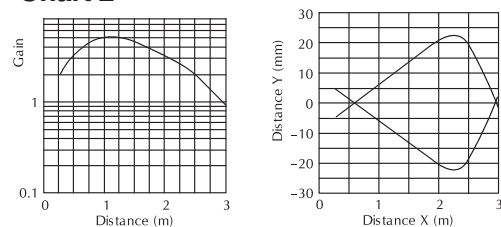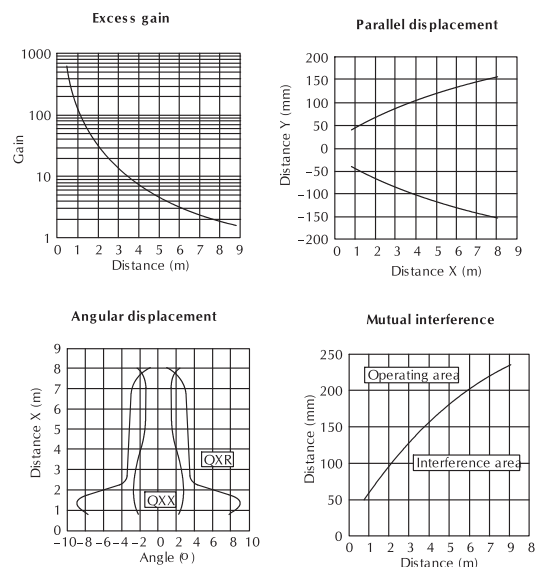Angular displacement

Mutual interference

Sensors Accessories: Cables

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

CD08-0A-020-A1 and -C1 shown

CD08-0A-050-A1 and -C1 shown

CD12L-0B-020-A0 and -C0 shown

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: DM, FA, QX, SS, SSF, SU, TU, VM, VK, MV, MS or MSF series sensors. These sensors 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

white wire Pin 2

black wire Pin 4

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 when white wire (Pin 2) is used for selection of a sensor function.

LED Models' Wiring
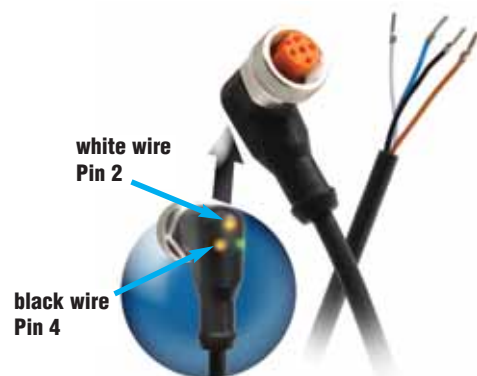
```
1)━━━━━━━━━━━━━(+)BROWN
2)━━━━━━━━━━━━━(out)WHITE
4)━◁━◁━◁━━━━━(out)BLACK
3)━━━━━━━━━━━━━(−)BLUE
```

```
        2-WHITE      3-BLUE


1-BROWN          5-NOT USED
            4-BLACK
```

PNP—NORMALLY OPEN

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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	PVC	PVC:CD08-0A-xxx. PUR:CD08-0C-xxx	PVC	PVC:CD12M-0B-xxx. PUR:CD12M-0D-xxx	PUR
Housing Material	PUR		PUR		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)	$4 \times 0.34mm^2$ (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	N/A	>5 million
Travel Speed	N/A	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	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	

Sensors Accessories: Cables

Dimensions (in/mm)

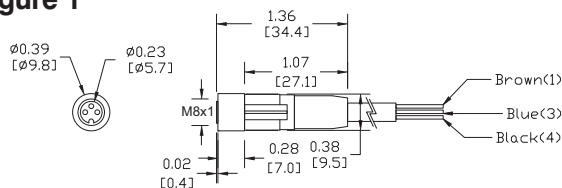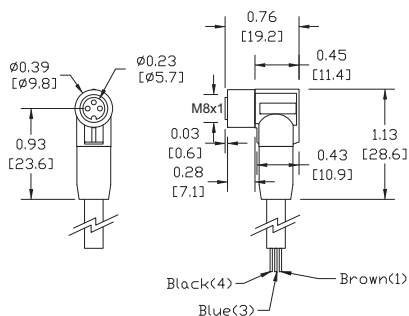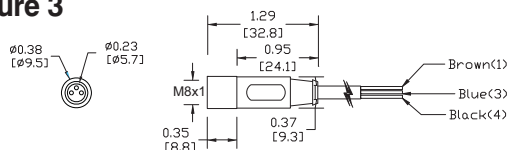### Figure 1

Figure 2
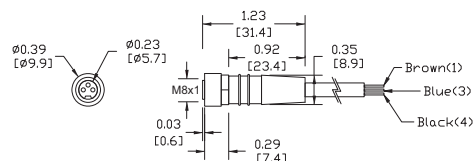
Figure 3
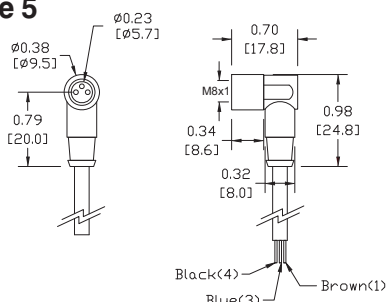
Figure 4
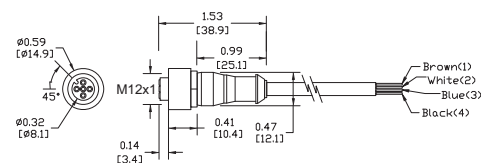
Figure 5

Figure 6

Figure 7
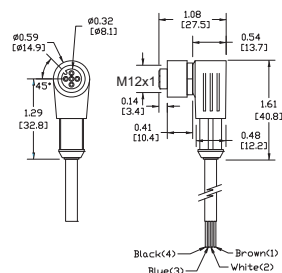
Figure 8
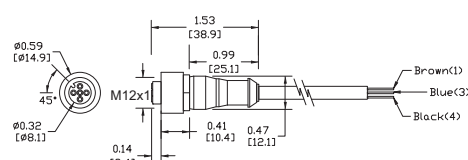
Figure 9
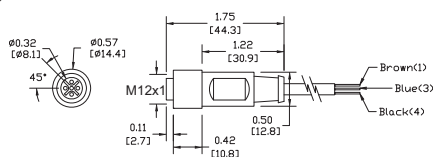
Figure 10

Figure 11

Figure 12

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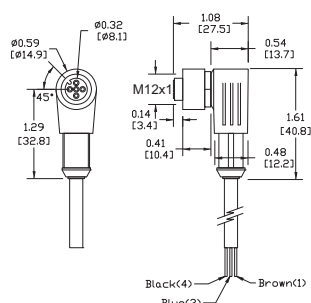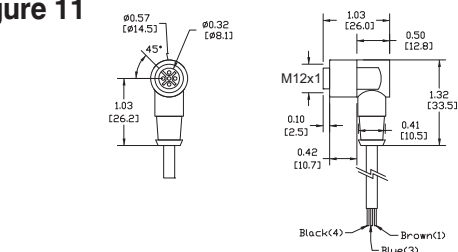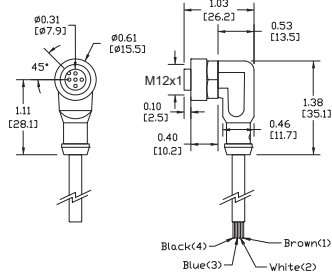Part # Index

Sensors Accessories: Cables

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

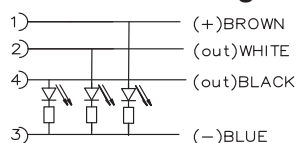| M12 Patch Cables with Quick-Disconnect on Each End (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M12 Quick-disconnect Patch Cables						
CDP12-0B-010-AA	<--->	1m (3.28ft.)	4	2 Axial. One male and one female connector	PVC	Figure 4
CDP12-0B-010-BB	<--->	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
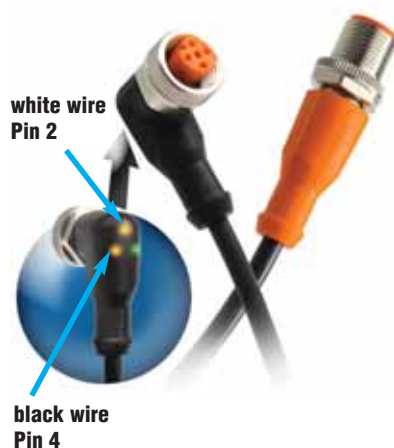
M12 Patch Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connectors	LED	Jacket	Dimensions
M12 Patch Cables							
EVC322*	<--->	0.3m (0.98ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC323*	<--->	0.6m (1.97ft)	4	Right-angle female, axial male	Yes	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 when white wire (Pin 2) is used for selection of a sensor function.

LED Models' Wiring

1) (+)BROWN
2) (out)WHITE
4) (out)BLACK
3) (−)BLUE

2-WHITE   3-BLUE
1-BROWN   5-NOT USED
4-BLACK

PNP−NORMALLY OPEN

Sensors Accessories: Cables

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	50VAC/75VDC	10 to 36VDC
Max Current	4A	4A
	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	PVC	PUR
Housing Material	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)
Environmental		Halogen-free, Silicone-free
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	VD0AH043MSS00.3H04STGH040MSS
EVC323	VD0AH043MSS00.6H04STGH040MSS
EVC324	VD0AH043MSS0001H04STGH040MSS
EVC325	VD0AH043MSS0002H04STGH040MSS
EVC326	VD0AH043MSS0005H04STGH040MSS
EVC327	VD0AH043MSS0010H04STGH040MSS

Note: Shown in UL file under Cable Assemblies using catalog number

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Sensors Accessories: Cables
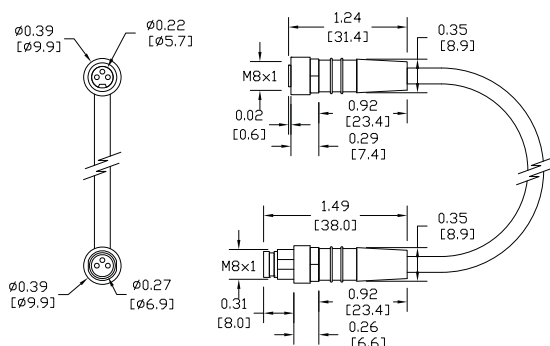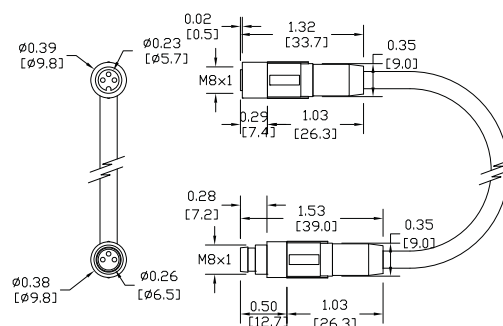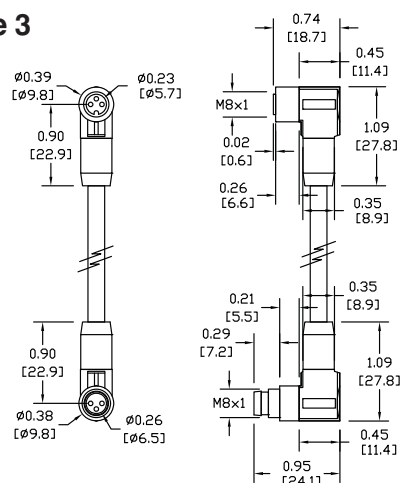
Dimensions (in/mm)

Figure 1

Figure 2
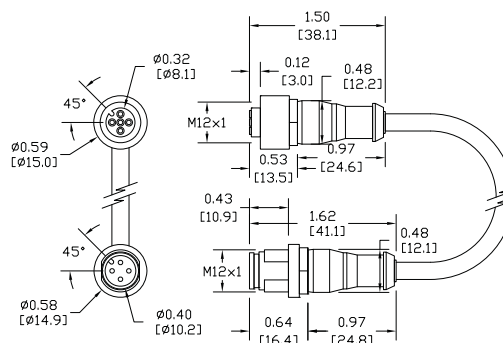

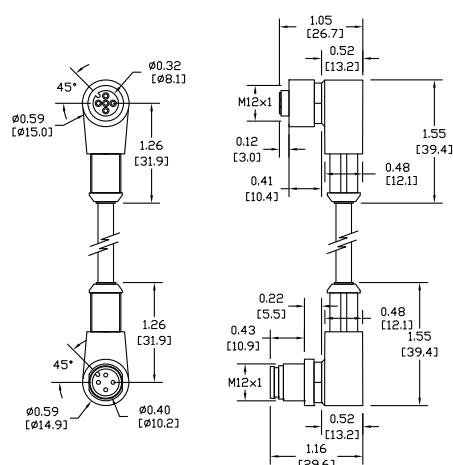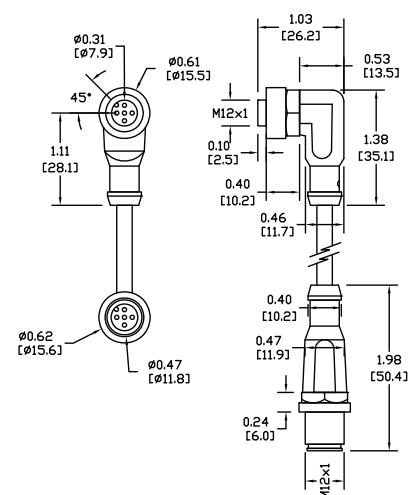**Figure 3**

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
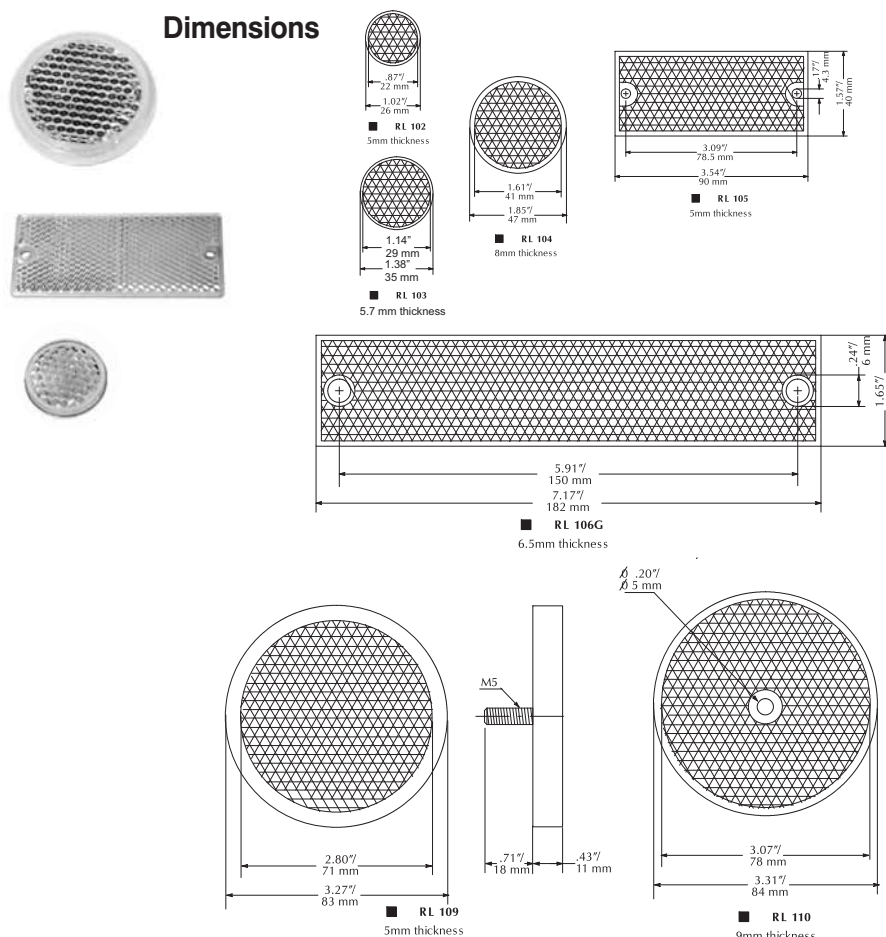
Installation notes

- 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

RL 102 — 5mm thickness — .87"/22 mm, 1.02"/26 mm

RL 103 — 5.7 mm thickness — 1.14"/29 mm, 1.38"/35 mm

RL 104 — 8mm thickness — 1.61"/41 mm, 1.85"/47 mm

RL 105 — 5mm thickness — 3.09"/78.5 mm, 3.54"/90 mm, .17"/4.3 mm, 1.57"/40 mm

RL 106G — 6.5mm thickness — 5.91"/150 mm, 7.17"/182 mm, .24"/6 mm, 1.65"/42 mm

RL 109 — 5mm thickness — 2.80"/71 mm, 3.27"/83 mm

RL 110 — 9mm thickness — 3.07"/78 mm, 3.31"/84 mm, Ø.20"/Ø 5 mm

M5 — .71"/18 mm, .43"/11 mm

Specifications

Model	RL102	RL103	RL104	RL105	RL106G	RL109	RL110 [3]
Price (10 per pack)	<--->	<--->	<--->	<--->	<--->	<--->	<--->
% Sensing Range Using SSP [1]	50%	40%	50%	50%	50%	50%	100%
% Sensing Range Using QXP [1]	--	35%	60%	50%	45%	30%	100%
Dimensions	Ø26mm	Ø36mm	Ø47mm	90x40mm	182x42mm	Ø83mm	Ø84mm
Degree of Protection [2]	IEC IP67						
Mounting	Customer-supplied adhesive or other mounting method required			two Ø4.3mm holes	two Ø6mm holes	one M5 stud	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

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) object (mm)	N/A N/A	N/A N/A	1 1.5	1.5 2	3.5 3	6.5 4

- 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.

Automation Direct

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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 FALN [1]	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 Protection [2]	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.

RL201

(5 per pack)

RL203
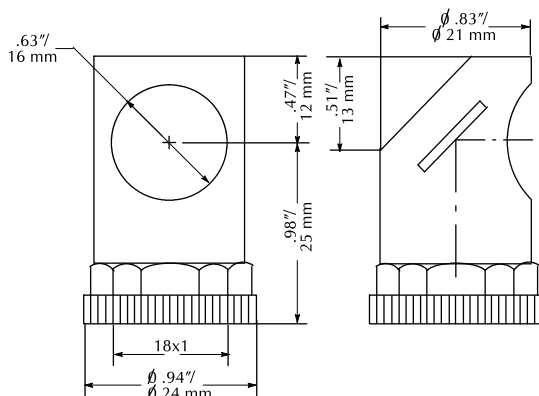
(5 per pack)

RL204

(5 per pack)
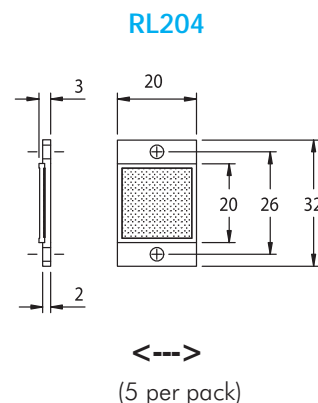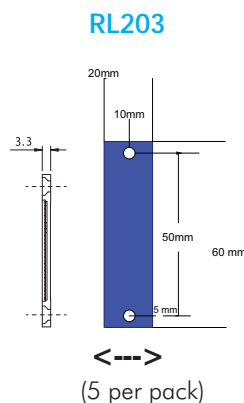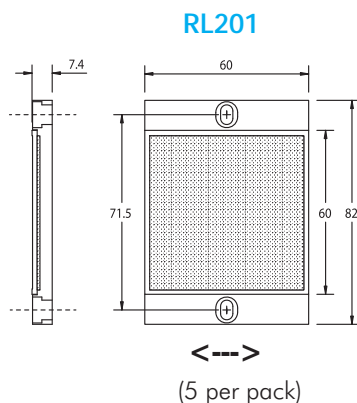
ST03 right-angle M18 (18 mm) beam adapter

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%.
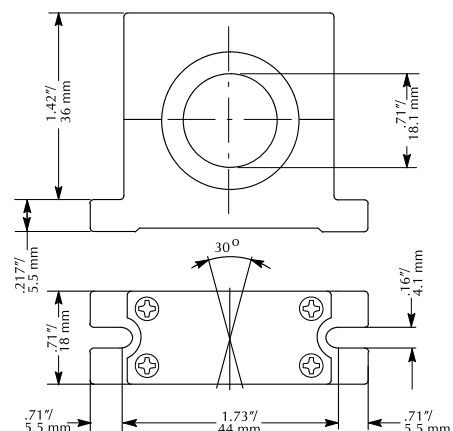
<--->

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).
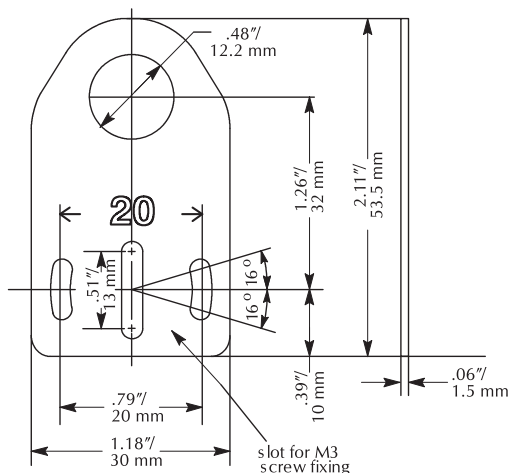
<--->

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.

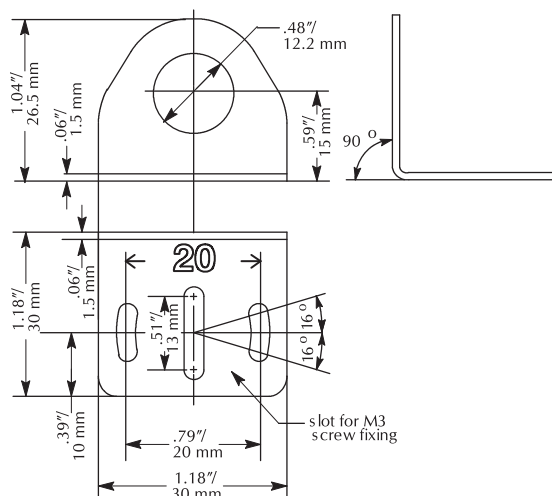| Brackets		
Part Number	**Price**	**Description**
ST12A	<--->	Metal axial bracket for 12 mm sensors, 1/pk
ST12A7W	<--->	316L stainless steel axial bracket for 12 mm sensors, 1/pk

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.

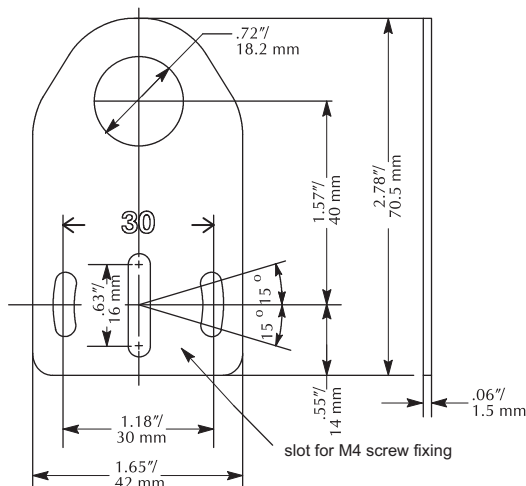| Brackets		
Part Number	**Price**	**Description**
ST12C	<--->	Metal right angle bracket for 12 mm sensors, 1/pk
ST12C7W	<--->	316L stainless steel right angle bracket for 12 mm sensors, 1/pk

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.

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

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**
ST18C	<--->	Metal right angle bracket for 18 mm sensors, 1/pk
ST18C7W	<--->	316L stainless steel right angle bracket for 18 mm sensors, 1/pk

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