

# AE Series Inductive Proximity Sensors



## M8 (8 mm) metal – DC

- 24 standard length models available
- 8 short body length models available
- Compact metal housing
- Axial cable, M8 or M12 quick-disconnect models

- Complete overload protection
- IP67 rated
- LED status indicators are visible 360° around the cylinder
- Lifetime warranty



**AE1 Series Standard Length M8 DC Inductive Prox Selection Chart**

Part Number	Price	Sensing Range	Housing	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AE1-AN-1A	\$21.00	0 to 1.5 mm (0-0.059 in)	Shielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 1
AE1-AP-1A	\$21.00				PNP	2 m (6.5') axial cable	Diagram 2	Figure 1
AE1-AN-1H	\$21.00				NPN	M12 (12 mm) connector	Diagram 1	Figure 2
AE1-AP-1H	\$21.00				PNP	M12 (12 mm) connector	Diagram 2	Figure 2
AE1-AN-1F	\$21.00				NPN	M8 (8 mm) connector	Diagram 1	Figure 3
AE1-AP-1F	\$21.00				PNP	M8 (8 mm) connector	Diagram 2	Figure 3
AE1-AN-2A	\$21.00	0 to 2.5 mm (0-0.098 in)	Unshielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 1
AE1-AP-2A	\$21.00				PNP	2 m (6.5') axial cable	Diagram 2	Figure 1
AE1-AN-2H	\$21.00				NPN	M12 (12 mm) connector	Diagram 1	Figure 2
AE1-AP-2H	\$21.00				PNP	M12 (12 mm) connector	Diagram 2	Figure 2
AE1-AN-2F	\$21.00				NPN	M8 (8 mm) connector	Diagram 1	Figure 3
AE1-AP-2F	\$21.00				PNP	M8 (8 mm) connector	Diagram 2	Figure 3
Extended Distance								
AE1-AN-3A	\$26.50	0 to 2 mm (0-0.079 in)	Shielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 1
AE1-AP-3A	\$26.50				PNP	2 m (6.5') axial cable	Diagram 2	Figure 1
AE1-AN-3F	\$26.50				NPN	M8 (8 mm) connector	Diagram 1	Figure 3
AE1-AP-3F	\$26.50				PNP	M8 (8 mm) connector	Diagram 2	Figure 3
AE1-AN-4A	\$26.50	0 to 4 mm (0-0.157 in)	Unshielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 1
AE1-AP-4A	\$26.50				PNP	2 m (6.5') axial cable	Diagram 2	Figure 1
AE1-AN-4F	\$26.50				NPN	M8 (8 mm) connector	Diagram 1	Figure 3
AE1-AP-4F	\$26.50				PNP	M8 (8 mm) connector	Diagram 2	Figure 3
Triple Distance								
AE1-AN-5A	\$61.00	0 to 3 mm (0-0.118 in)	Shielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 1
AE1-AP-5A	\$61.00				PNP	2 m (6.5') axial cable	Diagram 2	Figure 1
AE1-AN-5F	\$61.00				NPN	M8 (8 mm) connector	Diagram 1	Figure 4
AE1-AP-5F	\$61.00				PNP	M8 (8 mm) connector	Diagram 2	Figure 4

**AE6 Series Short Body M8 DC Inductive Prox Selection Chart**

Part Number	Price	Sensing Range	Housing	Output State	Logic	Connection	Wiring	Dimensions
<b>Extended Distance</b>								
AE6-AN-3A	\$31.00	0 to 2 mm (0-0.079 in)	Shielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 5
AE6-AP-3A	\$31.00				PNP	2 m (6.5') axial cable	Diagram 2	Figure 5
AE6-AN-3F	\$31.00				NPN	M8 (8 mm) connector	Diagram 1	Figure 6
AE6-AP-3F	\$31.00				PNP	M8 (8 mm) connector	Diagram 2	Figure 6
AE6-AN-4A	\$31.00	0 to 4 mm (0-0.157 in)	Unshielded	N.O.	NPN	2 m (6.5') axial cable	Diagram 1	Figure 5
AE6-AP-4A	\$31.00				PNP	2 m (6.5') axial cable	Diagram 2	Figure 5
AE6-AN-4F	\$31.00				NPN	M8 (8 mm) connector	Diagram 1	Figure 6
AE6-AP-4F	\$31.00				PNP	M8 (8 mm) connector	Diagram 2	Figure 6

# AE Series Inductive Proximity Sensors

AE Series Specifications					
Mounting Type	Standard Distance Models		Extended Distance Models		Triple Distance Models
	Shielded	Unshielded	Shielded	Unshielded	Shielded
Nominal Sensing Distance	1.5mm (0.059in)	2.5mm (0.098in)	2mm (0.079in)	4mm (0.157in)	3mm (0.118in)
Operating Distance	N/A				
Material Correction Factors	See Material Influence table #1 later in this section				See Material Influence table #2 later in this section
Output Type	NPN or PNP/N.O. only/3-wire				
Operating Voltage	10 to 30 VDC				
No-load Supply Current	≤20mA		≤10mA		
Operating (Load) Current	≤200mA				
Off-state (Leakage) Current	≤10μA		≤120μA		
Voltage Drop	≤1.2 V				≤2.0 V
Switching Frequency	3 kHz	2.5 kHz	3 kHz		1 kHz
Differential Travel (% of Nominal Distance)	2 to 10%		1 to 20		≤10%
Repeat Accuracy	≤2%		≤5%		
Ripple	≤10%				≤20%
Time Delay Before Availability (tv)	100 ms (5 ms for AE6 short body models)				50 ms
Reverse Polarity Protection	Yes				
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)				
Operating Temperature	-25° to +70°C (-13° to 158°F)				
Protection Degree (DIN 40050)	IEC IP67				
Indication/Switch Status	Yellow (output energized)				
Housing Material	Nickel-plated brass				Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate (PBT)				
Shock/Vibration	See terminology section				
Tightening Torque	4 Nm (2.95 lb-ft)				
Weight (cable/M8 connector/M12 connector)	43 g (1.52 oz)/16 g (0.56 oz)/20 g (0.71 oz)				54 g (1.90 oz)/26 g (0.92 oz)/(N/A)
Connection	2 meter PVC axial cable / M8 connector / M12 connector				
Agency Approvals	N/A				UL file E328811

## Wiring diagrams

Diagram 1

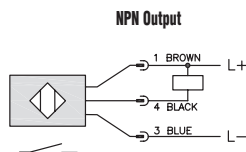
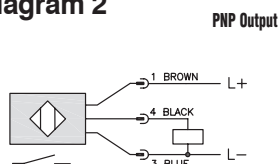
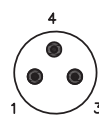


Diagram 2

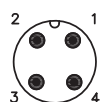


## Connectors

M8 connector



M12 connector



# AE Series Inductive Proximity Sensors

## Dimensions

mm [inches]

Figure 1

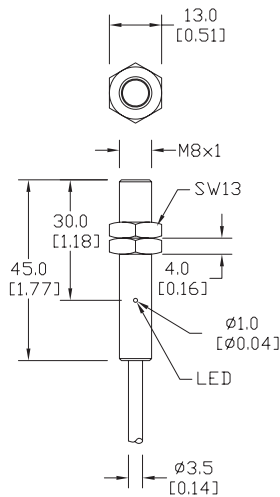


Figure 3

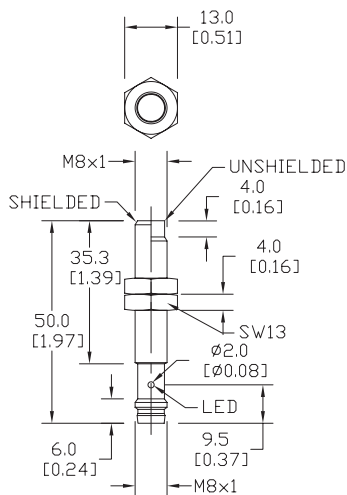


Figure 5

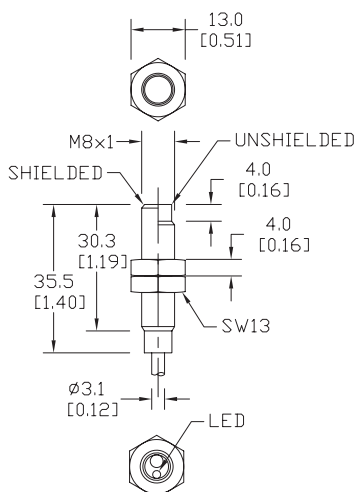


Figure 2

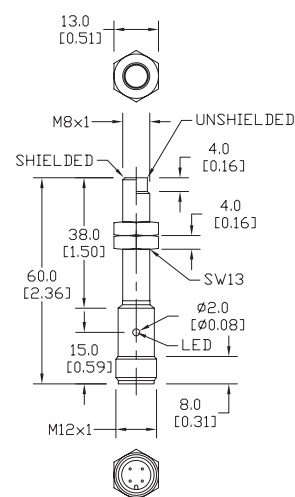


Figure 4

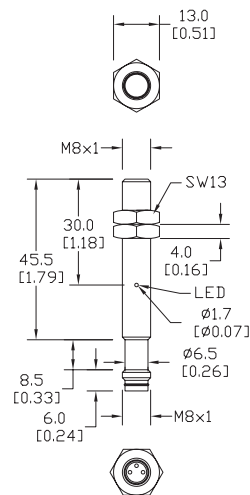
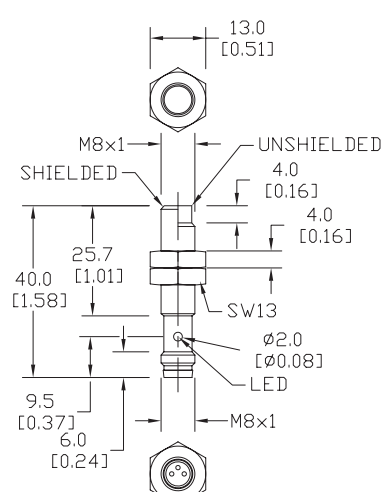


Figure 6



# 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, 3m, 5m, 7m, 10m and 15m cable lengths

- PVC (polyvinyl chloride) jacket for typical industrial applications
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 rated

M8 Quick-Disconnect Cables (Pico, Nano)						
Part Number	Price	Length	Poles	Connector	Jacket	Dimensions
<b>M8 Quick-Disconnects</b>						
<b>CD08-0A-020-A1</b>	\$7.75	2m (6.5 ft.)	3	Axial female	PVC	Figure 1
<b>CD08-0A-020-C1</b>	\$7.75	2m (6.5 ft.)	3	Right-angle female	PVC	Figure 2
<b>CD08-0A-050-A1</b>	\$10.50	5m (16.4 ft.)	3	Axial female	PVC	Figure 4
<b>CD08-0C-050-A1</b>	\$11.25	5m (16.4 ft.)	3	Axial female	PUR	Figure 3
<b>CD08-0A-050-C1</b>	\$10.50	5m (16.4 ft.)	3	Right-angle female	PVC	Figure 5
<b>CD08-0C-050-C1</b>	\$11.25	5m (16.4 ft.)	3	Right-angle female	PUR	Figure 5
<b>CD08-0A-070-A1</b>	\$12.00	7m (23 ft.)	3	Axial female	PVC	Figure 1
<b>CD08-0A-070-C1</b>	\$12.00	7m (23 ft.)	3	Right-angle female	PVC	Figure 2

M12 Quick-Disconnect Cables (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connector	Jacket	Dimensions
<b>M12 Quick-Disconnects</b>						
<b>CD12M-0B-050-A1*</b>	\$10.50	5m (16.4 ft)	3	Axial female	PVC	Figure 8
<b>CD12M-0D-050-A1*</b>	\$12.50	5m (16.4 ft)	3	Axial female	PUR	Figure 9
<b>CD12M-0B-050-C1*</b>	\$10.50	5m (16.4 ft)	3	Right-angle female	PVC	Figure 10
<b>CD12M-0D-050-C1*</b>	\$12.50	5m (16.4 ft)	3	Right-angle female	PUR	Figure 11
<b>CD12L-0B-020-A0</b>	\$7.75	2m (6.5 ft)	4	Axial female	PVC	Figure 6
<b>CD12L-0B-020-C0</b>	\$7.75	2m (6.5 ft)	4	Right-angle female	PVC	Figure 7
<b>CD12M-0B-070-A1</b>	\$12.00	7m (23 ft)	4	Axial female	PVC	Figure 6
<b>CD12M-0B-070-C1</b>	\$12.00	7m (23 ft)	4	Right-angle female	PVC	Figure 7
<b>7000-12221-2141000</b>	\$14.00	10m (32.8 ft)	4	Axial female	PVC	Figure 13
<b>7000-12221-2141500</b>	\$19.00	15m (49.2 ft)	4	Axial female	PVC	Figure 13
<b>7000-12341-2141000</b>	\$14.00	10m (32.8 ft)	4	Right-angle female	PVC	Figure 14
<b>7000-12341-2141500</b>	\$19.00	15m (49.2 ft)	4	Right-angle female	PVC	Figure 14
<b>7000-12241-2150300</b>	\$9.00	3m (9.8 ft)	5	Axial female	PVC	Figure 15
<b>7000-12241-2150500</b>	\$11.50	5m (16.4 ft)	5	Axial female	PVC	Figure 15
<b>7000-12241-2151000</b>	\$17.00	10m (32.8 ft)	5	Axial female	PVC	Figure 15
<b>7000-12361-2150300</b>	\$9.00	3m (9.8 ft)	5	Right-angle female	PVC	Figure 16
<b>7000-12361-2150500</b>	\$11.50	5m (16.4 ft)	5	Right-angle female	PVC	Figure 16
<b>7000-12361-2151000</b>	\$17.00	10m (32.8 ft)	5	Right-angle female	PVC	Figure 16
<b>7000-17041-2950300</b>	\$20.50	3m (9.8 ft)	8	Axial female	PUR	Figure 17
<b>7000-17041-2950500</b>	\$26.00	5m (16.4 ft)	8	Axial female	PUR	Figure 17
<b>7000-17041-2951000</b>	\$39.50	10m (32.8 ft)	8	Axial female	PUR	Figure 17
<b>7000-17061-2950300</b>	\$20.50	3m (9.8 ft)	8	Right-angle female	PUR	Figure 18
<b>7000-17061-2950500</b>	\$26.00	5m (16.4 ft)	8	Right-angle female	PUR	Figure 18
<b>7000-17061-2951000</b>	\$39.50	10m (32.8 ft)	8	Right-angle female	PUR	Figure 18
<b>7000-19041-7050300</b>	\$32.00	3m (9.8 ft)	12	Axial female	PUR	Figure 19
<b>7000-19041-7050500</b>	\$39.00	5m (16.4 ft)	12	Axial female	PUR	Figure 19
<b>7000-19041-7051000</b>	\$56.50	10m (32.8 ft)	12	Axial female	PUR	Figure 19
<b>7000-19061-7050300</b>	\$32.00	3m (9.8 ft)	12	Right-angle female	PUR	Figure 20
<b>7000-19061-7050500</b>	\$39.00	5m (16.4 ft)	12	Right-angle female	PUR	Figure 20
<b>7000-19061-7051000</b>	\$56.50	10m (32.8 ft)	12	Right-angle female	PUR	Figure 20

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



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



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



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



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



**7000-12221-2141000**



**7000-12241-2150500**



**7000-17041-2951000**



**7000-19041-7050500**

Company  
Information

Terminal Blocks

Power  
Distribution  
Blocks

Wiring  
Accessories

ZIPLink  
Connection  
System

Multi-wire  
Connectors

Sensor Cables  
and Connectors

M12 Junction  
Blocks

Panel Interface  
Connectors

Wiring Duct

Cable Ties

Wire

Flexible Cord

Multi-conductor  
Flex Cable

Data Cables

Wire  
Management  
Products

Power Supplies

DC Converters

Transformers  
and Filters

Circuit Protection

Tools

Test  
Equipment

Enclosures

Enclosure  
Climate Control

Safety: Electrical  
Components

Safety: Protective  
Wear

Terms and  
Conditions

# Sensor Cables and Connectors

## Shielded M12 Cables with quick-disconnect plugs

- Industry standard axial and right-angle M12 screw-lock connectors with open leads
- Braided shield located inside the cord jacket and connected to the coupling nut
- 5m and 10m cable lengths
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 rated



7000-17121-2941000



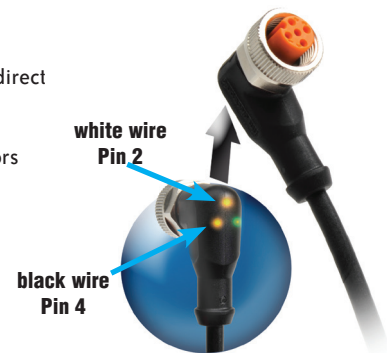
7000-17141-2940500

### Shielded M12 Quick-Disconnect Cables (Euro, Micro DC-Single Key)

Part Number	Price	Length	Poles	Connector	Jacket	Dimensions
<b>M12 Quick-Disconnects (shielded)</b>						
<b>7000-13201-3310500</b>	\$18.00	5m (16.4 ft)	4	Axial female	PUR	Figure 21
<b>7000-13201-3311000</b>	\$27.50	10m (32.8 ft)	4	Axial female	PUR	Figure 21
<b>7000-13261-3310500</b>	\$18.00	5m (16.4 ft)	4	Right-angle female	PUR	Figure 22
<b>7000-13261-3311000</b>	\$27.50	10m (32.8 ft)	4	Right-angle female	PUR	Figure 22
<b>7000-13221-3490500</b>	\$21.00	5m (16.4 ft)	5	Axial female	PUR	Figure 23
<b>7000-13221-3491000</b>	\$32.50	10m (32.8 ft)	5	Axial female	PUR	Figure 23
<b>7000-13281-3490500</b>	\$21.00	5m (16.4 ft)	5	Right-angle female	PUR	Figure 24
<b>7000-13281-3491000</b>	\$32.50	10m (32.8 ft)	5	Right-angle female	PUR	Figure 24
<b>7000-17121-2940500</b>	\$34.50	5m (16.4 ft)	8	Axial female	PUR	Figure 25
<b>7000-17121-2941000</b>	\$52.00	10m (32.8 ft)	8	Axial female	PUR	Figure 25
<b>7000-17141-2940500</b>	\$34.50	5m (16.4 ft)	8	Right-angle female	PUR	Figure 26
<b>7000-17141-2941000</b>	\$52.00	10m (32.8 ft)	8	Right-angle female	PUR	Figure 26

## Cables with LED and quick-disconnect plugs

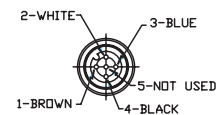
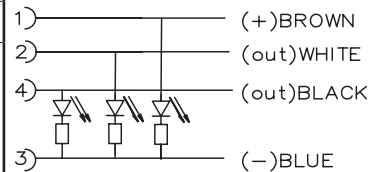
- Industry standard M12 right angle female plug with open leads
- These cables can be used with patch cables.
- 2m, 5m and 10m cable lengths
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 /IP68 / IP69K, II rated
- LED indication for 10-36 VDC PNP sensors only



### M12 Quick-Disconnect Cables with LED Indicator (Euro, Micro DC-Single Key)

Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
<b>M12 Quick-Disconnects</b>							
<b>EVC178*</b>	\$11.00	2m (6.5 ft)	4	Right-angle female	Yes	PUR	Figure 12
<b>EVC179*</b>	\$11.50	5m (16.4 ft)	4	Right-angle female	Yes	PUR	Figure 12
<b>EVC180*</b>	\$14.00	10m (32.8 ft)	4	Right-angle female	Yes	PUR	Figure 12
<p><b>*Note: LED for 10 to 36 VDC PNP devices only.</b>  <b>Do not use with NPN or analog output devices.</b>  <b>Do not use when white wire (Pin 2) is used for selection of a sensor function.</b>  <b>Do not use when emitter has check function.</b></p>							

### LED Models' Wiring



# Sensor Cables and Connectors

Cable Specifications					
Specification	M8		M12		
			CD Series		7000 Series (unshielded)
Length	2m (6.5 ft) / 7m (23 ft)	5m (16.4 ft)	2m (6.5 ft) / 7m (23 ft)	5m (16.4 ft)	3m (9.8 ft) / 5m (16.4 ft) / 10m (32.8 ft) / 15m (49.2 ft)
Nominal Voltage	50 VAC/75 VDC	60 VAC/VDC	250 VAC/VDC		30 VAC/VDC; 125 VAC/VDC; 250 VAC/VDC
Max Current	4A		4A		3/4 pin: 250 VAC/VDC, 4A 5 pin: 125 VAC/VDC, 4A 8 pin: 30 VAC/VDC, 2A 12 pin: 30 VAC/VDC, 1.5A
LED Current Loading	N/A				
Protection Degree	IP67	IP65 / IP68 / IP69K	IP67	PVC: IP68 PUR: IP68 / IP69K	IP67
Material Nut	Nickel plated brass				Nickel plated Zinc
Housing Material	Polyurethane (PUR) or Polyvinyl-chloride (PVC)				
Contacts Material	Gold plated Copper-Tin Alloy (CuSn)				Gold plated brass
Tightening Torque	0.5 Nm	≤ 0.4 Nm	0.5 Nm	≤ 0.4 Nm	0.6 Nm
Conductors Cross Section (AWG)	0.25 mm <sup>2</sup> (24 AWG)	0.25 mm <sup>2</sup> (24 AWG)	0.25 mm <sup>2</sup> (24 AWG)	0.34 mm <sup>2</sup> (22 AWG)	4 x 0.34 mm <sup>2</sup> (4 x 22 AWG) 5 x 0.34 mm <sup>2</sup> (5 x 22 AWG) 8 x 0.25 mm <sup>2</sup> (8 x 24 AWG) 12 x 0.14 mm <sup>2</sup> (12 x 26 AWG)
Ø Outer Cable	5mm	PVC: 4mm PUR: 4mm	5mm	PVC: 4.2 mm PUR: 4.3 mm	PVC: 5 - 5.2 mm PUR: 6.0 mm
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)	PVC: -25° to +70°C (-13° to 158°F) PUR: -25° to +85°C (-13° to 185°F)
Environmental	N/A	Halogen/Silicone free	N/A	Halogen/Silicone free	N/A
Function Display Power LED	N/A				
Switching Status LED	N/A				
Drag Chain (Roller Cable Tray) Suitability	Bending Radius	min. 10 x cable diameter			
	Bending Cycles	N/A			
	Travel Speed	N/A			
	Torsional Strain	N/A			
Agency Approvals	RoHS				RoHS (UL E325311 8/12 pole)

Company Information

Terminal Blocks

Power Distribution Blocks

Wiring Accessories

ZIPLink Connection System

Multi-wire Connectors

Sensor Cables and Connectors

M12 Junction Blocks

Panel Interface Connectors

Wiring Duct

Cable Ties

Wire

Flexible Cord

Multi-conductor Flex Cable

Data Cables

Wire Management Products

Power Supplies

DC Converters

Transformers and Filters

Circuit Protection

Tools

Test Equipment

Enclosures

Enclosure Climate Control

Safety: Electrical Components

Safety: Protective Wear

Terms and Conditions

# Sensor Cables and Connectors

Cable Specifications		
Specification	M12 7000 Series (shielded)	M12 with LED
Length	5m (16.4 ft) / 10m (32.8 ft)	2m (6.5 ft) / 5m (16.4 ft) / 10m (32.8 ft)
Nominal Voltage	30 VAC/VDC / 60 VAC/VDC	10 to 36 VDC
Max Current	2A / 4A	4A
LED Current Loading	N/A	10 V input Brown wire LED: 1.7 mA White and/or Black LED: 0.9 mA 36V input Brown wire LED: 7.3 mA White and/or Black LED: 4.7 mA
Protection Degree	IP67	IP67 / IP68 / IP69K
Material Nut	Nickel plated Zinc	Nickel plated Brass
Jacket Material	Polyurethane (PUR)	
Housing Material	Polyurethane (PUR)	
Contacts Material	Gold plated Brass	
Tightening Torque	0.6 Nm	0.6 to 1.5 Nm
Conductors Cross Section (AWG)	4 x 0.34 mm <sup>2</sup> (4 x 22 AWG) 5 x 0.34 mm <sup>2</sup> (5 x 22 AWG) 8 x 0.25 mm <sup>2</sup> (8 x 24 AWG)	4 x 0.34 mm <sup>2</sup> (4 x 22 AWG)
Ø Outer Cable	4/5 pole: 5.9 mm 8 pole: 7mm	5mm
Temperature Range	-25° to +80°C (-13° to 176°F)	-25° to +90°C (-13° to 194°F)
Function Display Power 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	N/A
	Travel Speed	Max. 3.3 m/s for a horizontal travel length of 5 meters and max. accelera- tion of 5 m/s <sup>2</sup>
	Torsional Strain	±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	

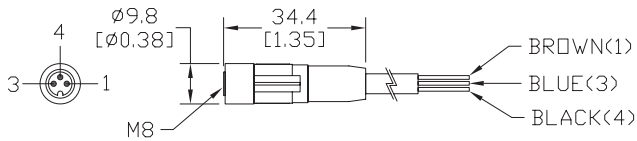


# Sensor Cables and Connectors

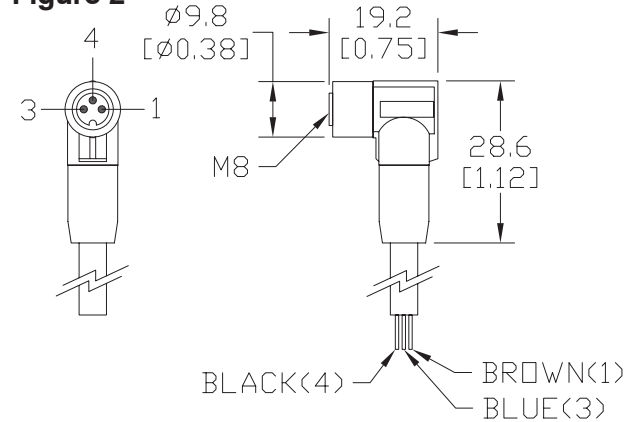
## Dimensions

mm [inches]

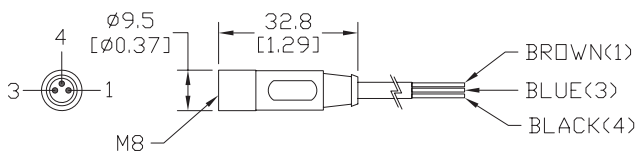
**Figure 1**



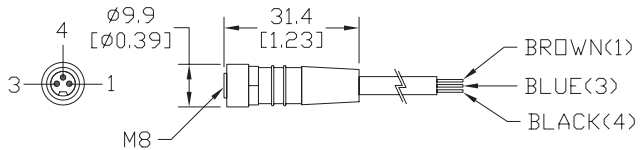
**Figure 2**



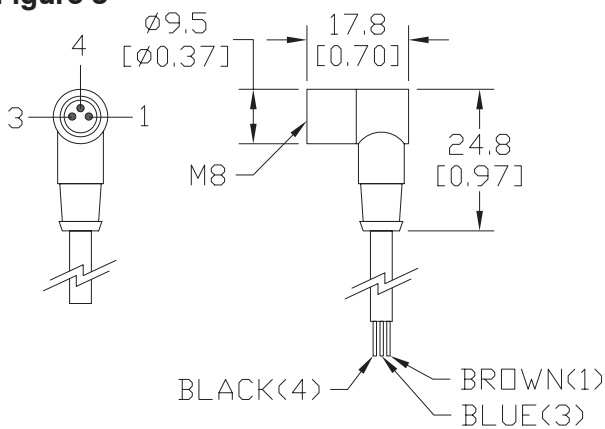
**Figure 3**



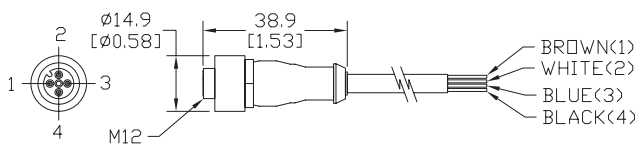
**Figure 4**



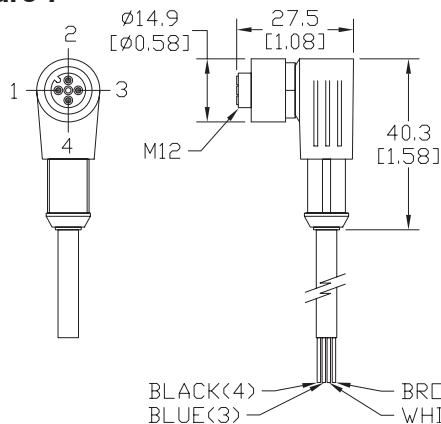
**Figure 5**



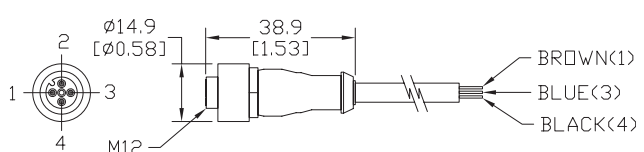
**Figure 6**



**Figure 7**



**Figure 8**



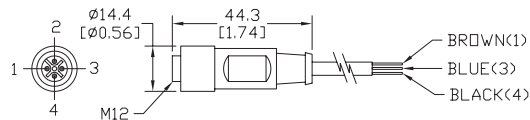


# Sensor Cables and Connectors

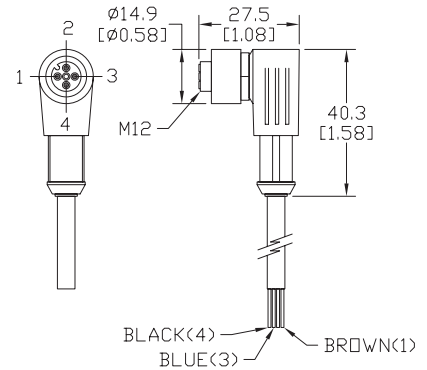
## Dimensions

mm [inches]

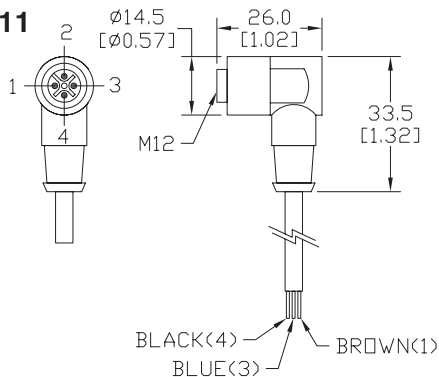
**Figure 9**



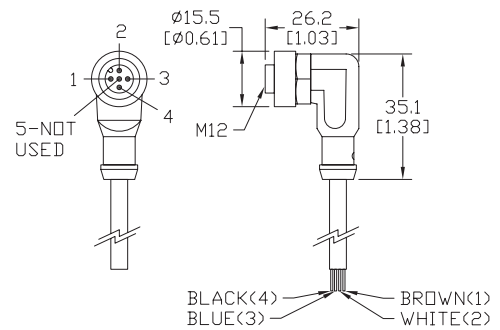
**Figure 10**



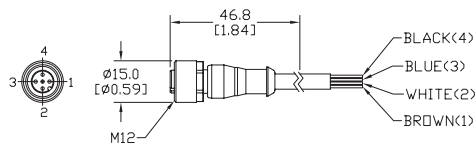
**Figure 11**



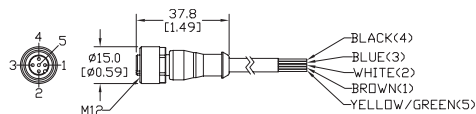
**Figure 12**



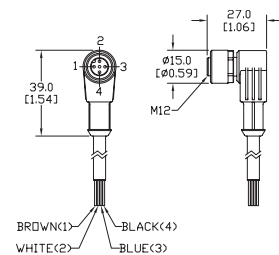
**Figure 13**



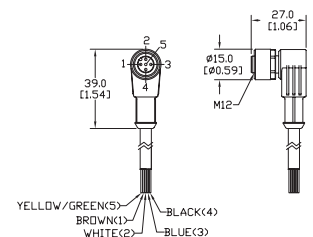
**Figure 15**



**Figure 14**



**Figure 16**

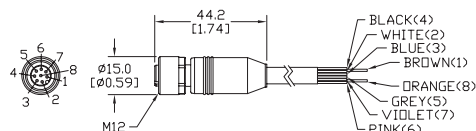


# Sensor Cables and Connectors

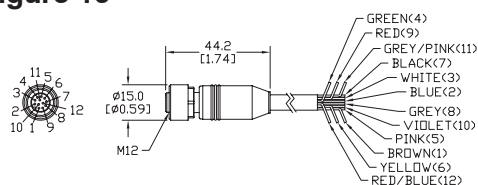
## Dimensions

mm [inches]

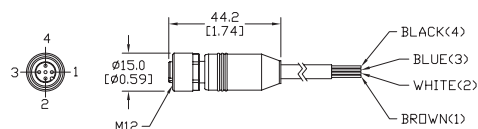
**Figure 17**



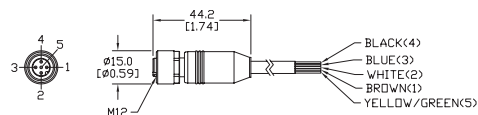
**Figure 19**



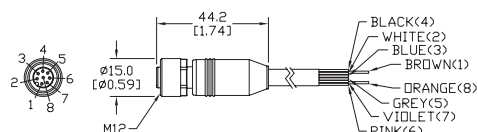
**Figure 21**



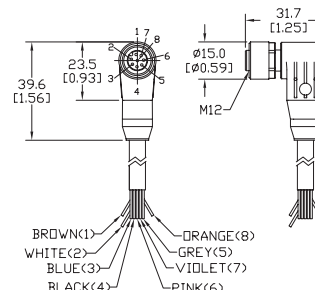
**Figure 23**



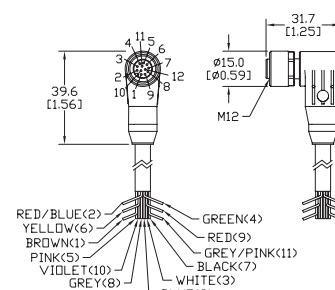
**Figure 25**



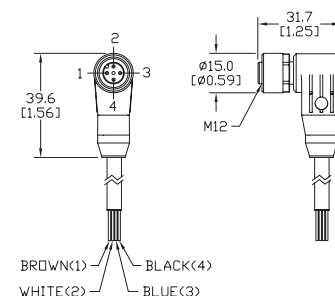
**Figure 18**



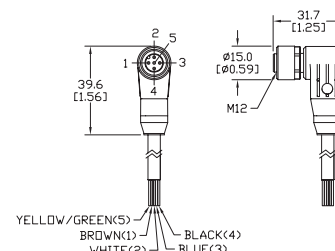
**Figure 20**



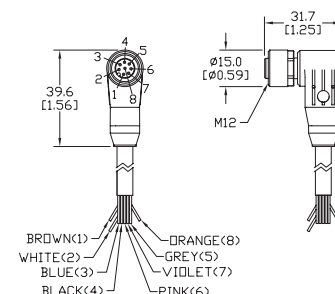
**Figure 22**



**Figure 24**



**Figure 26**



# 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
<b>M8 Quick-Disconnect Patch Cables</b>						
<b>CDP08-0A-010-AA</b>	\$7.75	1m (3.28 ft)	3	2 Axial - One male and one female connector	PVC	Figure 1
<b>CDP08-0A-010-BB</b>	\$7.75	1m (3.28 ft)	3	2 Right-angle - One male and one female connector	PVC	Figure 3
<b>CDP08-0A-030-AA</b>	\$9.50	3m (9.84 ft)	3	2 Axial - One male and one female connector	PVC	Figure 2
<b>CDP08-0A-030-BB</b>	\$7.75	3m (9.84 ft)	3	2 Right-angle - One male and one female connector	PVC	Figure 3

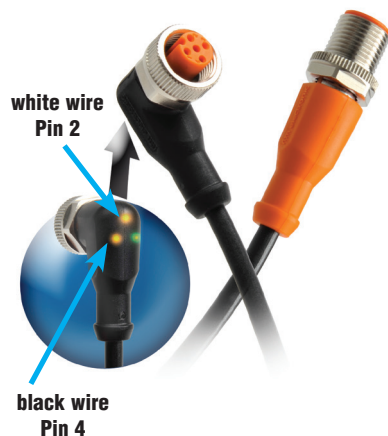
M12 Patch Cables with Quick-Disconnect on Each End (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
<b>M12 Quick-Disconnect Patch Cables</b>						
<b>CDP12-0B-010-AA</b>	\$7.75	1m (3.28 ft)	4	2 Axial - One male and one female connector	PVC	Figure 4
<b>CDP12-0B-010-BB</b>	\$7.75	1m (3.28 ft)	4	2 Right-angle - One male and one female connector	PVC	Figure 5
<b>CDP12-0B-030-AA</b>	\$7.75	3m (9.84 ft)	4	2 Axial - One male and one female connector	PVC	Figure 4
<b>CDP12-0B-030-BB</b>	\$9.50	3m (9.84 ft)	4	2 Right-angle - One male and one female connector	PVC	Figure 5
<b>7000-40041-2150100</b>	\$11.50	1m (3.28 ft)	5	2 Axial - One male and one female connector	PVC	Figure 7
<b>7000-40041-2150300</b>	\$14.00	3m (9.84 ft)	5	2 Axial - One male and one female connector	PVC	Figure 7

## Patch Cables with LED

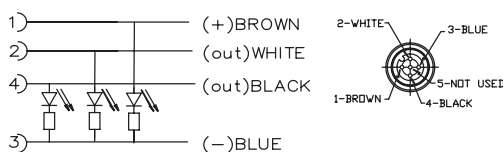
Available patch cables with LED include:

- 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



### LED Models' Wiring



M12 Patch Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connectors	LED	Jacket	Dimensions
<b>M12 Patch Cables</b>							
<b>EVC322*</b>	\$11.00	0.3m (0.98 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
<b>EVC323*</b>	\$12.00	0.6m (1.97 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
<b>EVC324*</b>	\$12.50	1m (3.28 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
<b>EVC325*</b>	\$14.50	2m (6.5 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
<b>EVC326*</b>	\$17.00	5m (16.4 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
<b>EVC327*</b>	\$21.50	10m (32.8 ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6

**\*Note: LED for 10 to 36 VDC PNP devices 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

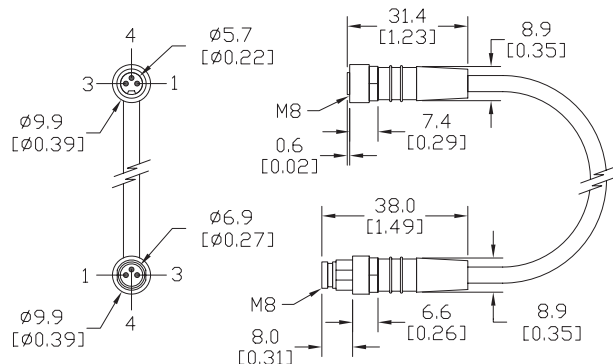
Cable Specifications			
Specification	M8	M12	M12 with LED
<b>Length</b>	1m (3.28 ft.) / 3m (9.84 ft.)		0.3m (0.98 ft.) / 0.6m (1.97 ft.) / 1m (3.28 ft.) 2m (6.5 ft.) / 5m (16.4 ft.) / 10m (32.8 ft.)
<b>Nominal Voltage</b>	60 VAC/VDC	125 VAC/VDC 250 VAC/VDC	10 to 36 VDC
<b>Max Current</b>	4A		4A
<b>LED Current Consumption</b>	N/A		10V input Brown wire LED: 1.7 mA White and/or Black LED: 0.9 mA 36V input Brown wire LED: 7.3 mA White and/or Black LED: 4.7 mA
<b>Protection Degree</b>	IEC IP67		IEC IP67/IP68/IP69K
<b>Material Nut</b>	Nickel plated brass	Zinc pressure die casting surface (Ni4-6), Nickel plated brass	Nickel plated brass
<b>Jacket Material</b>	PolyVinyl Chloride (PVC)		Polyurethane (PUR)
<b>Housing Material</b>	Polyurethane (PUR)		Connector: Orange PUR, Socket: Black PUR
<b>Contacts Material</b>	Copper-tin(CuSn) plated brass		Gold plated brass
<b>Conductors Cross Section (AWG)</b>	0.34 mm <sup>2</sup>		0.34 mm <sup>2</sup> (22 AWG)
<b>Tightening Torque</b>	0.5 Nm	0.6 Nm, 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
<b>Ø Outer Cable</b>	5mm	5.2 mm, 5mm	5mm
<b>Temperature Range</b>	-25° to +70°C (-13° to 158°F)		-25° to +90°C (-13° to 194°F)
<b>Function Display LED</b>	N/A		Green
<b>Switching Status LED</b>	N/A		2 x Yellow
<b>Drag Chain (Roller Cable Tray) Suitability</b>	<b>Bending Radius</b>	min. 10 x cable diameter	
	<b>Bending Cycles</b>	>5 million	
	<b>Travel Speed</b>	N/A	Max. 3.3 m/s for a horizontal travel length of 5 m and max. acceleration of 5 m/s <sup>2</sup>
	<b>Torsional Strain</b>	N/A	±180°/m
<b>Agency Approvals</b>	RoHS		UL File E191684, RoHS

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

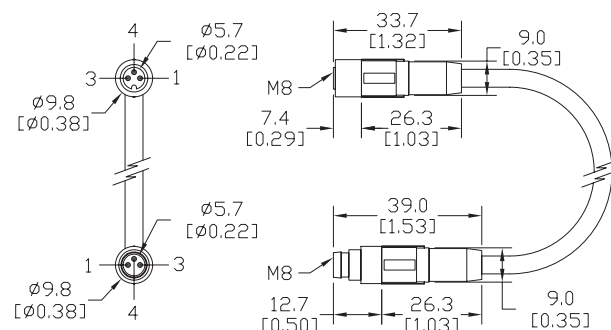
# Sensor Cables and Connectors

**Dimensions** mm [inches]

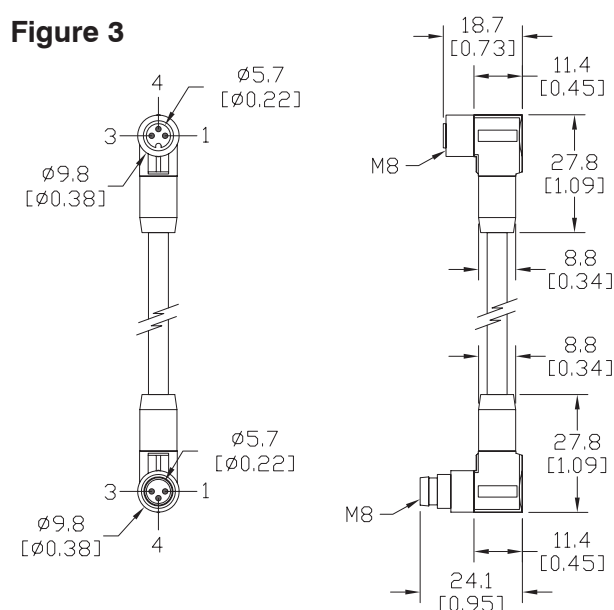
**Figure 1**



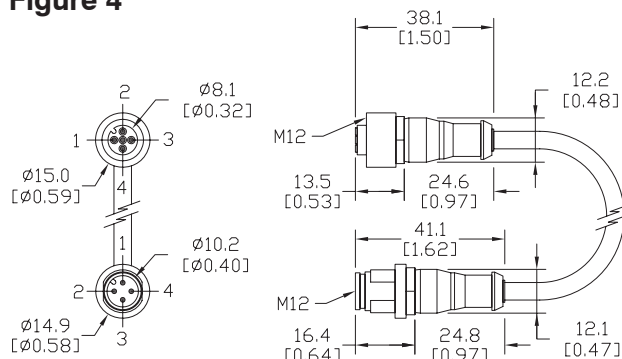
**Figure 2**



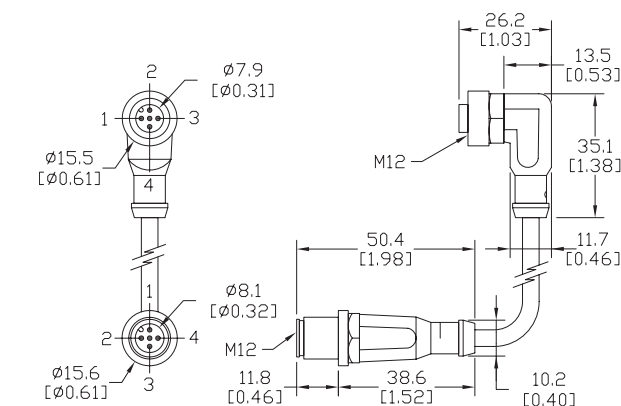
**Figure 3**



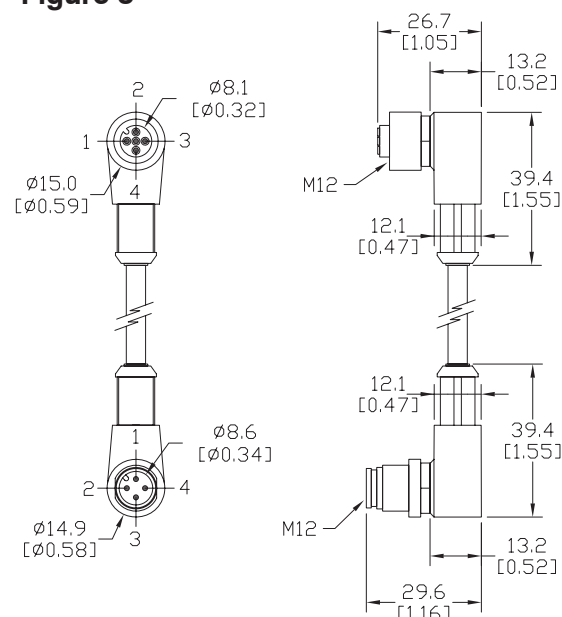
**Figure 4**



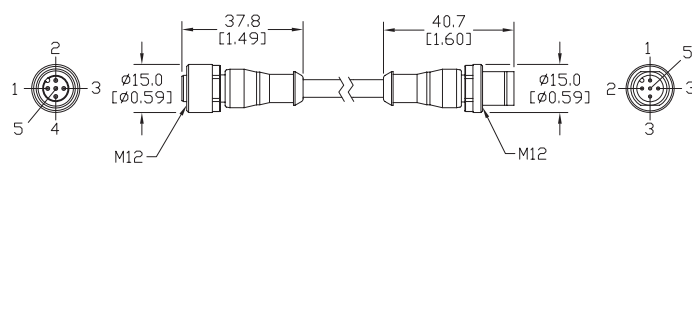
**Figure 6**



**Figure 5**



**Figure 7**



# Accessories: Adapter, 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. Hexagonal nuts not included.



## ST12C right-angle bracket

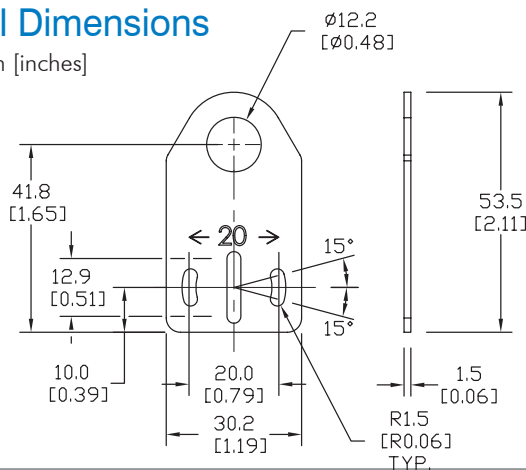
Angular mounting bracket for use with M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



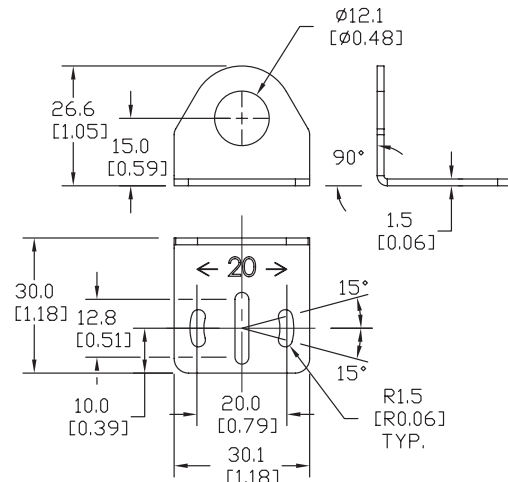
Brackets		
Part Number	Price	Description
ST12A	\$2.00	Zinc plated iron axial bracket for 12 mm sensors, 1/pk
ST12A7W	\$6.00	316L stainless steel axial bracket for 12 mm sensors, 1/pk

### All Dimensions

mm [inches]



Brackets		
Part Number	Price	Description
ST12C	\$2.00	Zinc plated iron right angle bracket for 12 mm sensors, 1/pk
ST12C7W	\$6.00	316L stainless steel right angle bracket for 12 mm sensors, 1/pk



## ST18A axial bracket

Mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for right-beam-angle-adapter sensors. Hexagonal nuts not included.

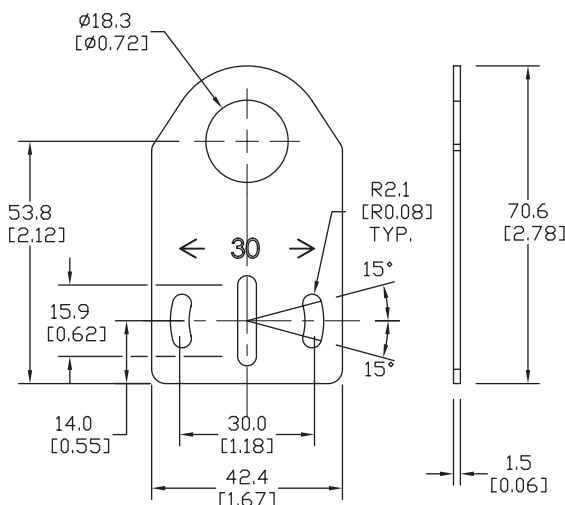


## ST18C right-angle bracket

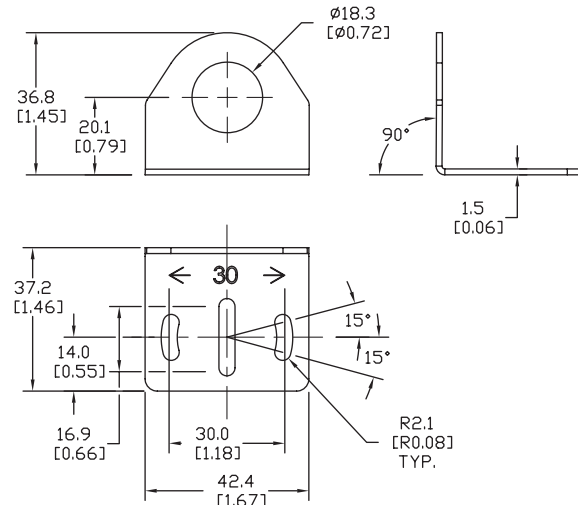
Angular mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



Brackets		
Part Number	Price	Description
ST18A	\$1.25	Zinc plated iron axial bracket for 18 mm sensors, 1/pk
ST18A7W	\$6.00	316L stainless steel axial bracket for 18 mm sensors, 1/pk



Brackets		
Part Number	Price	Description
ST18C	\$1.25	Zinc plated iron right angle bracket for 18 mm sensors, 1/pk
ST18C7W	\$6.00	316L stainless steel right angle bracket for 18 mm sensors, 1/pk



# Accessories: Mounting Brackets

## ST30A axial bracket

Mounting M30 (30 mm) sensors. Has two mounting holes (use 5 mm screws) and allows the rotation of an optical axis for right-beam-angle-adapters sensors. Hexagonal nuts not included.



## ST30C right-angle bracket

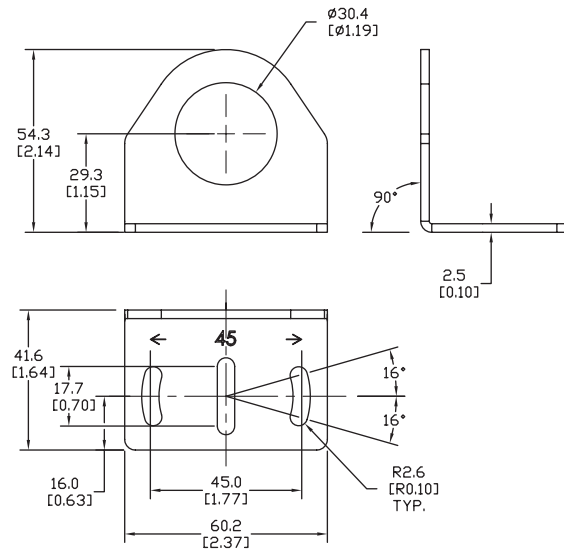
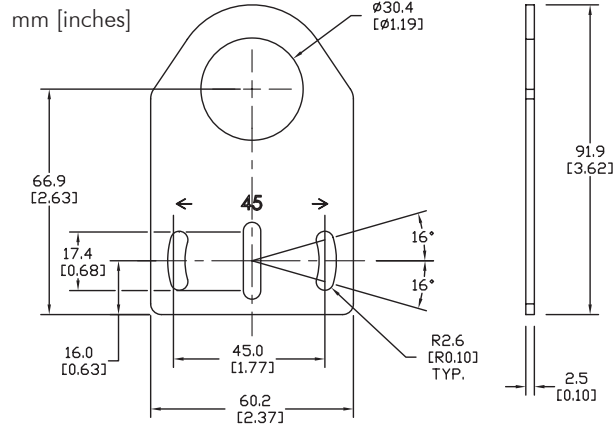
Angular mounting bracket for M30 (30 mm) sensors. Has two mounting holes (use 5 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



Brackets		
Part Number	Price	Description
ST30A	\$2.25	Zinc plated iron axial bracket for 30 mm sensors, 1/pk

Brackets		
Part Number	Price	Description
ST30C	\$2.25	Zinc plated iron right angle bracket for 30 mm sensors, 1/pk

## All Dimensions





# We sell good proximity sensors at great prices – and we back them up!

## AutomationDirect Lifetime Warranty

### Registration required

For inductive proximity sensors sold to the Original User for the lifetime of the original application.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1. This warranty is available only to AUTOMATIONDIRECT's authorized Value Added Resellers and to the Original User. In the event the ownership of the product is transferred to a person, firm, or corporation other than the Original User, this WARRANTY shall terminate.
2. This WARRANTY is applicable only to the original installation of the product. In the event the machinery, equipment, or production line to which the product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
3. This WARRANTY shall be valid only if the product was purchased by the Original User from AUTOMATIONDIRECT, or from an authorized AUTOMATIONDIRECT Value Added Reseller, or was an integral part of a piece of machinery and equipment obtained by the Original User from an original equipment manufacturer directly from AUTOMATIONDIRECT or from an authorized AUTOMATIONDIRECT Value Added Reseller.

### Purchaser's remedies

This remedy shall apply to all WARRANTIES. If an AUTOMATIONDIRECT Value Added Reseller desires to make a WARRANTY claim, the Value Added Reseller shall, if requested by AUTOMATIONDIRECT, ship the product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. If the Original User desires to make a WARRANTY Claim, they shall notify the authorized Value Added Reseller from whom it was purchased or, if purchased directly from AUTOMATIONDIRECT, shall notify AUTOMATIONDIRECT and, if requested by AUTOMATIONDIRECT, ship the Product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. AUTOMATIONDIRECT shall, at its option, take any of the following two courses of action for any products which AUTOMATIONDIRECT determines are defective in materials or workmanship.

1. Repair or replace the product and ship the product to the Original User or to the authorized AUTOMATIONDIRECT Value Added Reseller, postage or freight prepaid; or
- 2.-Repay to the Original User that price paid by the Original User; provided that if the claim is made under the lifetime warranty, and such product is not then being supplied by AUTOMATIONDIRECT, then the amount to be repaid by AUTOMATIONDIRECT to the Original User shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original User	Percent of Original Purchase Price To Be Paid by AutomationDirect
10	50 percent
15	25 percent
20	10 percent
More than 20	5 percent

**REMEDIES OF PURCHASER'S AND VALUE ADDED RESELLERS SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED ABOVE AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL USER'S SITE. AUTOMATIONDIRECT.COM SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.**

Inductive proximity sensors warranty form may be obtained online at:  
<http://www.automationdirect.com/static/specs/proxwarranty.pdf>

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow Switches

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

# Proximity Sensor Lineup

Proximity sensors allow non-contact detection of objects. They are used in many industries, including manufacturing, robotics, semiconductor, etc. Inductive sensors detect metallic objects while capacitive sensors detect all other materials. Ultrasonic sensors detect all materials by using sound wave reflections to determine presence.

## Lifetime Warranty



**12, 18, 30 mm  
IP69K FDA-approved  
materials**

### PFM, PFK, PFT, VF & MAF SERIES

New! An assortment of AC and DC IP69K rated Q/D proximity sensors.

**Suitable for harsh environments**

- 12 mm, from \$35.50
- 18 mm, from \$35.50
- 30 mm, from \$45.50

Starting from  
**\$35.50**



**12 mm  
round**

### AM and PBM SERIES

Two- and three- wire DC, embedded cable or M12 quick-disconnect

Sensing distance:

- Standard, from \$13.50
- Extended, from \$25.50
- Triple, from \$65.00

Starting from  
**\$13.50**

**STAINLESS  
STEEL**

**Miniature  
(3, 4, 5 mm)**

### PY & PD SERIES

Three-wire DC  
3 mm prox, from \$79.00  
4 mm prox, from \$79.00  
5 mm prox, from \$43.50 (quick-disconnect)

Sensing distance:  
• Standard

Starting from  
**\$43.50**



**8 mm  
round**

### AE and PEW SERIES

Three-wire DC with embedded cable, M8 or M12 quick-disconnect

Sensing distance:

- Standard, from \$21.00
- Extended, from \$26.50
- Triple, from \$61.00
- Stainless Steel, from \$45.00

Starting from  
**\$21.00**



**18 mm  
round**

### AK and PBK SERIES

Two- and three- wire DC, embedded cable or M12 quick-disconnect

Sensing distance:  
• Standard, from \$14.00  
• Extended, from \$26.50

Starting from  
**\$14.00**



**30 mm  
round**

### AT and PBT SERIES

Two- and three- wire DC, IP67 rating, embedded cable or M12 quick-disconnect

Sensing distance:

- Standard, from \$16.50
- Extended, from \$32.50

Starting from  
**\$16.50**



**5 mm x 5 mm  
rectangular**

### CR5 SERIES

Three-wire DC, IP67 rating, embedded cable or M8 quick-disconnect

Sensing distance:

- Standard, from \$36.00
- Extended, from \$58.00

Starting from  
**\$36.00**



**8 mm x 8 mm  
rectangular**

### CR8 SERIES

Three-wire DC with embedded cable or M8 quick-disconnect

Sensing distance:  
• Standard, from \$25.00  
• Extended, from \$34.50  
• Triple, from \$77.00

Starting from  
**\$25.00**



**10 mm x 16 mm  
rectangular**

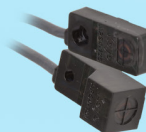
### DR10 SERIES

Three-wire DC with embedded cable or M12 quick-disconnect, IP67 rating

Sensing distance:

- Standard, from \$26.00
- Extended, from \$26.00

Starting from  
**\$26.00**



**12 mm x 27 mm  
rectangular**

### APS4 SERIES

Three-wire DC with embedded cable, IP67 rating

Sensing distance: **Standard**  
from \$17.50

Starting from  
**\$17.50**



**Stainless steel  
triple sensing range**

### PKW, PTW and PMW SERIES triple

Three-wire DC, one-piece body, virtually same sensing distance of all metals, Q/D version is IP67 rated, cable version is IP68 to 290 psi

Sensing distance: **Triple**  
• 12 mm prox, from \$103.00  
• 18 mm prox, from \$78.25  
• 30 mm prox, from \$132.00

Starting from  
**\$103.00**

**STAINLESS  
STEEL**

**Stainless steel  
round standard**

**PKW, PMW  
and PTW SERIES standard**  
Three and four-wire DC with M12 quick-disconnect, IP67 rating

Sensing distance: **Standard & Extended**

- 12 mm prox, from \$38.50
- 18 mm prox, from \$41.50
- 30 mm prox, from \$49.00

Starting from  
**\$38.50**



**AC prox  
(12, 18, 30 mm)**

### V SERIES

Two-wire AC with embedded cable or quick-disconnect, 20-253 VAC input signals

Sensing distance: **Standard**

- 12 mm, from \$35.50
- 18 mm, from \$31.00
- 30 mm, from \$37.50

Starting from  
**\$31.00**