

AM Series Inductive Proximity Sensors



M12 (12mm) metal – DC

- 2-wire and 3-wire models
- Metal housing
- Axial cable or M12 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicator
- DC powered
- Several sensing distances available
- Lifetime warranty



AM1 Series Standard Length M12 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AM1-AN-1A	\$17.50	0 to 2 mm [0-0.08 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-1A	\$17.50				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-1A	\$26.00				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 7
AM1-AN-1H	\$18.50				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-1H	\$18.50				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-1H	\$26.00				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AM1-AN-2A	\$17.50	0 to 4 mm [0-0.157 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-2A	\$17.50				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-2A	\$26.00				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 7
AM1-AN-2H	\$18.50				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-2H	\$18.50				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-2H	\$26.00				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
Extended Distance								
AM1-AN-3A	\$25.00	0 to 4 mm [0-0.157 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-3A	\$25.00				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-3A	\$32.00				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AM1-AN-3H	\$25.00				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-3H	\$25.00				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-3H	\$32.00				Sink/source	M12 [12mm] connector	Diagram 2	Figure 6
AM1-AN-4A	\$25.00	0 to 8 mm [0-0.314 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-4A	\$25.00				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-4A	\$32.00				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AM1-AN-4H	\$25.00				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-4H	\$25.00				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-4H	\$32.00				Sink/source	M12 [12mm] connector	Diagram 2	Figure 6
Triple Distance								
AM1-AN-5H	\$85.00	6 mm [0.236 in]	Semi-flush	N.O.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
AM1-AP-5H	\$85.00				PNP	M12 [12mm] connector	Diagram 1	Figure 3

AM6 Series Short Body M12 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Extended Distance								
AM6-AN-3A	\$28.00	0 to 4 mm [0-0.157 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AP-3A	\$28.00				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AN-3H	\$28.00				NPN	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AP-3H	\$28.00				PNP	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AN-4A	\$28.00	0 to 8 mm [0-0.314 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AP-4A	\$28.00				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AN-4H	\$28.00				NPN	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AP-4H	\$28.00				PNP	M12 [12mm] connector	Diagram 1	Figure 5

AM Series Inductive Proximity Sensors

AM Series Specifications					
Mounting Type	Standard Distance Models		Extended Distance Models		Triple Distance Models
	Flush	Non-flush	Flush	Non-flush	Semi-flush
Nominal Sensing Distance	2mm [0.08 in]	4mm [0.157 in]	4mm [0.157 in]	8mm [0.315 in]	6mm [0.236 in]
Operating Distance	NA				
Material Correction Factors	See the Material influence table				
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	3-wire: ≤ 200mA / 2-wire: 3-100mA		3-wire: ≤ 200mA / 2-wire: 3-100mA		≤ 200mA
Off-state (Leakage) Current	3-wire: ≤ 10µA / 2-wire: ≤ 0.8 mA		3-wire: ≤ 120µA / 2-wire: ≤ 0.8mA		≤ 100µA
Voltage Drop	3-wire: 1.2 volts max. / 2-wire: 2.8 volts max.				≤ 2.0 V
Switching Frequency	3-wire: 2kHz / 2 wire: 1.5 kHz		3-wire: 2kHz / 2 wire: 750Hz		800 Hz
Differential Travel (% of Nominal Distance)	2 to 10%		1 to 20		
Repeat Accuracy	≤ 2%		≤ 5%		
Ripple	≤ 10%				≤ 20%
Time Delay Before Availability (tv)	3-wire: 100ms / 2 wire: 50ms		100ms		
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 Proximity Sensor Terminology				
Tightening Torque	10 Nm [7.37 lb-ft]				
Weight (cable/M12 connector)	70g [2.47 oz]/30g [1.06 oz]				96g [3.39 oz]/34g [1.2 oz]
Connection	2 meter [6.5 ft] PVC axial cable / M12 connector				
Agency Approvals	NA				UL file E328811

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring diagrams

NPN Output

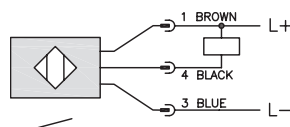
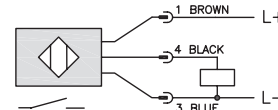


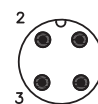
Diagram 1

PNP Output

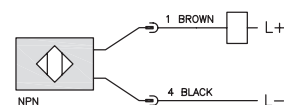


Connector

M12 connector



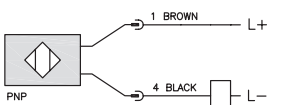
Sink/Source Output



Wiring diagram when sensor is wired in sinking mode used with a sourcing module.

Diagram 2

Sink/Source Output



Wiring diagram when sensor is wired in sourcing mode used with a sinking module.

Note: Negative (-) lead is Black on M12 quick-disconnect cables and Blue on axial cables.

mm [inches]

Technical drawing of a 1/2 inch NPT female plug. The drawing includes a side view and two end views. The side view shows a total length of 53.8 mm [2.12] inches, with a threaded section of 40.0 mm [1.57] inches and a shoulder of 4.0 mm [0.16] inches. The end views show a hexagonal base with a width of 17.0 mm [0.67] inches and a central hole with a diameter of 3.8 mm [0.15] inches. The bottom end view shows a hexagonal base with a width of 19.6 mm [0.77] inches and a central hole with a diameter of 1.5 mm [0.06] inches.

Technical drawing of the LED module showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 17.0 [0.67]

Side View Dimensions:

- Top flange thickness: 4.0 [0.16]
- Distance from top flange to LED chip: 26.0 [1.02]
- Distance from top flange to bottom flange: 45.0 [1.77]
- LED chip diameter: 10.5 [0.41]
- Bottom flange thickness: 8.0 [0.31]
- Thread specifications: M12x1 (top and bottom)
- LED chip label: LED
- SW17 label: SW17

AM Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 5

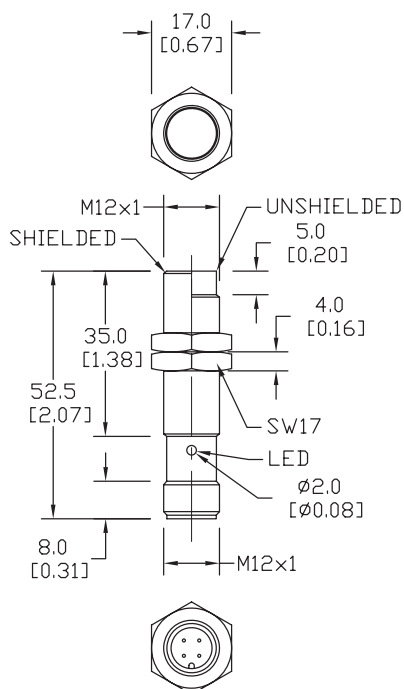


Figure 6

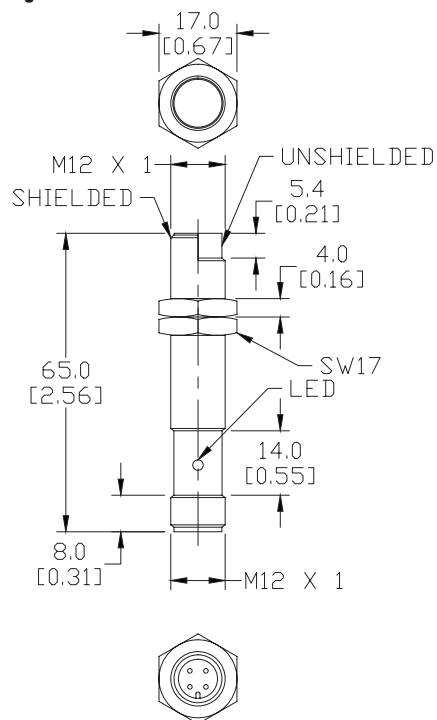
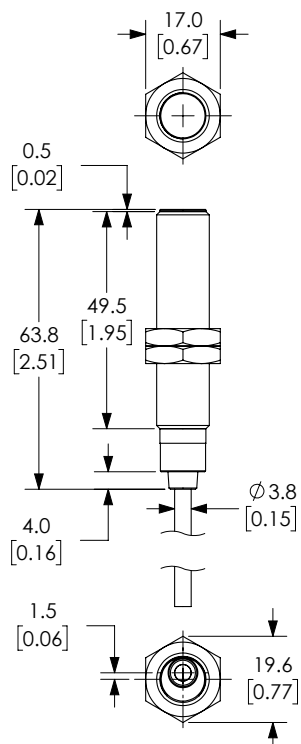


Figure 7

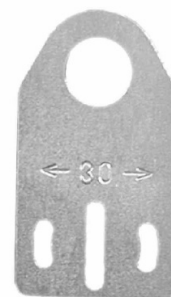


Accessories for 12mm Sensors

Axial Mounting Bracket

Mounting bracket, axial, available in zinc-plated steel or 316L stainless steel. For use with 12mm sensors. Has two mounting holes (use 3mm screws) and allows the rotation of an optical axis for right-angle adapter sensors. Hexagonal nuts not included.

Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<u>ST12A</u>	\$2.00	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 12mm sensors.	<u>PDF</u>	0.03 [13.6]
<u>ST12A7W</u>	\$7.25	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 12mm sensors.	<u>PDF</u>	0.03 [13.6]



[ST12A](#)

Right-angle Mounting Bracket

Mounting bracket, right-angle, zinc-plated steel or 316L stainless steel. For use with 12mm sensors. Has two mounting holes (use 3mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal screws not included.

Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<u>ST12C</u>	\$2.00	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 12mm sensors.	<u>PDF</u>	0.03 [13.6]
<u>ST12C7W</u>	\$7.25	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 12mm sensors.	<u>PDF</u>	0.03 [13.6]



[ST12C](#)

Accessories for 12mm Sensors

Right-angle Mounting Brackets

Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors. Available with or without fixed insertion stop.

Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<u>OPT2102</u>	\$8.00	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors.	<u>PDF</u>	0.05 [22.7]
<u>OPT2103</u>	\$8.00	Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors.	<u>PDF</u>	0.05 [22.7]



[OPT2102](#), [OPT2103](#)

Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 12mm sensors. Available in all stainless steel or with an aluminum head and stainless steel mounting plate.

Accessories for 12mm Sensors						
Part Number	Price	Description	Mounting Head	Mounting Plate	Drawing Link	Weight lb [g]
<u>OPT2114</u>	\$11.50	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 12mm sensors.	Aluminum	Stainless steel	<u>PDF</u>	0.14 [63.5]
<u>OPT2115</u>	\$21.00	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 12mm sensors.	304 Stainless steel	304 Stainless steel	<u>PDF</u>	0.27 [122.5]



[OPT2114](#), [OPT2115](#)

Note: 304 stainless steel mounting rods sold separately: [OPT2109](#) (200mm [7.87 in] length), [OPT2110](#) (300mm [11.81 in] length), and [OPT2111](#) (500mm [19.69 in] length).

Mounting Rods and Brackets

Mounting Rods

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

Mounting Rods for OPT2112-2127 Swivel Mounting Brackets				
Part Number	Price	Description	Drawing Link	Weight lb (g)
OPT2109	\$13.00	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	PDF	0.41 [185.97]
OPT2110	\$16.00	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	PDF	0.60 [272.16]
OPT2111	\$21.00	Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	PDF	0.98 [444.52]



Right-angle Mounting Bracket

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

Right-angle Mounting Brackets for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
OPT2108	\$16.00	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	PDF	0.07 [31.8]

