

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

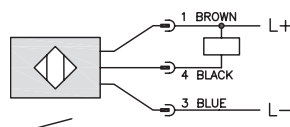
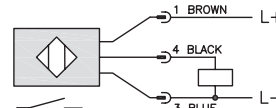


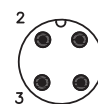
Diagram 1

PNP Output

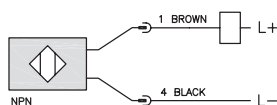


Connector

M12 connector



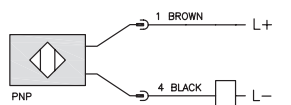
Sink/Source Output



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.

AM Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 1

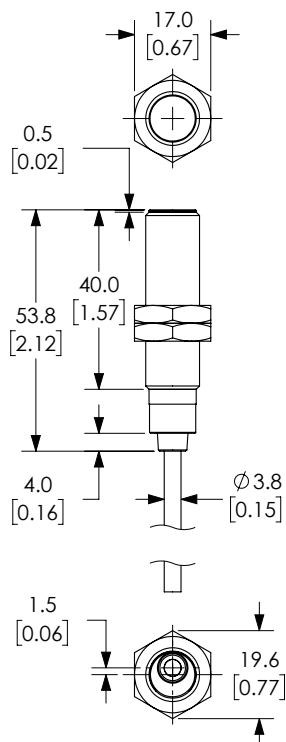


Figure 2

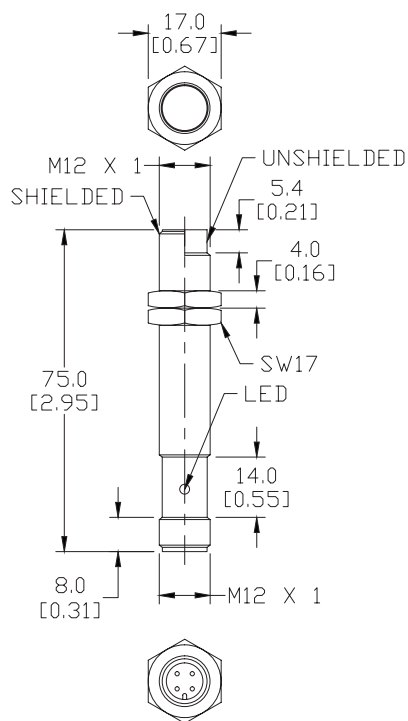


Figure 3

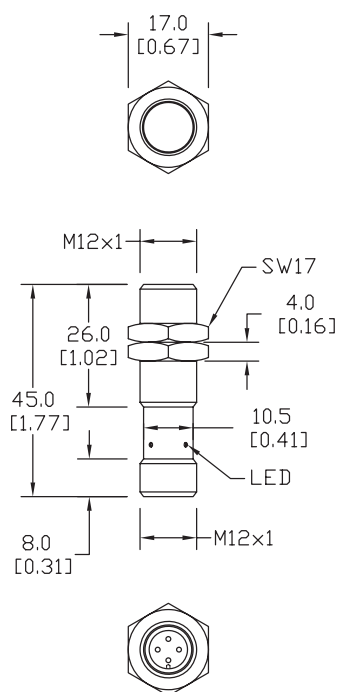
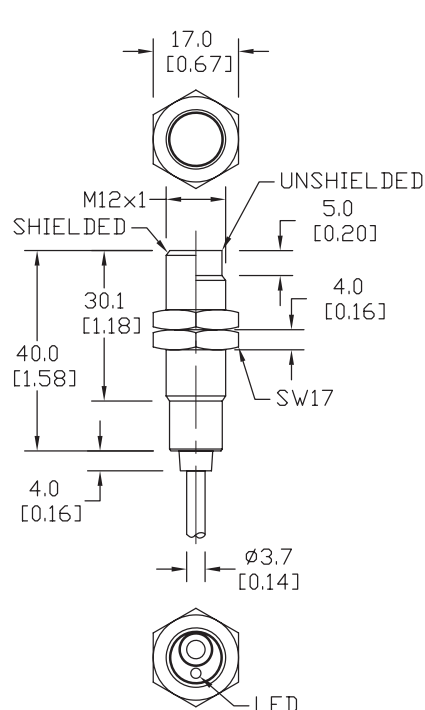


Figure 4



AM Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 5

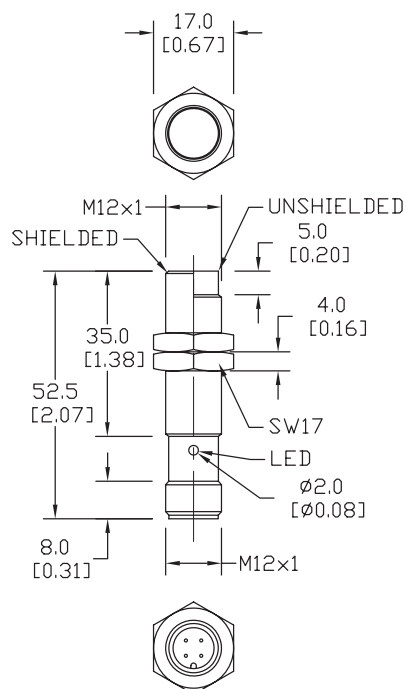


Figure 6

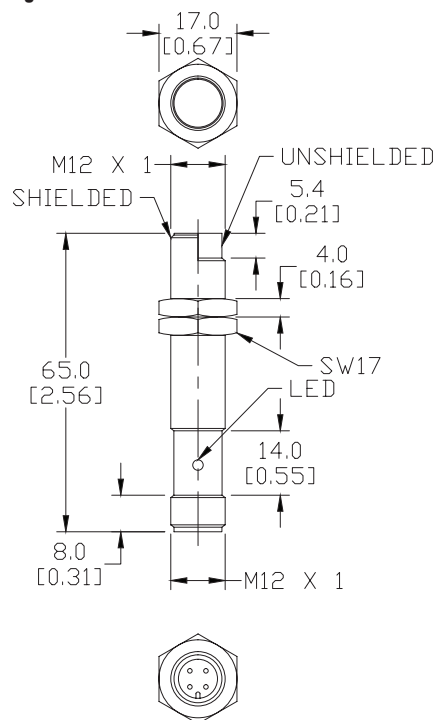
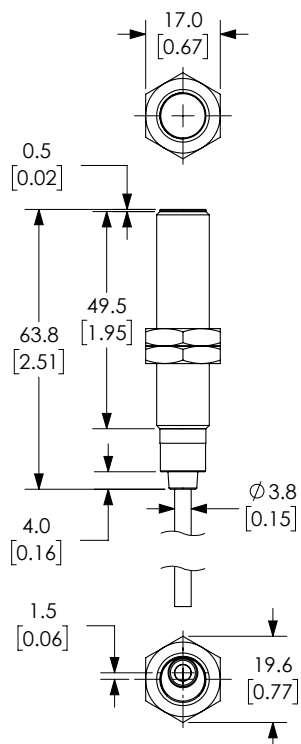


Figure 7

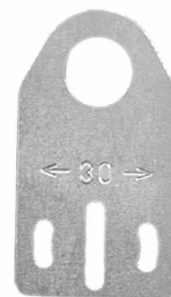


Accessories for 12mm Sensors

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] |

