

# AE1/AE6 Series Inductive Proximity Sensors



## M8 (8mm) Metal – DC

- 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 Proximity Selection Chart

| Part Number               | Price   | Sensing Range            | Mounting   | Output State | Logic | Connection              | Wiring    | Dimensions |
|---------------------------|---------|--------------------------|------------|--------------|-------|-------------------------|-----------|------------|
| Standard Distance         |         |                          |            |              |       |                         |           |            |
| <a href="#">AE1-AN-1A</a> | \$22.00 | 0-1.5 mm<br>[0-0.06 in]  | Flush      | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AE1-AP-1A</a> | \$22.00 |                          | Flush      | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AE1-AN-1H</a> | \$22.00 |                          | Flush      | N.O.         | NPN   | M12 [12mm] connector    | Diagram 3 | Figure 2   |
| <a href="#">AE1-AP-1H</a> | \$22.00 |                          | Flush      | N.O.         | PNP   | M12 [12mm] connector    | Diagram 4 | Figure 2   |
| <a href="#">AE1-AN-1F</a> | \$22.00 |                          | Flush      | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 3   |
| <a href="#">AE1-AP-1F</a> | \$22.00 |                          | Flush      | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 3   |
| <a href="#">AE1-AN-2A</a> | \$22.00 | 0-2.5 mm<br>[0-0.098 in] | Non-flush  | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AE1-AP-2A</a> | \$29.50 |                          | Non-flush  | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AE1-AN-2H</a> | \$22.00 |                          | Non-flush  | N.O.         | NPN   | M12 [12mm] connector    | Diagram 3 | Figure 2   |
| <a href="#">AE1-AP-2H</a> | \$29.50 |                          | Non-flush  | N.O.         | PNP   | M12 [12mm] connector    | Diagram 4 | Figure 2   |
| <a href="#">AE1-AN-2F</a> | \$22.00 |                          | Non-flush  | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 3   |
| <a href="#">AE1-AP-2F</a> | \$22.00 |                          | Non-flush  | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 3   |
| Extended Distance         |         |                          |            |              |       |                         |           |            |
| <a href="#">AE1-AN-3A</a> | \$28.50 | 0-2 mm<br>[0-0.08 in]    | Flush      | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AE1-AP-3A</a> | \$28.50 |                          | Flush      | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AE1-AN-3F</a> | \$36.00 |                          | Flush      | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 3   |
| <a href="#">AE1-AP-3F</a> | \$28.50 |                          | Flush      | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 3   |
| <a href="#">AE1-AN-4A</a> | \$28.50 | 0-4 mm<br>[0-0.157 in]   | Non-flush  | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AE1-AP-4A</a> | \$36.00 |                          | Non-flush  | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AE1-AN-4F</a> | \$28.50 |                          | Non-flush  | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 3   |
| <a href="#">AE1-AP-4F</a> | \$28.50 |                          | Non-flush  | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 3   |
| Triple Distance           |         |                          |            |              |       |                         |           |            |
| <a href="#">AE1-AN-5A</a> | \$88.00 | 0-3 mm<br>[0-0.118 in]   | Semi-flush | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AE1-AP-5A</a> | \$88.00 |                          | Semi-flush | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AE1-AN-5F</a> | \$88.00 |                          | Semi-flush | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 4   |
| <a href="#">AE1-AP-5F</a> | \$88.00 |                          | Semi-flush | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 4   |

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

| Part Number               | Price   | Sensing Range          | Mounting  | Output State | Logic | Connection              | Wiring    | Dimensions |
|---------------------------|---------|------------------------|-----------|--------------|-------|-------------------------|-----------|------------|
| <b>Extended Distance</b>  |         |                        |           |              |       |                         |           |            |
| <a href="#">AE6-AN-3A</a> | \$33.00 | 0-2 mm<br>[0-0.08 in]  | Flush     | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 5   |
| <a href="#">AE6-AP-3A</a> | \$33.00 |                        | Flush     | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 5   |
| <a href="#">AE6-AN-3F</a> | \$44.50 |                        | Flush     | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 6   |
| <a href="#">AE6-AP-3F</a> | \$33.00 |                        | Flush     | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 6   |
| <a href="#">AE6-AN-4A</a> | \$33.00 | 0-4 mm<br>[0-0.157 in] | Non-flush | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 5   |
| <a href="#">AE6-AP-4A</a> | \$33.00 |                        | Non-flush | N.O.         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 5   |
| <a href="#">AE6-AN-4F</a> | \$44.50 |                        | Non-flush | N.O.         | NPN   | M8 [8mm] connector      | Diagram 3 | Figure 6   |
| <a href="#">AE6-AP-4F</a> | \$33.00 |                        | Non-flush | N.O.         | PNP   | M8 [8mm] connector      | Diagram 4 | Figure 6   |

# AE1/AE6 Series Inductive Proximity Sensors

| AE Series Specifications                    |                                                                 |                   |                          |                 |                                        |
|---------------------------------------------|-----------------------------------------------------------------|-------------------|--------------------------|-----------------|----------------------------------------|
| Specification                               | Standard Distance Models                                        |                   | Extended Distance Models |                 | Triple Distance Models                 |
| Mounting Type                               | Flush                                                           | Non-flush         | Flush                    | Non-flush       | Semi-flush                             |
| Nominal Sensing Distance                    | 1.5 mm [0.06 in]                                                | 2.5 mm [0.098 in] | 2 mm [0.08 in]           | 4 mm [0.157 in] | 3 mm [0.118 in]                        |
| Operating Distance                          | NA                                                              |                   |                          |                 |                                        |
| Material Correction Factors                 | See the <a href="#">Material influence table</a>                |                   |                          |                 |                                        |
| Output Type                                 | NPN or PNP/N.O. only/3-wire                                     |                   |                          |                 |                                        |
| Operating Voltage                           | 10 to 30 VDC                                                    |                   |                          |                 |                                        |
| No-load Supply Current                      | ≤ 20 mA                                                         |                   | ≤ 10 mA                  |                 |                                        |
| Operating (Load) Current                    | ≤ 200 mA                                                        |                   |                          |                 |                                        |
| 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%                 |                 | m 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 <a href="#">Proximity Sensor Terminology</a>                |                   |                          |                 |                                        |
| 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]/<br>26 g [0.92 oz]/(NA) |
| Connection                                  | 2 meter [6.5 ft] PVC axial cable / M8 connector / 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

Diagram 1

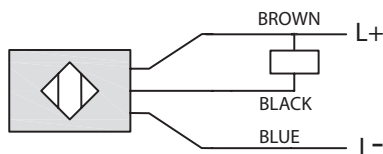


Diagram 2

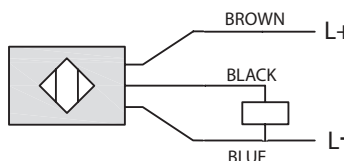


Diagram 3

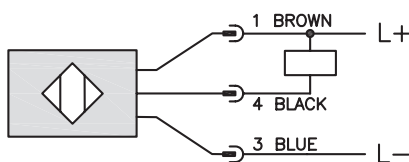
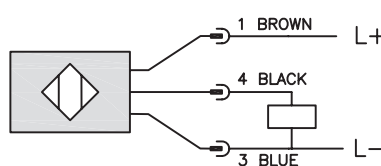
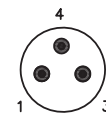


Diagram 4

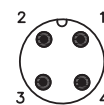


## Connectors

M8 connector



M12 connector



# AE1/AE6 Series Inductive Proximity Sensors

## Dimensions

mm [inch]

Figure 1

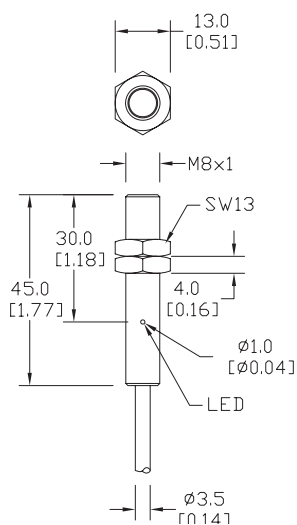


Figure 2

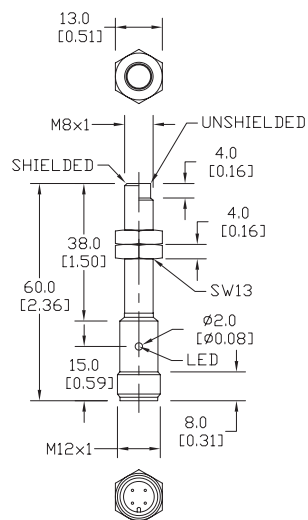


Figure 3

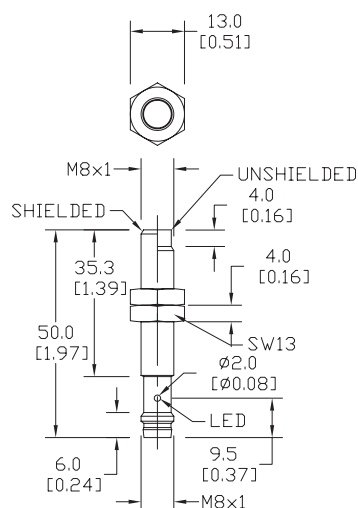


Figure 4

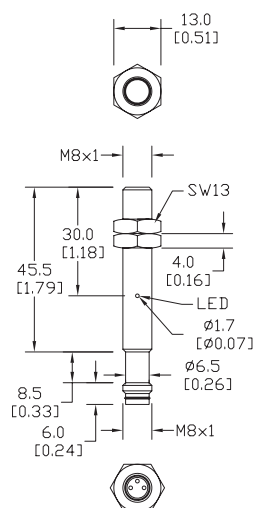


Figure 5

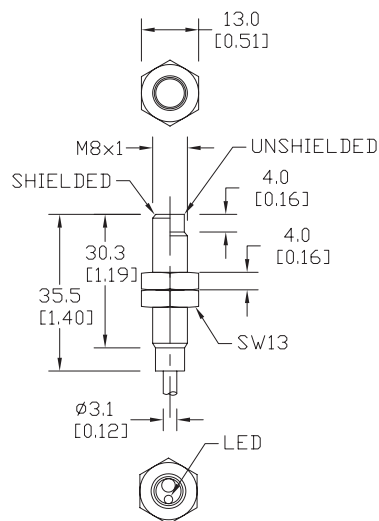
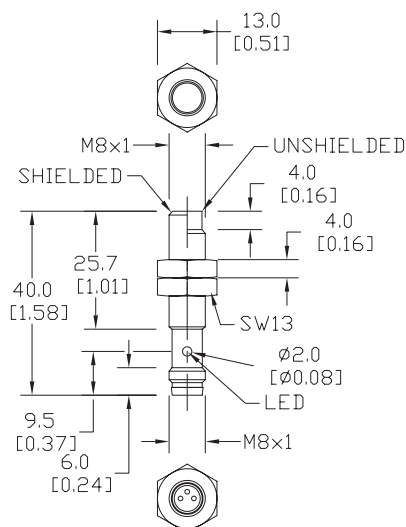


Figure 6

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering Drawings.

# Accessories for 8 mm Sensors

## Axial Mounting Bracket

Mounting bracket, axial, zinc-plated steel. For use with 8 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.

| Accessories for 8 mm Sensors |        |                                                                                           |                            |             |
|------------------------------|--------|-------------------------------------------------------------------------------------------|----------------------------|-------------|
| Part Number                  | Price  | Description                                                                               | Drawing Link               | Weight [lb] |
| <a href="#"><u>ST08A</u></a> | \$2.75 | Micro Detectors mounting bracket, axial, zinc plated steel.<br>For use with 8 mm sensors. | <a href="#"><u>PDF</u></a> | 0.04        |



[ST08A](#)

## Right-angle Mounting Bracket

Mounting bracket, right-angle, zinc-plated steel. For use with 8 mm sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included.

| Accessories for 8 mm Sensors |        |                                                                                                 |                            |             |
|------------------------------|--------|-------------------------------------------------------------------------------------------------|----------------------------|-------------|
| Part Number                  | Price  | Description                                                                                     | Drawing Link               | Weight [lb] |
| <a href="#"><u>ST08C</u></a> | \$2.75 | Micro Detectors mounting bracket, right-angle, zinc plated steel.<br>For use with 8 mm sensors. | <a href="#"><u>PDF</u></a> | 0.04        |



[ST08C](#)

# Accessories for 8 mm Sensors

## Right-angle Mounting Bracket

Mounting bracket, right-angle, plastic. For use with 8 mm sensors.

| Accessories for 8 mm Sensors   |         |                                                                               |                            |             |
|--------------------------------|---------|-------------------------------------------------------------------------------|----------------------------|-------------|
| Part Number                    | Price   | Description                                                                   | Drawing Link               | Weight [lb] |
| <a href="#"><u>OPT2101</u></a> | \$17.00 | Wenglor mounting bracket, right-angle, plastic.<br>For use with 8 mm sensors. | <a href="#"><u>PDF</u></a> | 0.02        |



[OPT2101](#)

## Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360-degree vertical and horizontal adjustment. For use with 8 mm sensors. Available in all stainless steel or with an aluminum head and stainless steel mounting plate.

| Accessories for 8 mm Sensors   |         |                                                                                                                                                               |                     |                     |                            |             |
|--------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|----------------------------|-------------|
| Part Number                    | Price   | Description                                                                                                                                                   | Mounting Head       | Mounting Plate      | Drawing Link               | Weight [lb] |
| <a href="#"><u>OPT2112</u></a> | \$17.00 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12 mm rod mount. For use with 8 mm sensors.            | Aluminum            | 304 Stainless Steel | <a href="#"><u>PDF</u></a> | 0.14        |
| <a href="#"><u>OPT2113</u></a> | \$24.50 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12 mm rod mount. For use with 8 mm sensors. | 304 Stainless Steel | 304 Stainless Steel | <a href="#"><u>PDF</u></a> | 0.26        |



[OPT2112 & OPT2113](#)

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

# Mounting Rods and Brackets

## Mounting Rods

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

| Mounting Rods for OPT2112-2127 Swivel Mounting Brackets |         |                                                                           |                     |                  |
|---------------------------------------------------------|---------|---------------------------------------------------------------------------|---------------------|------------------|
| Part Number                                             | Price   | Description                                                               | Drawing Link        | Weight lb [g]    |
| <a href="#">OPT2109</a>                                 | \$17.50 | Wenglor mounting rod, 12 mm diameter, 200 mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.41<br>[185.97] |
| <a href="#">OPT2110</a>                                 | \$19.00 | Wenglor mounting rod, 12 mm diameter, 300 mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.60<br>[272.16] |
| <a href="#">OPT2111</a>                                 | \$27.50 | Wenglor mounting rod, 12 mm diameter, 500 mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.98<br>[444.52] |



## Right-angle Mounting Bracket

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

| Right-angle Mounting Bracket for 12 mm Sensors |         |                                                                                                                          |                     |                |
|------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|
| Part Number                                    | Price   | Description                                                                                                              | Drawing Link        | Weight lb [g]  |
| <a href="#">OPT2108</a>                        | \$23.50 | Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12 mm mounting rods OPT2109, OPT2110 & OPT2111. | <a href="#">PDF</a> | 0.07<br>[31.8] |

