

# 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         |          |                           |            |              |             |                         |           |            |
| <a href="#">AM1-AN-1A</a> | \$21.00  | 0 to 2 mm<br>[0-0.08 in]  | Flush      | N.O.         | NPN         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-AP-1A</a> | \$21.00  |                           |            |              | PNP         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-A0-1A</a> | \$30.50  |                           |            |              | Sink/source | 2m [6.5 ft] axial cable | Diagram 2 | Figure 7   |
| <a href="#">AM1-AN-1H</a> | \$22.00  |                           |            |              | NPN         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-AP-1H</a> | \$22.00  |                           |            |              | PNP         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-A0-1H</a> | \$30.50  |                           |            |              | Sink/source | M12 [12mm] connector    | Diagram 2 | Figure 2   |
| <a href="#">AM1-AN-2A</a> | \$21.00  | 0 to 4 mm<br>[0-0.157 in] | Non-flush  | N.O.         | NPN         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-AP-2A</a> | \$21.00  |                           |            |              | PNP         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-A0-2A</a> | \$30.50  |                           |            |              | Sink/source | 2m [6.5 ft] axial cable | Diagram 2 | Figure 7   |
| <a href="#">AM1-AN-2H</a> | \$22.00  |                           |            |              | NPN         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-AP-2H</a> | \$22.00  |                           |            |              | PNP         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-A0-2H</a> | \$30.50  |                           |            |              | Sink/source | M12 [12mm] connector    | Diagram 2 | Figure 2   |
| Extended Distance         |          |                           |            |              |             |                         |           |            |
| <a href="#">AM1-AN-3A</a> | \$29.50  | 0 to 4 mm<br>[0-0.157 in] | Flush      | N.O.         | NPN         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-AP-3A</a> | \$29.50  |                           |            |              | PNP         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-A0-3A</a> | \$37.50  |                           |            |              | Sink/source | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AM1-AN-3H</a> | \$29.50  |                           |            |              | NPN         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-AP-3H</a> | \$29.50  |                           |            |              | PNP         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-A0-3H</a> | \$37.50  |                           |            |              | Sink/source | M12 [12mm] connector    | Diagram 2 | Figure 6   |
| <a href="#">AM1-AN-4A</a> | \$29.50  | 0 to 8 mm<br>[0-0.314 in] | Non-flush  | N.O.         | NPN         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-AP-4A</a> | \$29.50  |                           |            |              | PNP         | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">AM1-A0-4A</a> | \$37.50  |                           |            |              | Sink/source | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">AM1-AN-4H</a> | \$29.50  |                           |            |              | NPN         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-AP-4H</a> | \$29.50  |                           |            |              | PNP         | M12 [12mm] connector    | Diagram 1 | Figure 6   |
| <a href="#">AM1-A0-4H</a> | \$37.50  |                           |            |              | Sink/source | M12 [12mm] connector    | Diagram 2 | Figure 6   |
| Triple Distance           |          |                           |            |              |             |                         |           |            |
| <a href="#">AM1-AN-5H</a> | \$100.00 | 6 mm<br>[0.236 in]        | Semi-flush | N.O.         | NPN         | M12 [12mm] connector    | Diagram 1 | Figure 3   |
| <a href="#">AM1-AP-5H</a> | \$100.00 |                           |            |              | 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 |
|---------------------------|---------|---------------------------|-----------|--------------|-------|-------------------------|-----------|------------|
| <b>Extended Distance</b>  |         |                           |           |              |       |                         |           |            |
| <a href="#">AM6-AN-3A</a> | \$33.00 | 0 to 4 mm<br>[0-0.157 in] | Flush     | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 4   |
| <a href="#">AM6-AP-3A</a> | \$33.00 |                           |           |              | PNP   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 4   |
| <a href="#">AM6-AN-3H</a> | \$33.00 |                           |           |              | NPN   | M12 [12mm] connector    | Diagram 1 | Figure 5   |
| <a href="#">AM6-AP-3H</a> | \$33.00 |                           |           |              | PNP   | M12 [12mm] connector    | Diagram 1 | Figure 5   |
| <a href="#">AM6-AN-4A</a> | \$33.00 | 0 to 8 mm<br>[0-0.314 in] | Non-flush | N.O.         | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 4   |
| <a href="#">AM6-AP-4A</a> | \$33.00 |                           |           |              | PNP   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 4   |
| <a href="#">AM6-AN-4H</a> | \$33.00 |                           |           |              | NPN   | M12 [12mm] connector    | Diagram 1 | Figure 5   |
| <a href="#">AM6-AP-4H</a> | \$33.00 |                           |           |              | PNP   | M12 [12mm] connector    | Diagram 1 | Figure 5   |

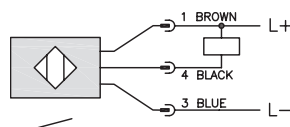
# AM Series Inductive Proximity Sensors

| 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 <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                      | ≤ 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 <a href="#">Proximity Sensor Terminology</a>   |                |                                   |                |                            |
| 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.

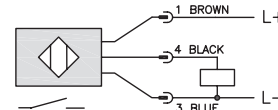
## Wiring diagrams

**NPN Output**



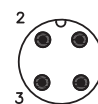
**Diagram 1**

**PNP Output**

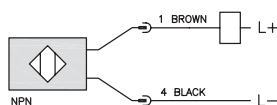


**Connector**

**M12 connector**



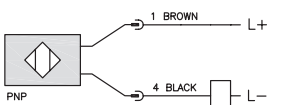
**Sink/Source Output**



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

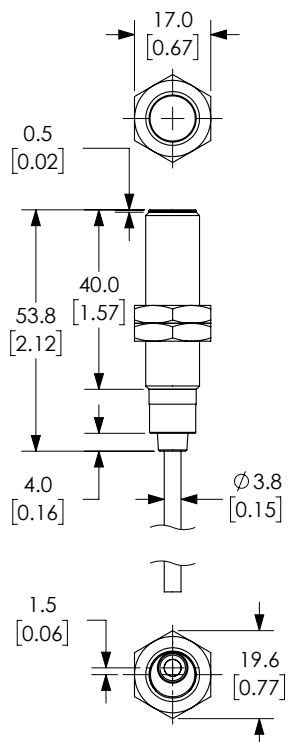


Figure 2

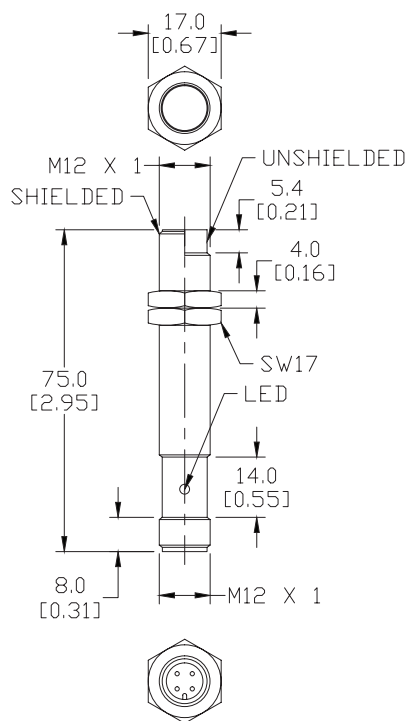


Figure 3

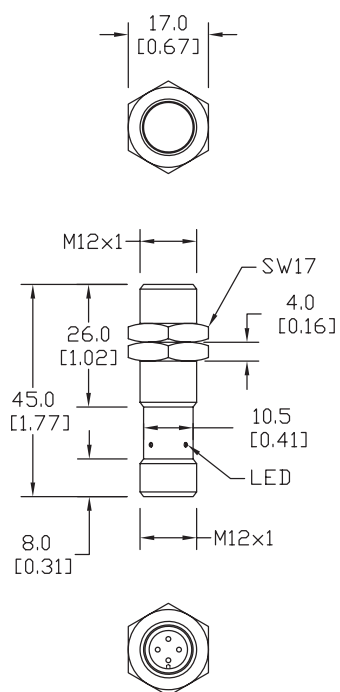
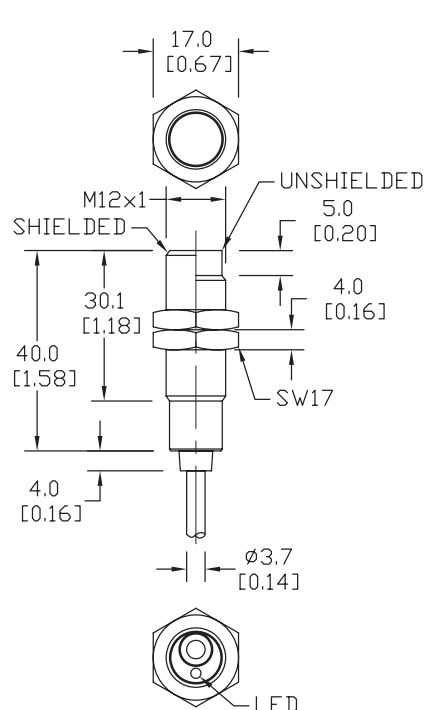


Figure 4



# AM Series Inductive Proximity Sensors

## Dimensions

mm [inches]

Figure 5

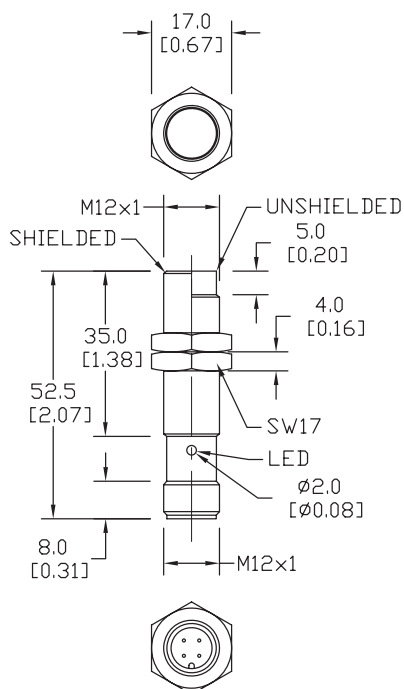


Figure 6

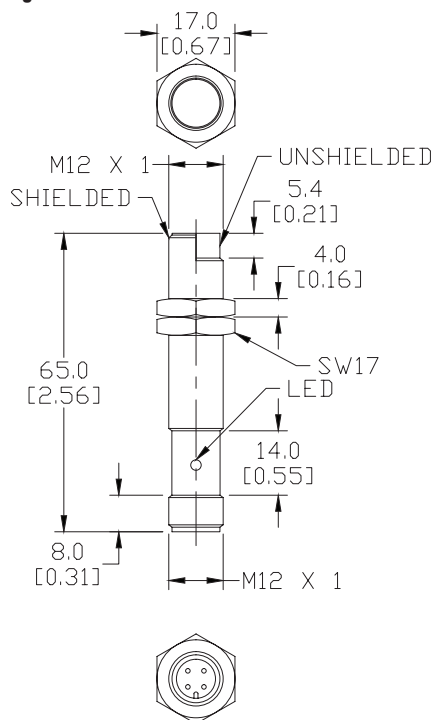
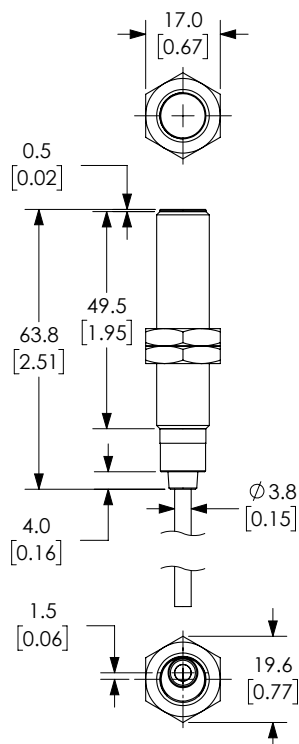


Figure 7



# Accessories for 12 mm Sensors

## Axial Mounting Bracket

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

| Accessories for 12 mm Sensors  |        |                                                                                               |                            |               |
|--------------------------------|--------|-----------------------------------------------------------------------------------------------|----------------------------|---------------|
| Part Number                    | Price  | Description                                                                                   | Drawing Link               | Weight lb [g] |
| <a href="#"><u>ST12A</u></a>   | \$2.75 | Micro Detectors mounting bracket, axial, zinc plated steel.<br>For use with 12 mm sensors.    | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |
| <a href="#"><u>ST12A7W</u></a> | \$9.75 | Micro Detectors mounting bracket, axial, 316L stainless steel.<br>For use with 12 mm sensors. | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |



[ST12A](#)

## Right-angle Mounting Bracket

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

| Accessories for 12 mm Sensors  |        |                                                                                                     |                            |               |
|--------------------------------|--------|-----------------------------------------------------------------------------------------------------|----------------------------|---------------|
| Part Number                    | Price  | Description                                                                                         | Drawing Link               | Weight lb [g] |
| <a href="#"><u>ST12C</u></a>   | \$2.75 | Micro Detectors mounting bracket, right-angle, zinc plated steel.<br>For use with 12 mm sensors.    | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |
| <a href="#"><u>ST12C7W</u></a> | \$9.75 | Micro Detectors mounting bracket, right-angle, 316L stainless steel.<br>For use with 12 mm sensors. | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |



[ST12C](#)

# Accessories for 12 mm Sensors

## Right-angle Mounting Brackets

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



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

| Accessories for 12 mm Sensors |         |                                                                                                              |                     |               |
|-------------------------------|---------|--------------------------------------------------------------------------------------------------------------|---------------------|---------------|
| Part Number                   | Price   | Description                                                                                                  | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2102</a>       | \$19.50 | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12 mm sensors. | <a href="#">PDF</a> | 0.05 [22.7]   |
| <a href="#">OPT2103</a>       | \$19.50 | Wenglor mounting bracket, right-angle, plastic. For use with 12 mm sensors.                                  | <a href="#">PDF</a> | 0.05 [22.7]   |

## Right-angle Swivel Mounting Systems

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



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

| Accessories for 12 mm Sensors |         |                                                                                                                                                                |                     |                     |                     |               |
|-------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------|
| Part Number                   | Price   | Description                                                                                                                                                    | Mounting Head       | Mounting Plate      | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2114</a>       | \$17.50 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12 mm rod mount. For use with 12 mm sensors.            | Aluminum            | Stainless steel     | <a href="#">PDF</a> | 0.14 [63.5]   |
| <a href="#">OPT2115</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 12 mm sensors. | 304 Stainless steel | 304 Stainless steel | <a href="#">PDF</a> | 0.27 [122.5]  |

Note: 304 stainless steel mounting rods sold separately: [OPT2109](#) (200 mm [7.87 in] length), [OPT2110](#) (300 mm [11.81 in] length), and [OPT2111](#) (500 mm [19.69 in] 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 [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 [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 [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 [31.8]   |

