

# V Series AC & AC/DC Inductive Proximity Sensors



## M12 (12mm)

- Low cost/high performance
- LED status indicators are visible at a wide angle
- Axial cable, M12 and 1/2 in. micro AC quick-disconnect models
- Purchase cable separately (for quick-disconnect models)
- Lifetime warranty



## V Series M12 AC & AC/DC Inductive Proximity Selection Chart

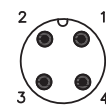
| Part Number  | Price   | Sensing Range <sup>1</sup> | Mounting  | Output State                     | Voltage        | Connection <sup>2</sup>                   | Wiring    | Dimensions |
|--------------|---------|----------------------------|-----------|----------------------------------|----------------|-------------------------------------------|-----------|------------|
| Standard     |         |                            |           |                                  |                |                                           |           |            |
| VM1-A0-1B    | \$42.50 | 2mm [0.06 in]              | Flush     | N.O.                             | 20–253 VAC     | 2m [6.5 ft] axial cable                   | Diagram 2 | Figure 1   |
| VM1-A0-1H    | \$42.50 |                            |           |                                  |                | M12 [12mm]                                |           | Figure 2   |
| VM1-A0-2B    | \$42.50 | 4mm [0.16 in]              | Non-flush |                                  |                | 2m [6.5 ft] axial cable                   |           | Figure 1   |
| VM1-A0-2H    | \$42.50 |                            |           |                                  |                | M12 [12mm]                                |           | Figure 2   |
| Extended     |         |                            |           |                                  |                |                                           |           |            |
| V3M1-R0-3A8F | \$44.50 | 4mm [0.16 in]              | Flush     | N.O. (VAC) or<br>N.O./N.C. (VDC) | 20–250 VAC/VDC | 2m [6.5 ft]<br>axial cable                | Diagram 1 | Figure 3   |
| V3M1-S0-3A8F | \$44.50 |                            |           | N.C. (VAC) or<br>N.O./N.C. (VDC) |                |                                           | Diagram 3 | Figure 3   |
| V3M1-R0-3Q   | \$44.50 |                            |           | N.O. (VAC) or<br>N.O./N.C. (VDC) |                | 1/2"-20 UNF, Micro AC<br>quick-disconnect | Diagram 4 | Figure 4   |
| V3M1-S0-3Q   | \$44.50 |                            |           | N.C. (VAC) or<br>N.O./N.C. (VDC) |                |                                           | Diagram 5 | Figure 4   |
| V3M1-R0-4A8F | \$44.50 | 6mm [0.24 in]              | Non-flush | N.O. (VAC) or<br>N.O./N.C. (VDC) |                | 2m [6.5 ft]<br>axial cable                | Diagram 1 | Figure 3   |
| V3M1-S0-4A8F | \$44.50 |                            |           | N.C. (VAC) or<br>N.O./N.C. (VDC) |                |                                           | Diagram 3 | Figure 3   |
| V3M1-R0-4Q   | \$44.50 |                            |           | N.O. (VAC) or<br>N.O./N.C. (VDC) |                | 1/2"-20 UNF, Micro AC<br>quick-disconnect | Diagram 4 | Figure 4   |
| V3M1-S0-4Q   | \$44.50 |                            |           | N.C. (VAC) or<br>N.O./N.C. (VDC) |                |                                           | Diagram 5 | Figure 4   |

<sup>1</sup>With 12mm x 12mm Fe360 target

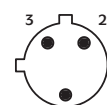
<sup>2</sup>V Series sensors with 4-pin M12 connectors are incompatible with Zip Port junction blocks.

## Connectors

M12 connector



1/2 in. micro AC



Note: Pin 2 is not present on some models.

Diagram 1

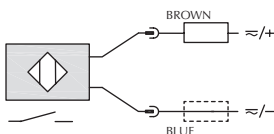


Diagram 2

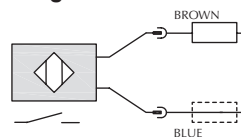


Diagram 3

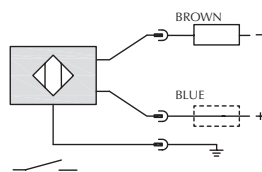
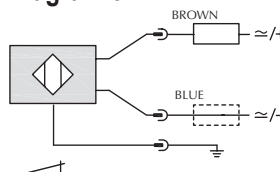


Diagram 4

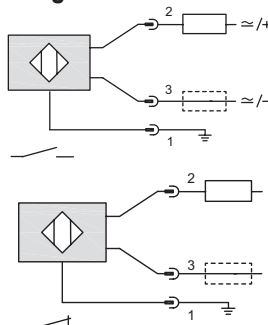
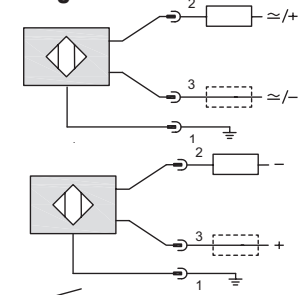


Diagram 5



# V Series AC & AC/DC Inductive Proximity Sensors

| V Series M12 AC & AC/DC Inductive Proximity Specifications |                                                 |           |                                                                   |           |
|------------------------------------------------------------|-------------------------------------------------|-----------|-------------------------------------------------------------------|-----------|
| Models                                                     | VM1                                             |           | V3M1                                                              |           |
| Mounting Type                                              | Flush                                           | Non-flush | Flush                                                             | Non-flush |
| Nominal Sensing Distance (mm)                              | 2                                               | 4         | 4                                                                 | 6         |
| Operating Distance                                         | NA                                              |           | 0–3.2 mm                                                          | 0–4.9 mm  |
| Material Correction Factors                                | See Material Influence Table                    |           |                                                                   |           |
| Output Type                                                | N.O.                                            |           | N.O. or N.C. (VAC)<br>N.O./N.C. (VDC)                             |           |
| Operating Voltage                                          | 20–253 VAC, 50/60 Hz                            |           | 20–250 VAC/VDC                                                    |           |
| No-load Supply Current                                     | NA                                              |           | 1mA (VAC); 0.7 mA (VDC)                                           |           |
| Operating (Load) Current                                   | NA                                              |           | 200mA                                                             |           |
| AC                                                         | 5–300 mA (RMS)                                  |           | 140mA                                                             |           |
| Off-state Leakage Current                                  | NA                                              |           | 0.70 mA                                                           |           |
| AC                                                         | 1.0 mA max. (RMS)                               |           | 1mA                                                               |           |
| Voltage Drop                                               | ≤ 25VAC                                         |           | ≤ 7.5 VAC / ≤ 8VDC                                                |           |
| Switching Frequency                                        | 25Hz                                            |           | 750Hz                                                             | 500Hz     |
| Differential Travel (% of Nominal Distance)                | 2–10%                                           |           | 1–20%                                                             |           |
| Repeat Accuracy                                            | 5%                                              |           | ≤ 5%                                                              |           |
| Peak Current                                               | NA                                              |           | 600mA/150ms                                                       |           |
| Time Delay Before Availability (tv)                        | 200ms                                           |           | 100ms                                                             |           |
| Reverse Polarity Protection                                | NA                                              |           | Yes                                                               |           |
| Short Circuit Protection Overload                          | No                                              |           | Yes                                                               |           |
| Overvoltage                                                | NA                                              |           | Yes                                                               |           |
| Operating Temperature                                      | -25 to +70°C [-13 to 158°F]                     |           |                                                                   |           |
| Protection Degree (DIN 40050)                              | IEC IP67                                        |           |                                                                   |           |
| LED Indicators                                             | Yellow [output energized]                       |           |                                                                   |           |
| Housing Material                                           | Nickel-plated brass                             |           |                                                                   |           |
| Sensing Face Material                                      | Polybutylene Terephthalate [PBT]                |           | PA4T                                                              |           |
| Shock/Vibration                                            | IEC 60947-5-2                                   |           |                                                                   |           |
| Tightening Torque                                          | 10 N·m [7.3 lb·ft]                              |           | 7 N·m [5 lb·ft]                                                   |           |
| Weight                                                     | 70g [2.47 oz]                                   |           | 20g Plug; 80g Cable                                               |           |
| Connection                                                 | 2m [6.5 ft] axial cable or M12 [12mm] connector |           | 2m [6.5 ft] axial cable or 1/2"-20 UNF, micro AC quick-disconnect |           |
| Agency Approvals                                           | CE, UL Recognized file E130644                  |           | CE, UL E187310                                                    |           |

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

## Dimensions

mm [inches]

Figure 1

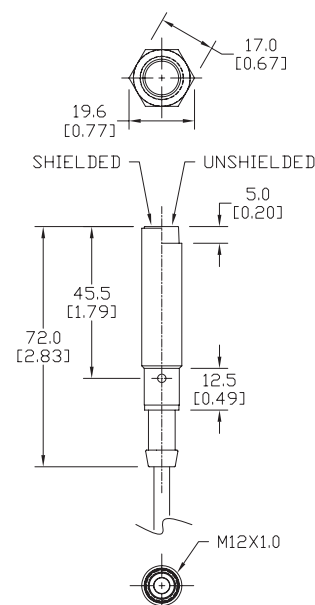


Figure 2

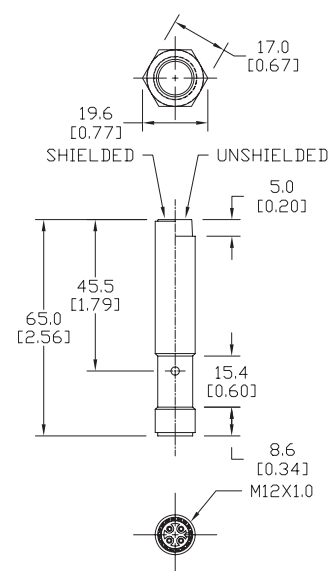


Figure 3

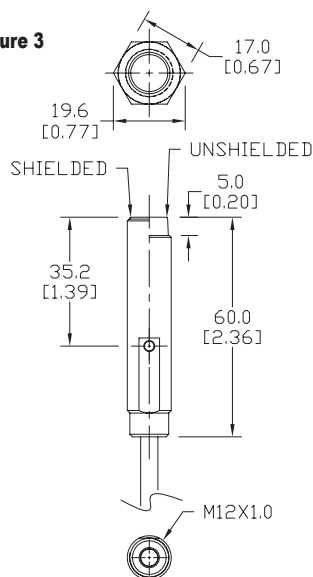
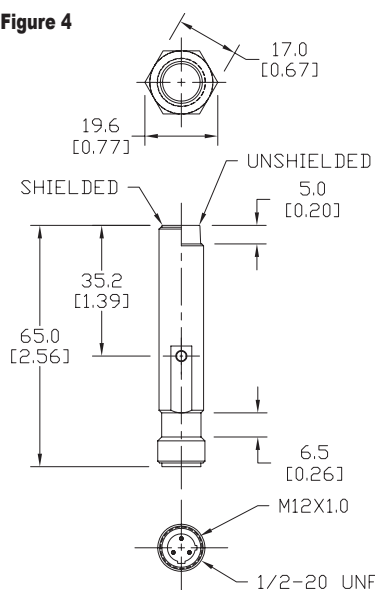


Figure 4



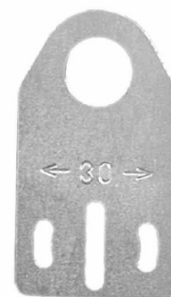
NOTE: Each sensor ships with jam nuts.

# 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] |
| <a href="#"><u>ST12A</u></a>   | \$2.00 | Micro Detectors mounting bracket, axial, zinc plated steel.<br>For use with 12mm sensors.    | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |
| <a href="#"><u>ST12A7W</u></a> | \$7.25 | Micro Detectors mounting bracket, axial, 316L stainless steel.<br>For use with 12mm 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 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] |
| <a href="#"><u>ST12C</u></a>   | \$2.00 | Micro Detectors mounting bracket, right-angle, zinc plated steel.<br>For use with 12mm sensors.    | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |
| <a href="#"><u>ST12C7W</u></a> | \$7.25 | Micro Detectors mounting bracket, right-angle, 316L stainless steel.<br>For use with 12mm sensors. | <a href="#"><u>PDF</u></a> | 0.03 [13.6]   |



[ST12C](#)

# Accessories for 12mm Sensors

## Right-angle Fine Tune Mounting Bracket

Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 12mm sensors. Enables fine tuning vertical and horizontal placement.

| Accessories for 12mm Sensors |         |                                                                                                                                         |                     |             |
|------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|
| Part Number                  | Price   | Description                                                                                                                             | Drawing Link        | Weight [lb] |
| <a href="#">OPT2035</a>      | \$38.50 | Wenglor mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel plated steel.<br>For use with 12mm sensors. | <a href="#">PDF</a> | 0.16        |



[OPT2035](#)

# 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] |
| <a href="#"><u>OPT2102</u></a> | \$8.00 | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors. | <a href="#"><u>PDF</u></a> | 0.05 [22.7]   |
| <a href="#"><u>OPT2103</u></a> | \$8.00 | Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors.                                  | <a href="#"><u>PDF</u></a> | 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] |
| <a href="#"><u>OPT2114</u></a> | \$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     | <a href="#"><u>PDF</u></a> | 0.14 [63.5]   |
| <a href="#"><u>OPT2115</u></a> | \$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 | <a href="#"><u>PDF</u></a> | 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).