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

NEED CABLES?
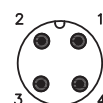
V Series M12 AC & AC/DC Inductive Proximity Selection Chart							
Part Number	Price	Sensing Range[1]	Mounting	Output State	Voltage	Connection[2]	Wiring	Dimensions
Standard								
VM1-A0-1B	$42.50	2mm [0.06 in]	Flush	N.O.	20–253 VAC	2m [6.5 ft] axial cable	Diagram 2	Figure 1
VM1-A0-1H	$42.50					M12 [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 N.O./N.C. (VDC)	20–250 VAC/VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 3
V3M1-S0-3A8F	$44.50			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 3
V3M1-R0-3Q	$44.50			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, Micro AC quick-disconnect	Diagram 4	Figure 4
V3M1-S0-3Q	$44.50			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 4
V3M1-R0-4A8F	$44.50	6mm [0.24 in]	Non-flush	N.O. (VAC) or N.O./N.C. (VDC)		2m [6.5 ft] axial cable	Diagram 1	Figure 3
V3M1-S0-4A8F	$44.50			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 3
V3M1-R0-4Q	$44.50			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, Micro AC quick-disconnect	Diagram 4	Figure 4
V3M1-S0-4Q	$44.50			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 4

[1]With 12mm x 12mm Fe360 target
[2]V Series sensors with 4-pin M12 connectors are incompatible with Zip Port junction blocks.

Wiring Diagrams

Connectors

M12 connector

1/2 in. micro AC
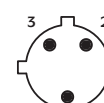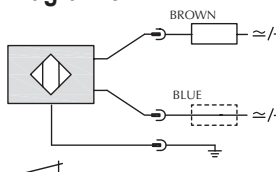
Note: Pin 2 is not present on some models.

Diagram 1
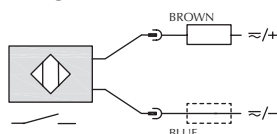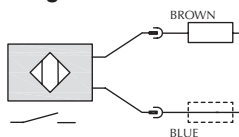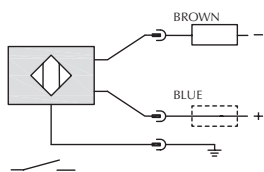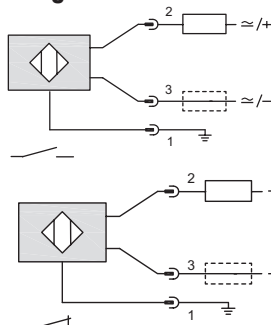
BROWN ≈/+
BLUE ≈/−

BROWN −
BLUE +

Diagram 2

BROWN
BLUE

Diagram 3

BROWN ≈/+
BLUE ≈/−

BROWN −
BLUE +

Diagram 4

2 ≈/+
3 ≈/−
1

2 −
3 +
1

Diagram 5

2 ≈/+
3 ≈/−
1

2 −
3 +
1

V Series AC & AC/DC Inductive Proximity Sensors

Dimensions
mm [inches]
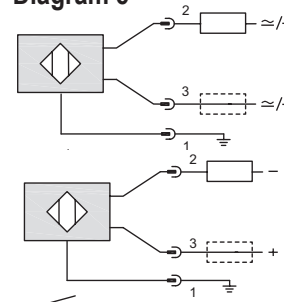
V Series M12 AC & AC/DC Inductive Proximity Specifications				
Models	VM1		V3M1	
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Sensing Distance (mm)	2	4	4	6
Operating Distance	NA		0–3.2 mm	0–4.9 mm
Material Correction Factors	See Material Influence Table			
Output Type	N.O.		N.O. or N.C. (VAC) 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 DC	NA		200mA	
AC	5–300 mA (RMS)		140mA	
Off-state Leakage Current DC	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.

Figure 1
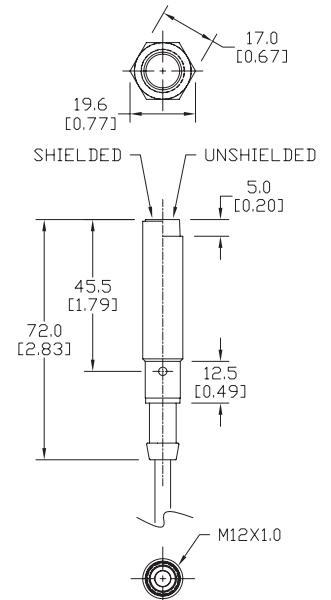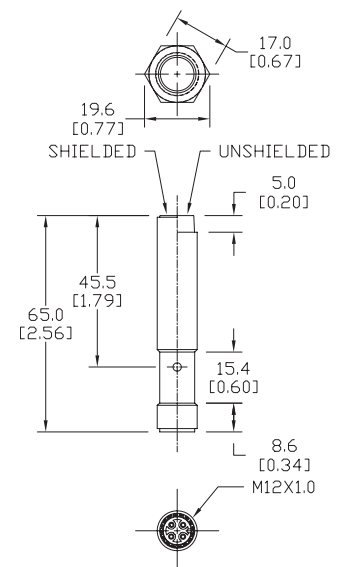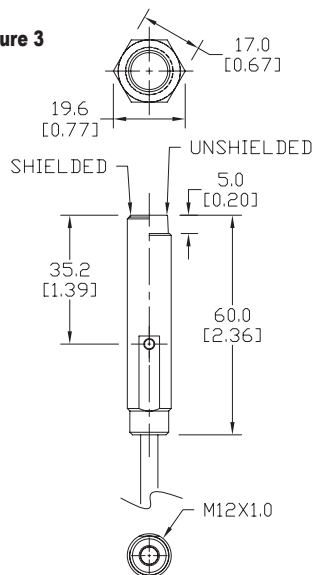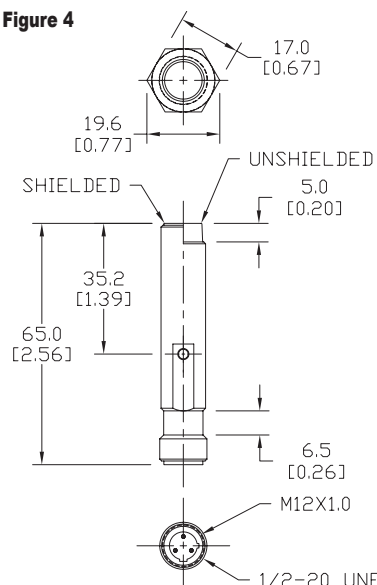

Figure 2

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.

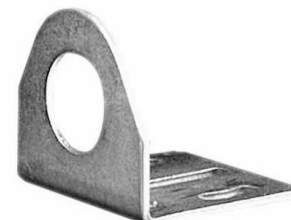| Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
ST12A	$2.00	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 12mm sensors.	PDF	0.03 [13.6]
ST12A7W	$7.25	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 12mm sensors.	PDF	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]
ST12C	$2.00	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 12mm sensors.	PDF	0.03 [13.6]
ST12C7W	$7.25	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 12mm sensors.	PDF	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]
OPT2035	$38.50	Wenglor mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel plated steel. For use with 12mm sensors.	PDF	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]**
OPT2102	$8.00	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors.	PDF	0.05 [22.7]
OPT2103	$8.00	Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors.	PDF	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]**
OPT2114	$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	PDF	0.14 [63.5]
OPT2115	$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	PDF	0.27 [122.5]

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).

OPT2114, OPT2115