# PNM Series Inductive Proximity Sensors

## M12 (12mm) Bronze-plated Brass - DC

- Low cost/high performance
- 32 models available
- Short and regular body styles
- IP65 / IP66 / IP67 / IP68 / IP69K rated
- Axial cable / M12 quick-disconnect; purchase cable separately
- Lifetime warranty

| PNM Series Inductive Prox Selection Chart (Short Body) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Part Number | Price | Sensing Range | Mounting | Output State | Logic | Connection | Wiring | Dimensions |
| **M12 Models (short body)** | | | | | | | | |
| PNM6-AN-3A | | 4mm (0.16 in) | Flush | N.O. | NPN | 2m axial cable | Diagram 1 | Figure 1 |
| PNM6-AN-3H | | 4mm (0.16 in) | Flush | N.O. | NPN | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PNM6-AN-4A | | 7mm (0.28 in) | Non-flush | N.O. | NPN | 2m axial cable | Diagram 1 | Figure 1 |
| PNM6-AN-4H | | 7mm (0.28 in) | Non-flush | N.O. | NPN | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PNM6-AP-3A | | 4mm (0.16 in) | Flush | N.O. | PNP | 2m axial cable | Diagram 2 | Figure 1 |
| PNM6-AP-3H | | 4mm (0.16 in) | Flush | N.O. | PNP | M12 (12mm) connector | Diagram 2 | Figure 2 |
| PNM6-AP-4A | | 7mm (0.28 in) | Non-flush | N.O. | PNP | 2m axial cable | Diagram 2 | Figure 1 |
| PNM6-AP-4H | | 7mm (0.28 in) | Non-flush | N.O. | PNP | M12 (12mm) connector | Diagram 2 | Figure 2 |
| PNM6-CN-3A | | 4mm (0.16 in) | Flush | N.C. | NPN | 2m axial cable | Diagram 3 | Figure 1 |
| PNM6-CN-3H | | 4mm (0.16 in) | Flush | N.C. | NPN | M12 (12mm) connector | Diagram 3 | Figure 2 |
| PNM6-CN-4A | | 7mm (0.28 in) | Non-flush | N.C. | NPN | 2m axial cable | Diagram 3 | Figure 1 |
| PNM6-CN-4H | | 7mm (0.28 in) | Non-flush | N.C. | NPN | M12 (12mm) connector | Diagram 3 | Figure 2 |
| PNM6-CP-3A | | 4mm (0.16 in) | Flush | N.C. | PNP | 2m axial cable | Diagram 4 | Figure 1 |
| PNM6-CP-3H | | 4mm (0.16 in) | Flush | N.C. | PNP | M12 (12mm) connector | Diagram 4 | Figure 2 |
| PNM6-CP-4A | | 7mm (0.28 in) | Non-flush | N.C. | PNP | 2m axial cable | Diagram 4 | Figure 1 |
| PNM6-CP-4H | | 7mm (0.28 in) | Non-flush | N.C. | PNP | M12 (12mm) connector | Diagram 4 | Figure 2 |

| PNM Series  Inductive Prox Selection Chart  (Regular Body) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Part Number | Price | Sensing Range | Mounting | Output State | Logic | Connection | Wiring | Dimensions |
| **M12 Models (regular body)** | | | | | | | | |
| PNM-AN-3A | | 4mm (0.16 in) | Flush | N.O. | NPN | 2m axial cable | Diagram 1 | Figure 3 |
| PNM-AN-3H | | 4mm (0.16 in) | Flush | N.O. | NPN | M12 (12mm) connector | Diagram 1 | Figure 4 |
| PNM-AN-4A | | 7mm (0.28 in) | Non-flush | N.O. | NPN | 2m axial cable | Diagram 1 | Figure 3 |
| PNM-AN-4H | | 7mm (0.28 in) | Non-flush | N.O. | NPN | M12 (12mm) connector | Diagram 1 | Figure 4 |
| PNM-AP-3A | | 4mm (0.16 in) | Flush | N.O. | PNP | 2m axial cable | Diagram 2 | Figure 3 |
| PNM-AP-3H | | 4mm (0.16 in) | Flush | N.O. | PNP | M12 (12mm) connector | Diagram 2 | Figure 4 |
| PNM-AP-4A | | 7mm (0.28 in) | Non-flush | N.O. | PNP | 2m axial cable | Diagram 2 | Figure 3 |
| PNM-AP-4H | | 7mm (0.28 in) | Non-flush | N.O. | PNP | M12 (12mm) connector | Diagram 2 | Figure 4 |
| PNM-CN-3A | | 4mm (0.16 in) | Flush | N.C. | NPN | 2m axial cable | Diagram 3 | Figure 3 |
| PNM-CN-3H | | 4mm (0.16 in) | Flush | N.C. | NPN | M12 (12mm) connector | Diagram 3 | Figure 4 |
| PNM-CN-4A | | 7mm (0.28 in) | Non-flush | N.C. | NPN | 2m axial cable | Diagram 3 | Figure 3 |
| PNM-CN-4H | | 7mm (0.28 in) | Non-flush | N.C. | NPN | M12 (12mm) connector | Diagram 3 | Figure 4 |
| PNM-CP-3A | | 4mm (0.16 in) | Flush | N.C. | PNP | 2m axial cable | Diagram 4 | Figure 3 |
| PNM-CP-3H | | 4mm (0.16 in) | Flush | N.C. | PNP | M12 (12mm) connector | Diagram 4 | Figure 4 |
| PNM-CP-4A | | 7mm (0.28 in) | Non-flush | N.C. | PNP | 2m axial cable | Diagram 4 | Figure 3 |
| PNM-CP-4H | | 7mm (0.28 in) | Non-flush | N.C. | PNP | M12 (12mm) connector | Diagram 4 | Figure 4 |

# PN Series Inductive Proximity Sensors

| PN Series Specifications | M12 Models (PNM) | M18 Models (PNK) | M30 Models (PNT) |
|---|---|---|---|
| **Mounting Type** | Flush or Non-flush | | |
| **Nominal Sensing Distance** | Flush: 4mm (0.16 in) Non-flush: 7mm (0.28 in) | Flush: 8mm (0.31 in) Non-flush:12mm (0.47 in) | Flush: 15mm (0.6 in) Non-flush: 22mm (0.79 in) |
| **Operating Distance** | Flush: 0 to 3.24 mm Non-flush: 0 to 5.67 mm | Flush: 0 to 6.48 mm Non-flush: 0 to 9.72 mm | Flush: 0 to 12.15 mm Non-flush: 0 to 17.82 mm |
| **Material Correction Factors** | See the Material influence table | | |
| **Output Type** | NPN or PNP, N.O. or N.C. | | |
| **Operating Voltage** | 10 to 30 VDC | | |
| **No-load Supply Current** | <10 mA | | |
| **Operating (Load) Current** | 100mA | | |
| **Off-state (Leakage) Current** | For 3-wire (< 50µ) | | |
| **Voltage Drop** | <2.5 V | | |
| **Switching Frequency** | 700Hz | Flush 400Hz; Non-flush 300Hz | 100Hz |
| **Differential Travel (% of Nominal Distance)** | 3 . . . 15 | | |
| **Repeat Accuracy** | < 10% | | |
| **Ripple** | NA | | |
| **Time Delay Before Availability (tv)** | NA | | |
| **Reverse Polarity Protection** | Yes | | |
| **Short-circuit Protection** | Yes, pulsed | | |
| **Operating Temperature** | -40° to 85°C (-40° to 185°F) | | |
| **Protection Degree (DIN 40050)** | IP65, IP66, IP67, IP68, IP69K | | |
| **Indication/Switch Status** | Yellow (output energized), 1 LED prewired/4 LEDs for quick disconnect | | |
| **Housing Material** | Housing: brass, bronze-plated; PEI; Lock nuts: brass | | |
| **Sensing Face Material** | Polybutylene Terephthalate (PBT) | | |
| **Shock/Vibration** | See Proximity Sensor Terminology | | |
| **Tightening Torque** | Connector type: 7Nm (1.57 lb-ft) Cable type: 12Nm (2.70 lb-ft) | 25 Nm (5.62 lb-ft) | 50Nm (11.21 lb-ft) |
| **Weight** | NA | | |
| **Connectors** | M12 connector/2m axial cable. 2 lock nuts included | | |
| **Agency Approvals** | M12 Connector versions cULus file E328811, CE, RoHS; Cable versions UL file E328811, CE, RoHS | | |

## Wiring diagrams

**Diagram 1**

NPN Output



**Diagram 2**

PNP Output
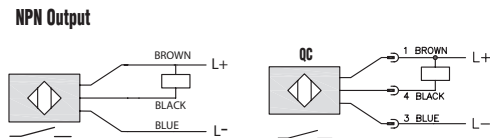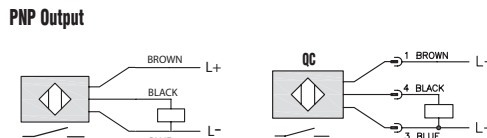


**Connector**

M12 connector



NO

**Diagram 3**

NPN Output


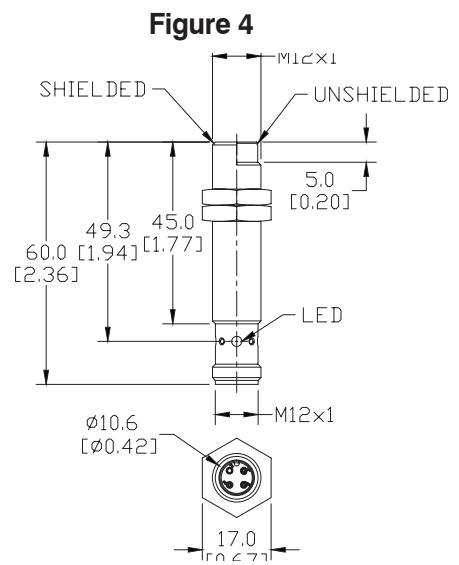
**Diagram 4**

PNP Output
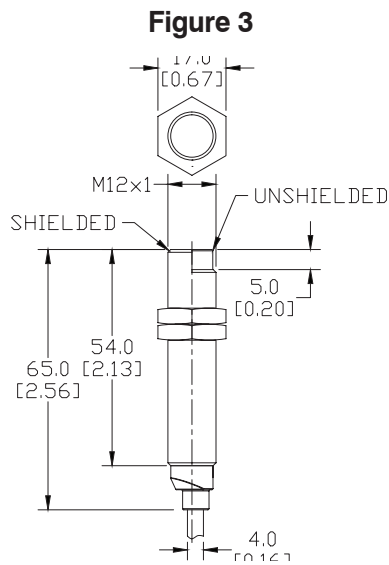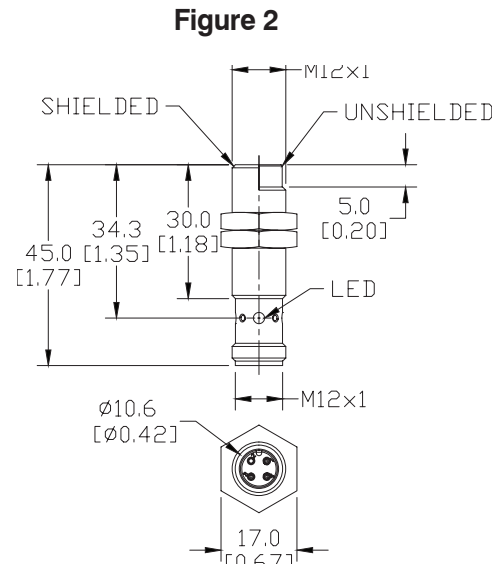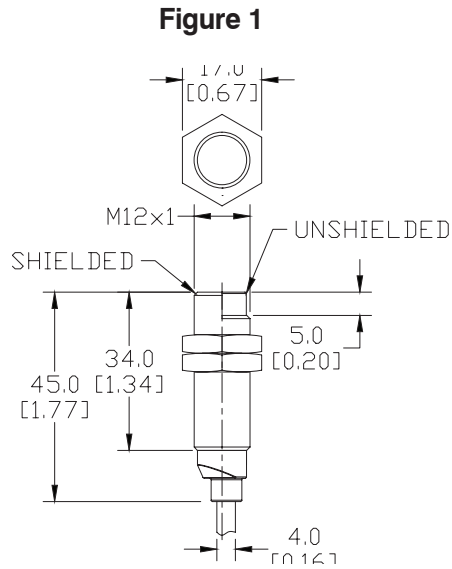


M12 connector



N. C.
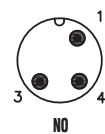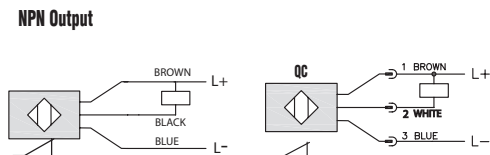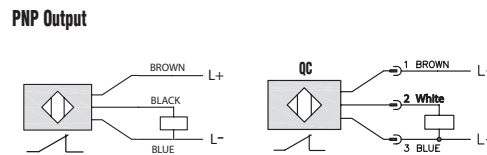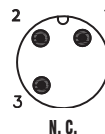
*Note: Use M12 4 connector cable. M12 3 connector cable will not work for normally closed units.

# PN Series Inductive Proximity Sensors

Dimensions
mm [inches]

**Figure 1**

17.0 [0.67]
M12×1
SHIELDED — UNSHIELDED
5.0 [0.20]
34.0 [1.34]
45.0 [1.77]
4.0 [0.16]

**Figure 2**

M12×1
SHIELDED — UNSHIELDED
5.0 [0.20]
34.3 [1.35]
30.0 [1.18]
45.0 [1.77]
LED
M12×1
Ø10.6 [Ø0.42]
17.0 [0.67]

**Figure 3**

17.0 [0.67]
M12×1
SHIELDED — UNSHIELDED
5.0 [0.20]
54.0 [2.13]
65.0 [2.56]
4.0 [0.16]

**Figure 4**

M12×1
SHIELDED — UNSHIELDED
5.0 [0.20]
49.3 [1.94]
45.0 [1.77]
60.0 [2.36]
LED
M12×1
Ø10.6 [Ø0.42]
17.0 [0.67]

**Figure 5**

24.0 [0.94]
M18×1
SHIELDED — UNSHIELDED
32.5 [1.28]
10.0 [0.39]
45.0 [1.77]
4.0 [0.16]

**Figure 6**

M18×1
SHIELDED — UNSHIELDED
34.3 [1.35]
29.2 [1.15]
10.0 [0.39]
45.0 [1.77]
M12×1
24.0 [0.94]

**Proximity Sensors**  tSEN-288
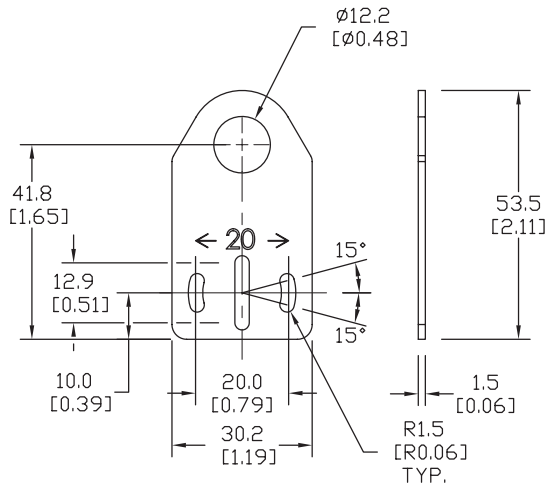
# Accessories for 12mm Sensors

## Axial Mounting Bracket

Mounting bracket, axial, available in zinc-plated steel or 316L staineless 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** | **Weight lb (g)** |
| **ST12A** | | Mounting bracket, axial, zinc plated steel. For use with 12mm sensors. | 0.03 |
| **ST12A7W** | | Mounting bracket, axial, 316L stainless steel. For use with 12mm sensors. | 0.03 |



**ST12A**

## Dimensions

mm [inches]



## 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** | **Weight lb (g)** |
| **ST12C** | | Mounting bracket, right-angle, zinc plated steel. For use with 12mm sensors. | 0.03 (13.6) |
| **ST12C7W** | | Mounting bracket, right-angle, 316L stainless steel. For use with 12mm sensors. | 0.03 (13.6) |



**ST12C**

## Dimensions

mm [inches]
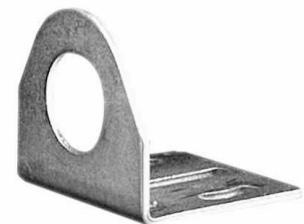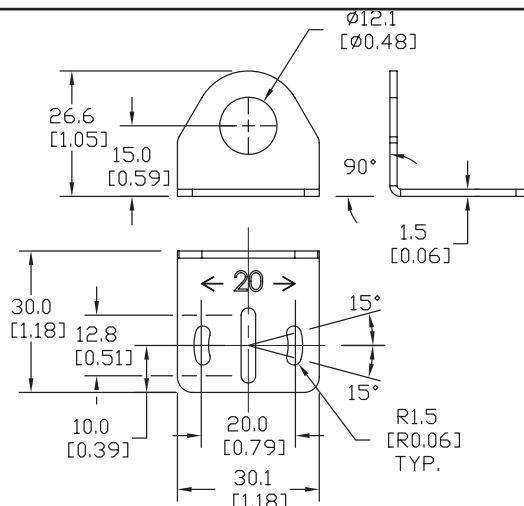
# Accessories for 12mm Sensors

## 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.


**OPT2102, OPT2103**

| Accessories for 12mm Sensors | | | | |
|---|---|---|---|---|
| Part Number | Price | Description | Drawing Link | Weight lb (g) |
| OPT2102 | | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors. | PDF | 0.05 (22.7) |
| OPT2103 | | Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors. | PDF | 0.05 (22.7) |

## 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.


**OPT2114, OPT2115**

| Accessories for 12mm Sensors | | | | | | |
|---|---|---|---|---|---|---|
| Part Number | Price | Description | Mounting Head | Mounting Plate | Drawing Link | Weight lb (g) |
| OPT2114 | | 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 | | 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).**

# 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 | | Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel. | PDF | 0.41 (185.97) |
| OPT2110 | | Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel. | PDF | 0.60 (272.16) |
| OPT2111 | | 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 | | Wenglor mounting bracket, right-angle, nickel plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111. | PDF | 0.07 (31.8) |