PNM Series Inductive Proximity Sensors

M12 (12mm) Bronze-plated Brass - DC

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

NEED CABLES?

PNM Series Inductive Proximity Selection Chart (Short Body)								
Part Number	**Price**	**Sensing Range**	**Mounting**	**Output State**	**Logic**	**Connection**	**Wiring**	**Dimensions**
M12 Models (short body)								
PNM6-AN-3A	$22.50	4mm [0.16 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
PNM6-AN-3H	$22.50	4mm [0.16 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 2
PNM6-AN-4A	$22.50	7mm [0.28 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
PNM6-AN-4H	$22.50	7mm [0.28 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 2
PNM6-AP-3A	$22.50	4mm [0.16 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
PNM6-AP-3H	$22.50	4mm [0.16 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 2
PNM6-AP-4A	$22.50	7mm [0.28 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
PNM6-AP-4H	$22.50	7mm [0.28 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 2
PNM6-CN-3A	$22.50	4mm [0.16 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 1
PNM6-CN-3H	$22.50	4mm [0.16 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 2
PNM6-CN-4A	$22.50	7mm [0.28 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 1
PNM6-CN-4H	$22.50	7mm [0.28 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 2
PNM6-CP-3A	$22.50	4mm [0.16 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 1
PNM6-CP-3H	$22.50	4mm [0.16 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 2
PNM6-CP-4A	$22.50	7mm [0.28 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 1
PNM6-CP-4H	$22.50	7mm [0.28 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 2

PNM Series Inductive Proximity Selection Chart (Regular Body)								
Part Number	**Price**	**Sensing Range**	**Mounting**	**Output State**	**Logic**	**Connection**	**Wiring**	**Dimensions**
M12 Models (regular body)								
PNM-AN-3A	$23.50	4mm [0.16 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 3
PNM-AN-3H	$23.50	4mm [0.16 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 4
PNM-AN-4A	$23.50	7mm [0.28 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 3
PNM-AN-4H	$23.50	7mm [0.28 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 4
PNM-AP-3A	$23.50	4mm [0.16 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 3
PNM-AP-3H	$23.50	4mm [0.16 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 4
PNM-AP-4A	$23.50	7mm [0.28 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 3
PNM-AP-4H	$23.50	7mm [0.28 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 4
PNM-CN-3A	$23.50	4mm [0.16 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 3
PNM-CN-3H	$23.50	4mm [0.16 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 4
PNM-CN-4A	$23.50	7mm [0.28 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 3
PNM-CN-4H	Retired	7mm [0.28 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 4
PNM-CP-3A	Retired	4mm [0.16 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 3
PNM-CP-3H	$23.50	4mm [0.16 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 4
PNM-CP-4A	$23.50	7mm [0.28 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 3
PNM-CP-4H	$23.50	7mm [0.28 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 4

PN Series Inductive Proximity Sensors

PN Series Specifications			
Sensor	**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 [6.5 ft] axial cable. 2 lock nuts included		
Agency Approvals	M12 Connector versions cULus file E328811, CE, RoHS; Cable versions UL file E328811, CE, RoHS		

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

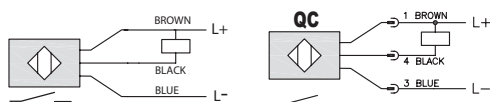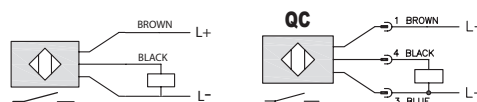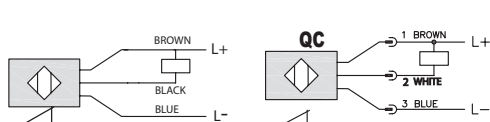**NPN Output**

Diagram 2

PNP Output

Connector

M12 connector

NO

Diagram 3

NPN Output

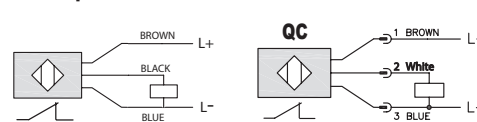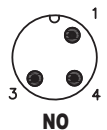**Diagram 4**

PNP Output

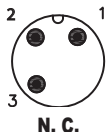**M12 connector**

N. C.

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

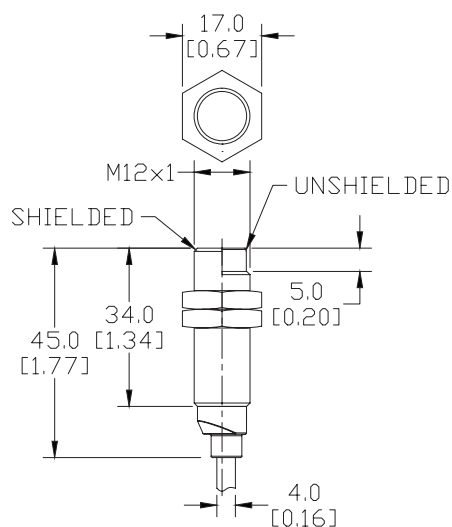# PN Series Inductive Proximity Sensors
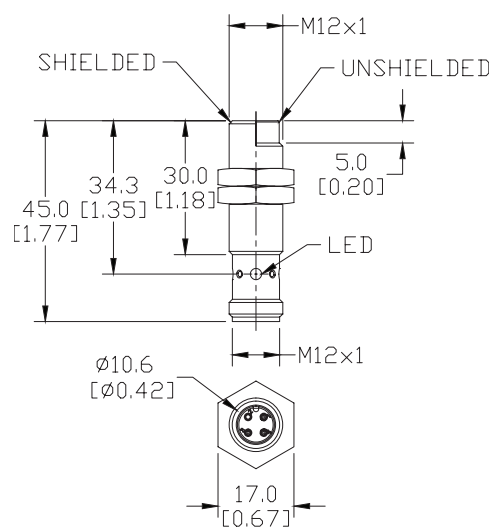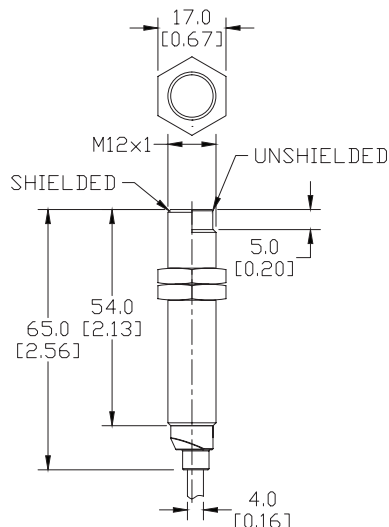
Dimensions

mm [inches]

Figure 1

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

Figure 2

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

Figure 3

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

Figure 4

M12×1
SHIELDED
UNSHIELDED
5.0 [0.20]
49.3
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
UNSHIELDED
SHIELDED
32.5 [1.28]
10.0 [0.39]
45.0 [1.77]
4.0 [0.16]

Figure 6

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

Proximity Sensors tSEN-336
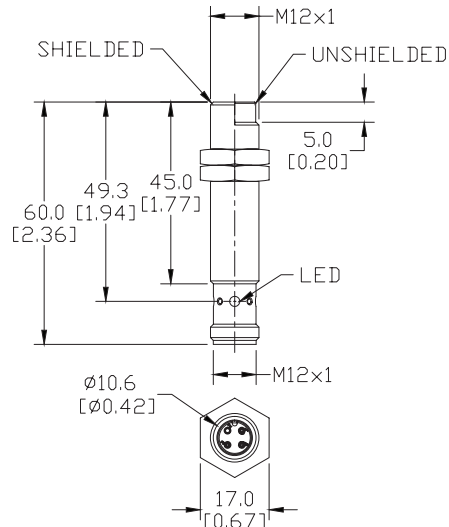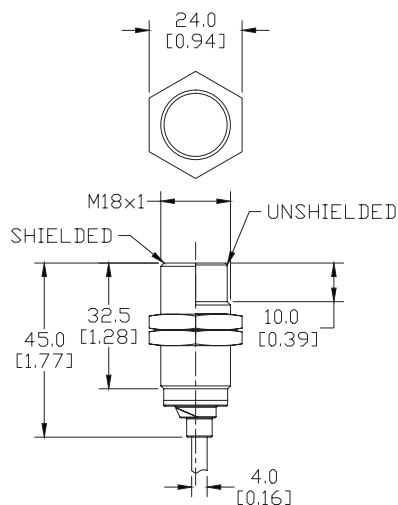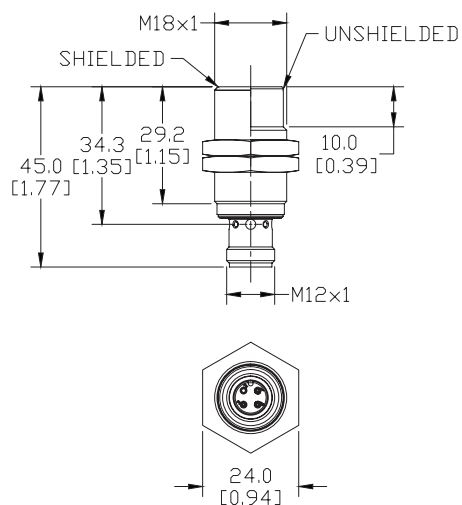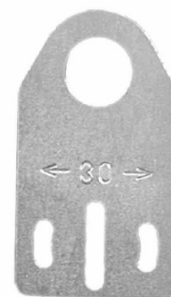
Accessories for 12mm Sensors

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 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

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	$13.00	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	PDF	0.41 [185.97]
OPT2110	$16.00	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	PDF	0.60 [272.16]
OPT2111	$21.00	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	$16.00	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	PDF	0.07 [31.8]