# **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



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	

	PNI	M Series Ind	luctive Pro	oximity Sele	ction C	hart (Regular Body	<u>'</u> )	
Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
M12 Models (regula	ar 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

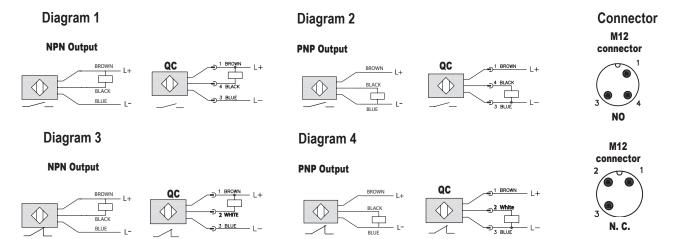
www.automationdirect.com Proximity Sensors tSEN-331

# **PN Series Inductive Proximity Sensors**

	PN Series Specif	ications			
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					
Switching Frequency	700Hz	Flush 400Hz; Non-flush 300Hz	100Hz		
Differential Travel (% of Nominal Distance)	3 - 15				
Repeat Accuracy	< 10%				
Ripple	NA NA				
Time Delay Before Availability (tv)	NA 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 qu	ick 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 cor	nnector/2m [6.5 ft] axial cable. 2 lock nuts i	ncluded		
Agency Approvals	M12 Connector versions cUL	us file E328811, CE, RoHS; Cable version	s 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

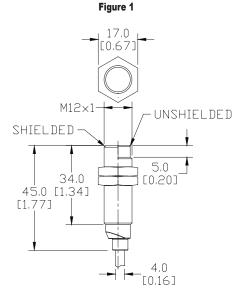


\*Note: Use M12 4 connector cable. M12 3 connector cable will not work for normally closed units.

# **PN Series Inductive Proximity Sensors**

#### **Dimensions**

mm [inches]



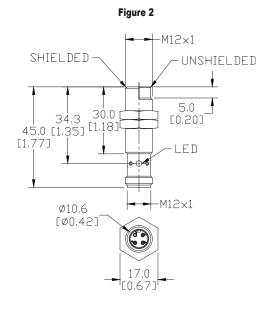


Figure 3

17.0

UNSHIEL DED

SHIEL DED

5.0

[0.20]

4.0

[0.16]

Figure 4

SHIELDED UNSHIELDED

5.0

[0.20]

49.3 45.0

60.0 [1.94] [1.77]
[2.36]

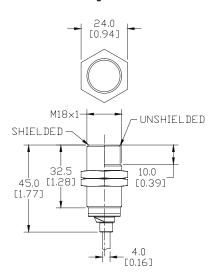
### M12x1

[0.60]

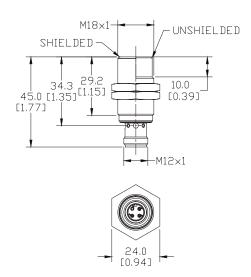
### M12x1

[0.67]

Figure 5







## **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.	<u>PDF</u>	0.03 [13.6]			
<u>ST12A7W</u>	\$7.25	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 12mm sensors.	<u>PDF</u>	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.	<u>PDF</u>	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.

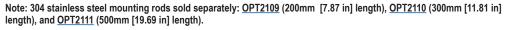
Accessories for 12mm Sensors							
Part Number	Price	Description	Drawing Link	Weight lb [g]			
<u>OPT2102</u>	\$8.00	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors.	<u>PDF</u>	0.05 [22.7]			
<u>OPT2103</u>	\$8.00	Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors.	<u>PDF</u>	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.

Accessories for 12mm Sensors									
Part Number	Price	Description	Mounting Head	Mounting Plate	Drawing Link	Weight Ib [g]			
<u>OPT2114</u>	\$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	<u>PDF</u>	0.14 [63.5]			
<u>OPT2115</u>	\$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]			





**OPT2114, OPT2115** 

# **Mounting Rods and Brackets**

#### **Mounting Rods**

304 Stainless steel rods for mounting swivel brackets <u>OPT2112</u> - <u>OPT2127</u> 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)				
<u>OPT2109</u>	\$13.00	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	PDF	0.41 [185.97]				
<u>OPT2110</u>	\$16.00	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	PDF	0.60 [272.16]				
<u>OPT2111</u>	\$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 Ib [g]			
<u>OPT2108</u>	\$16.00	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	<u>PDF</u>	0.07 [31.8]			



www.automationdirect.com