

# 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	Housing	Output State	Logic	Connection	Wiring	Dimensions
<b>M12 Models (short body)</b>								
<b>PNM6-AN-3A</b>	\$18.75	4mm (0.16 in)	Shielded	NO	NPN	2m axial cable	Diagram 1	Figure 1
<b>PNM6-AN-3H</b>	\$18.75	4mm (0.16 in)	Shielded	NO	NPN	M12 (12 mm) connector	Diagram 1	Figure 2
<b>PNM6-AN-4A</b>	\$18.75	7mm (0.28 in)	Unshielded	NO	NPN	2m axial cable	Diagram 1	Figure 1
<b>PNM6-AN-4H</b>	\$18.75	7mm (0.28 in)	Unshielded	NO	NPN	M12 (12 mm) connector	Diagram 1	Figure 2
<b>PNM6-AP-3A</b>	\$18.75	4mm (0.16 in)	Shielded	NO	PNP	2m axial cable	Diagram 2	Figure 1
<b>PNM6-AP-3H</b>	\$18.75	4mm (0.16 in)	Shielded	NO	PNP	M12 (12 mm) connector	Diagram 2	Figure 2
<b>PNM6-AP-4A</b>	\$18.75	7mm (0.28 in)	Unshielded	NO	PNP	2m axial cable	Diagram 2	Figure 1
<b>PNM6-AP-4H</b>	\$18.75	7mm (0.28 in)	Unshielded	NO	PNP	M12 (12 mm) connector	Diagram 2	Figure 2
<b>PNM6-CN-3A</b>	\$18.75	4mm (0.16 in)	Shielded	NC	NPN	2m axial cable	Diagram 3	Figure 1
<b>PNM6-CN-3H</b>	\$18.75	4mm (0.16 in)	Shielded	NC	NPN	M12 (12 mm) connector	Diagram 3	Figure 2
<b>PNM6-CN-4A</b>	\$18.75	7mm (0.28 in)	Unshielded	NC	NPN	2m axial cable	Diagram 3	Figure 1
<b>PNM6-CN-4H</b>	\$18.75	7mm (0.28 in)	Unshielded	NC	NPN	M12 (12 mm) connector	Diagram 3	Figure 2
<b>PNM6-CP-3A</b>	\$18.75	4mm (0.16 in)	Shielded	NC	PNP	2m axial cable	Diagram 4	Figure 1
<b>PNM6-CP-3H</b>	\$18.75	4mm (0.16 in)	Shielded	NC	PNP	M12 (12 mm) connector	Diagram 4	Figure 2
<b>PNM6-CP-4A</b>	\$18.75	7mm (0.28 in)	Unshielded	NC	PNP	2m axial cable	Diagram 4	Figure 1
<b>PNM6-CP-4H</b>	\$18.75	7mm (0.28 in)	Unshielded	NC	PNP	M12 (12 mm) connector	Diagram 4	Figure 2

PNM Series Inductive Prox Selection Chart (Regular Body)								
Part Number	Price	Sensing Range	Housing	Output State	Logic	Connection	Wiring	Dimensions
<b>M12 Models (regular body)</b>								
<b>PNM-AN-3A</b>	\$19.75	4mm (0.16 in)	Shielded	NO	NPN	2m axial cable	Diagram 1	Figure 3
<b>PNM-AN-3H</b>	\$19.75	4mm (0.16 in)	Shielded	NO	NPN	M12 (12 mm) connector	Diagram 1	Figure 4
<b>PNM-AN-4A</b>	\$19.75	7mm (0.28 in)	Unshielded	NO	NPN	2m axial cable	Diagram 1	Figure 3
<b>PNM-AN-4H</b>	\$19.75	7mm (0.28 in)	Unshielded	NO	NPN	M12 (12 mm) connector	Diagram 1	Figure 4
<b>PNM-AP-3A</b>	\$19.75	4mm (0.16 in)	Shielded	NO	PNP	2m axial cable	Diagram 2	Figure 3
<b>PNM-AP-3H</b>	\$19.75	4mm (0.16 in)	Shielded	NO	PNP	M12 (12 mm) connector	Diagram 2	Figure 4
<b>PNM-AP-4A</b>	\$19.75	7mm (0.28 in)	Unshielded	NO	PNP	2m axial cable	Diagram 2	Figure 3
<b>PNM-AP-4H</b>	\$19.75	7mm (0.28 in)	Unshielded	NO	PNP	M12 (12 mm) connector	Diagram 2	Figure 4
<b>PNM-CN-3A</b>	\$19.75	4mm (0.16 in)	Shielded	NC	NPN	2m axial cable	Diagram 3	Figure 3
<b>PNM-CN-3H</b>	\$19.75	4mm (0.16 in)	Shielded	NC	NPN	M12 (12 mm) connector	Diagram 3	Figure 4
<b>PNM-CN-4A</b>	\$19.75	7mm (0.28 in)	Unshielded	NC	NPN	2m axial cable	Diagram 3	Figure 3
<b>PNM-CN-4H</b>	\$19.75	7mm (0.28 in)	Unshielded	NC	NPN	M12 (12 mm) connector	Diagram 3	Figure 4
<b>PNM-CP-3A</b>	\$19.75	4mm (0.16 in)	Shielded	NC	PNP	2m axial cable	Diagram 4	Figure 3
<b>PNM-CP-3H</b>	\$19.75	4mm (0.16 in)	Shielded	NC	PNP	M12 (12 mm) connector	Diagram 4	Figure 4
<b>PNM-CP-4A</b>	\$19.75	7mm (0.28 in)	Unshielded	NC	PNP	2m axial cable	Diagram 4	Figure 3
<b>PNM-CP-4H</b>	\$19.75	7mm (0.28 in)	Unshielded	NC	PNP	M12 (12 mm) connector	Diagram 4	Figure 4

# PN Series Inductive Proximity Sensors

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

## Wiring diagrams

Diagram 1

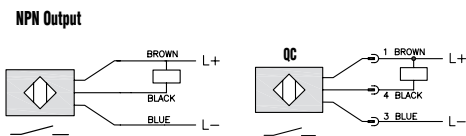
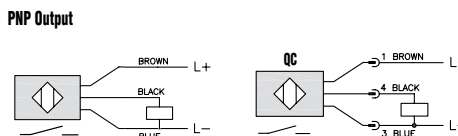


Diagram 2



Connector

M12 connector

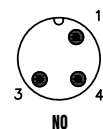


Diagram 3

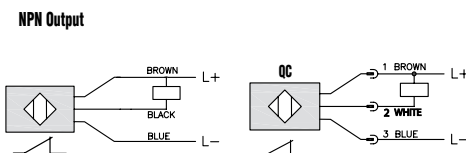
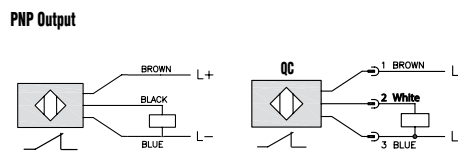
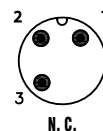


Diagram 4



M12 connector

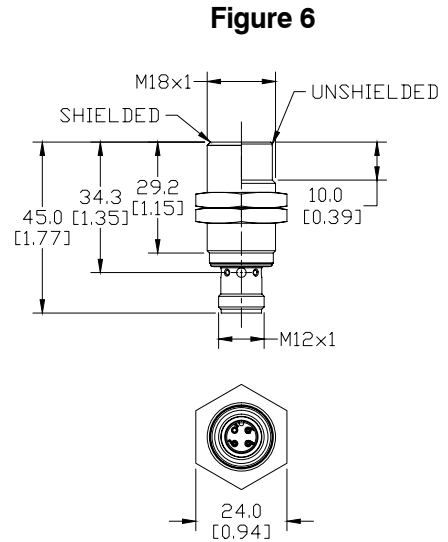
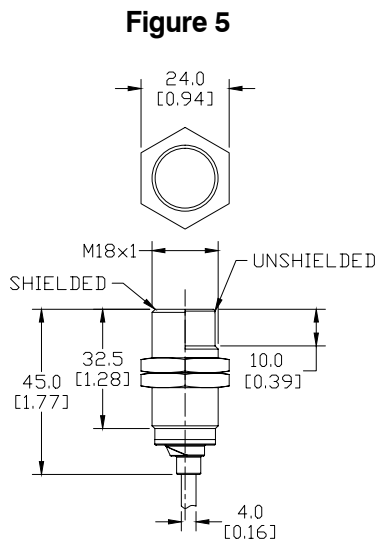
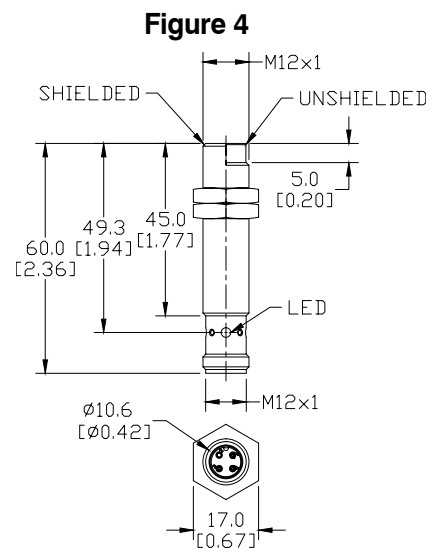
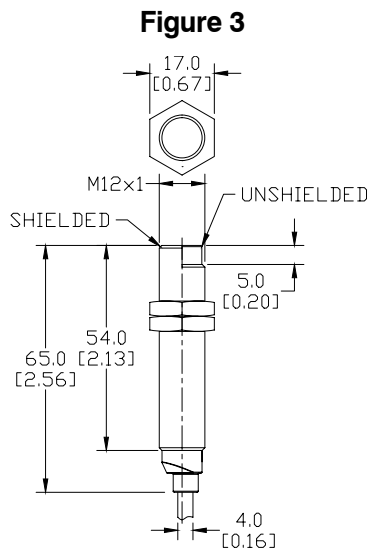
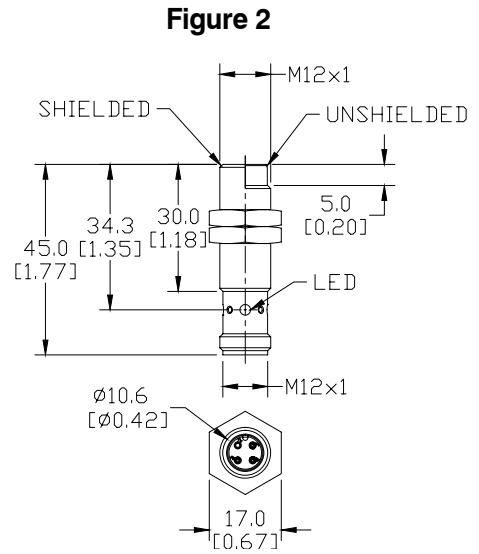
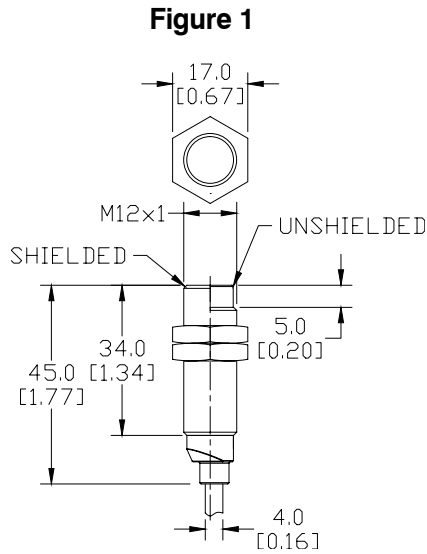


\*Note: Use M12 4 connector cable. M12 3 connector cable will not work for normally closed units.

# PN Series Inductive Proximity Sensors

## Dimensions

mm [inches]



# Accessories for 12mm Sensors

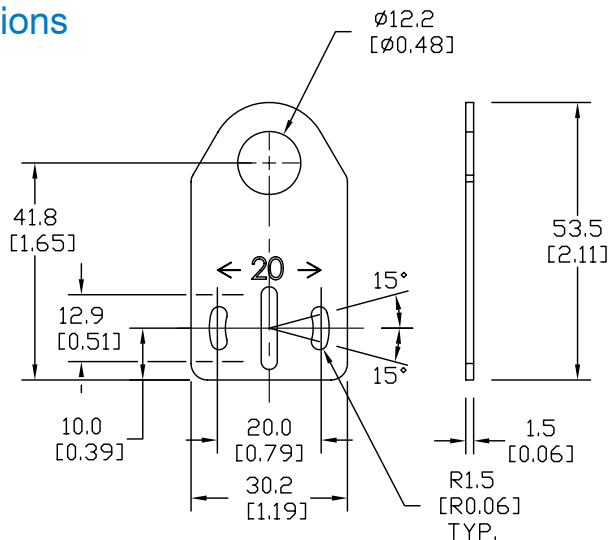
## Axial Mounting Bracket

Mounting bracket, axial, zinc-plated 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)
ST12A	\$2.00	Mounting bracket, axial, zinc-plated steel. For use with 12mm sensors. 1/pk.	0.03
ST12A7W	\$6.00	Mounting bracket, axial, 316L stainless steel. For use with 12mm sensors. 1/pk.	0.03

### Dimensions

mm [inches]



ST12A

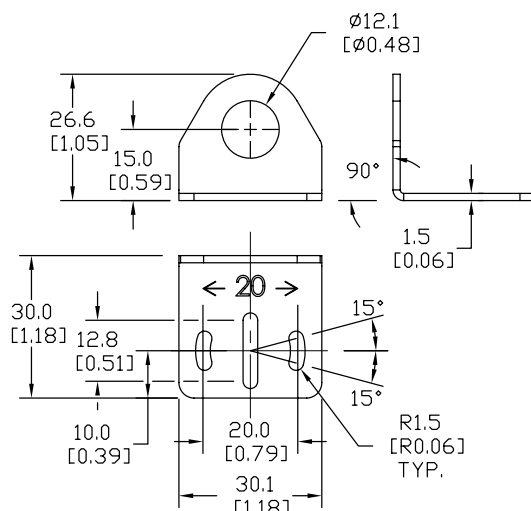
## Right-angle Mounting Bracket

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	Weight (lb)
ST12C	\$2.00	Mounting bracket, right angle, zinc-plated steel. For use with 12mm sensors. 1/pk.	0.03
ST12C7W	\$6.00	Mounting bracket, right angle, 316L stainless steel. For use with 12mm sensors. 1/pk.	0.03

### Dimensions

mm [inches]



ST12C

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings

# 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.

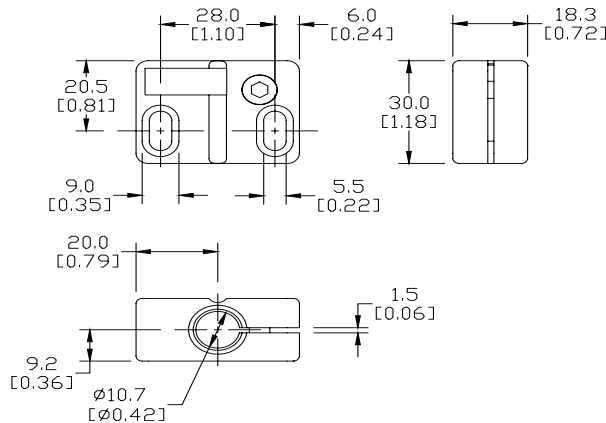
Accessories for 12mm Sensors					
Part Number	Price	Description	Weight [lb]		
<b>OPT2102</b>	\$6.00	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors.	0.05		
<b>OPT2103</b>	\$6.00	Mounting bracket, right-angle, plastic. For use with 12mm sensors.	0.05		



**OPT2102, OPT2103**

### Dimensions

mm [inches]



## 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	Weight [lb]
<b>OPT2114</b>	\$9.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 12mm sensors.	Aluminum	Stainless Steel	0.14
<b>OPT2115</b>	\$16.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 12mm sensors.	304 Stainless Steel	304 Stainless Steel	0.27

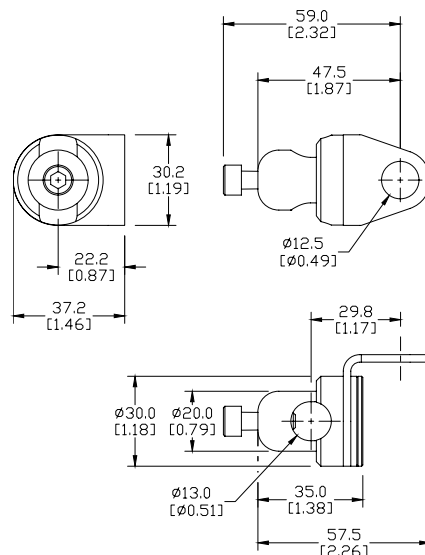
**Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).**



**OPT2114, OPT2115**

### Dimensions

mm [inches]



See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings

# Mounting Rods

## Mounting Rods

304 Stainless steel rods for mounting swivel brackets OPT2112 - OPT2127. Available in three lengths: 200mm, 300mm, and 500mm. 12mm diameter.

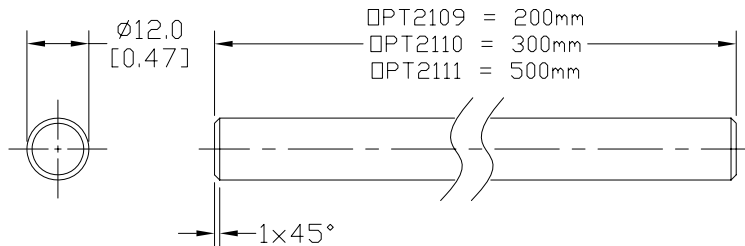
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
<b>OPT2109</b>	\$10.00	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
<b>OPT2110</b>	\$12.00	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
<b>OPT2111</b>	\$16.00	Mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	0.98



**OPT2109, OPT2110, OPT2111**

## Dimensions

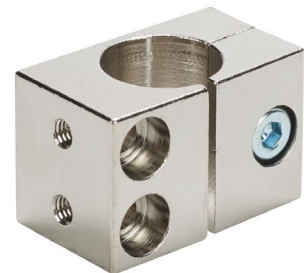
mm [inches]



## Right-angle Mounting Bracket

Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.

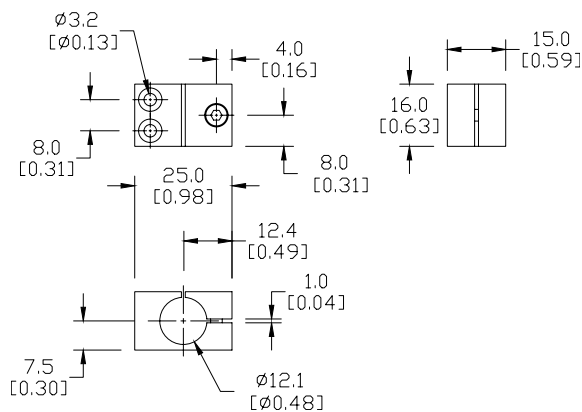
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
<b>OPT2108</b>	\$12.00	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



**OPT2108**

## Dimensions

mm [inches]



See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings