

# ProSense Basic M12 Inductive Proximity Sensors

## Basic Series Inductive Proxes M12 (12mm)



- Operating distance 2 to 4mm
- Nickel-plated brass housing
- LCP (Liquid Crystal Polymer) active face
- Normal range operating distance
- Cable or M12 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection



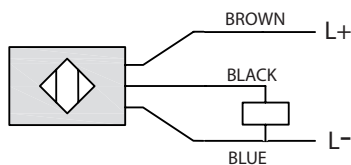
### Basic M12 Inductive Proximity Sensor Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
<b>Standard Distance</b>								
<a href="#">PBM6-AP-1A</a>	\$4n4a:	2mm [0.08 in]	Flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	<a href="#">PDF</a>
<a href="#">PBM6-AP-1H</a>	\$4n4b:	2mm [0.08 in]	Flush	N.O.	PNP	4-pin M12 connector	Diagram 3	<a href="#">PDF</a>
<a href="#">PBM6-CP-1A</a>	\$4n4c:	2mm [0.08 in]	Flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	<a href="#">PDF</a>
<a href="#">PBM6-CP-1H</a>	\$4n4e:	2mm [0.08 in]	Flush	N.C.	PNP	4-pin M12 connector	Diagram 3	<a href="#">PDF</a>
<a href="#">PBM6-AN-1A</a>	\$4n4f:	2mm [0.08 in]	Flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	<a href="#">PDF</a>
<a href="#">PBM6-AN-1H</a>	\$4n4g:	2mm [0.08 in]	Flush	N.O.	NPN	4-pin M12 connector	Diagram 4	<a href="#">PDF</a>
<a href="#">PBM6-AP-2A</a>	\$4n4h:	4mm [0.16 in]	Non-flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	<a href="#">PDF</a>
<a href="#">PBM6-AP-2H</a>	\$4n4i:	4mm [0.16 in]	Non-flush	N.O.	PNP	4-pin M12 connector	Diagram 3	<a href="#">PDF</a>
<a href="#">PBM6-CP-2A</a>	\$4n4k:	4mm [0.16 in]	Non-flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	<a href="#">PDF</a>
<a href="#">PBM6-CP-2H</a>	\$4n4l:	4mm [0.16 in]	Non-flush	N.C.	PNP	4-pin M12 connector	Diagram 3	<a href="#">PDF</a>
<a href="#">PBM6-AN-2A</a>	\$4n4n:	4mm [0.16 in]	Non-flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	<a href="#">PDF</a>
<a href="#">PBM6-AN-2H</a>	\$4n4o:	4mm [0.16 in]	Non-flush	N.O.	NPN	4-pin M12 connector	Diagram 4	<a href="#">PDF</a>

## Wiring Diagrams

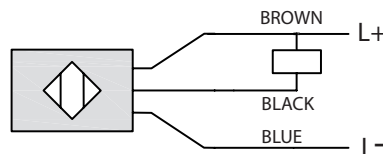
**Diagram 1**

**PNP Cable Version**



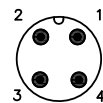
**Diagram 2**

**NPN Cable Version**



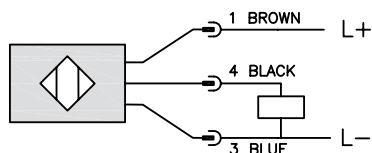
**Connector**

**M12 connector**



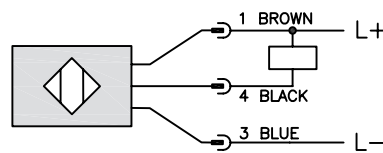
**Diagram 3**

**PNP M12 Connector**



**Diagram 4**

**NPN M12 Connector**



# ProSense Basic M12 Inductive Proximity Sensors

Basic M12 Inductive Proximity Sensor Specifications		
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	2mm [0.08 in]	4mm [0.16 in]
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	200mA	
Off-state (Leakage) Current	≤ 10mA	
Voltage Drop	≤ 1.8 V (I=100mA)	
Switching Frequency	1000Hz	
Hysteresis	< 10%	
Repeat Accuracy	< 3%	
Ripple	< 10%	
Time Delay Before Availability (tv)	< 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow, on when detecting	
Housing Material	Nickel-plated brass	
Sensing Face Material	LCP (Liquid Crystal Polymer)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	See Torque Table below	
Weight	110g [3.88 oz] (cable version) – 60g [2.12 oz] (M12 connector)	
Connection	2m [6.5 ft] PUR Cable, 3 pole, 26AWG or M12 Connector	
Agency Approvals	CE cULus E328811	

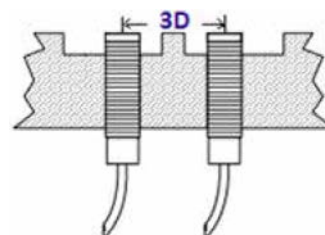
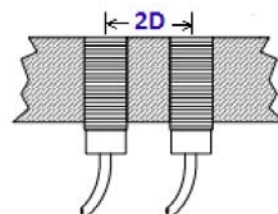
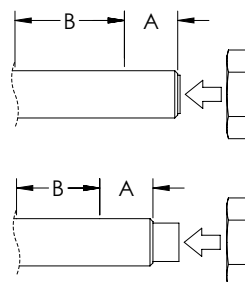
Installation Tightening Torque	
Mounting	Flush, non-flush mountable
Housing Material	Nickel plated brass
Diameter	12mm [0.47 in]
Tightening Torque for A (A = 11mm [0.43 in])	6 N•m [4.43 lb•ft]
Tightening Torque for B	10 N•m [7.38 lb•ft]

## Flush Mounting

Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be  $\geq 3sn$  (where  $sn$ =nominal switching distance), and the distance between two proximity switches (side by side) must be  $\geq 2D$ .

## Non-Flush Mounting

Non-flush models can be identified by their "caps," since they have no metal housing surrounding the area of the sensing face. The sensing face must extend  $\geq 2sn$  (where  $sn$ =nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be  $\geq 3sn$ , and the distance between two adjacent proximity switches must be  $\geq 3D$ . The metal body leaves uncovered part of the sensing area, resulting in an increased sensing distance.



# 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]
<a href="#"><u>ST12A</u></a>	\$97_:	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	0.03 [13.6]
<a href="#"><u>ST12A7W</u></a>	\$97#:	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	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]
<a href="#"><u>ST12C</u></a>	\$;97!:	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	0.03 [13.6]
<a href="#"><u>ST12C7W</u></a>	\$97?:	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	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]
<a href="#"><u>OPT2102</u></a>	\$-1nlq:	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	0.05 [22.7]
<a href="#"><u>OPT2103</u></a>	\$-1nls:	Wenglor mounting bracket, right-angle, plastic. For use with 12mm sensors.	<a href="#"><u>PDF</u></a>	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]
<a href="#"><u>OPT2114</u></a>	\$;-1nl[:	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 12mm sensors.	Aluminum	Stainless steel	<a href="#"><u>PDF</u></a>	0.14 [63.5]
<a href="#"><u>OPT2115</u></a>	\$-1nl_:	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	<a href="#"><u>PDF</u></a>	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)
<a href="#">OPT2109</a>	\$1nn9:	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	<a href="#">PDF</a>	0.41 [185.97]
<a href="#">OPT2110</a>	\$1nna:	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	<a href="#">PDF</a>	0.60 [272.16]
<a href="#">OPT2111</a>	\$1nnb:	Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	<a href="#">PDF</a>	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]
<a href="#">OPT2108</a>	\$-1nly:	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	<a href="#">PDF</a>	0.07 [31.8]

