

# ProSense Basic M18 Inductive Proximity Sensors



## Basic Series Inductive Proxies M18 (18mm)

- Operating distance 5 to 8mm
- 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 M18 Inductive Proximity Sensor Selection Chart

| Part Number                | Price   | Sensing Range | Mounting  | Output State | Logic | Connection                 | Wiring    | Drawing Link        |
|----------------------------|---------|---------------|-----------|--------------|-------|----------------------------|-----------|---------------------|
| <b>Standard Distance</b>   |         |               |           |              |       |                            |           |                     |
| <a href="#">PBK6-AP-1A</a> | \$12.00 | 5mm [0.20 in] | Flush     | N.O.         | PNP   | Cable, 3 pole, 2m [6.5 ft] | Diagram 1 | <a href="#">PDF</a> |
| <a href="#">PBK6-AP-1H</a> | \$13.00 | 5mm [0.20 in] | Flush     | N.O.         | PNP   | 4-pin M12 connector        | Diagram 3 | <a href="#">PDF</a> |
| <a href="#">PBK6-CP-1H</a> | \$13.00 | 5mm [0.20 in] | Flush     | N.C.         | PNP   | 4-pin M12 connector        | Diagram 3 | <a href="#">PDF</a> |
| <a href="#">PBK6-AN-1H</a> | \$13.00 | 5mm [0.20 in] | Flush     | N.O.         | NPN   | 4-pin M12 connector        | Diagram 4 | <a href="#">PDF</a> |
| <a href="#">PBK6-AP-2A</a> | \$12.00 | 8mm [0.31 in] | Non-flush | N.O.         | PNP   | Cable, 3 pole, 2m [6.5 ft] | Diagram 1 | <a href="#">PDF</a> |
| <a href="#">PBK6-AP-2H</a> | \$13.00 | 8mm [0.31 in] | Non-flush | N.O.         | PNP   | 4-pin M12 connector        | Diagram 3 | <a href="#">PDF</a> |
| <a href="#">PBK6-CP-2H</a> | \$13.00 | 8mm [0.31 in] | Non-flush | N.C.         | PNP   | 4-pin M12 connector        | Diagram 3 | <a href="#">PDF</a> |
| <a href="#">PBK6-AN-2H</a> | \$13.00 | 8mm [0.31 in] | Non-flush | N.O.         | NPN   | 4-pin M12 connector        | Diagram 4 | <a href="#">PDF</a> |

## Wiring Diagrams

**Diagram 1**

**PNP Cable Version**

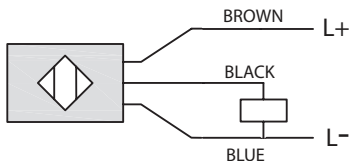
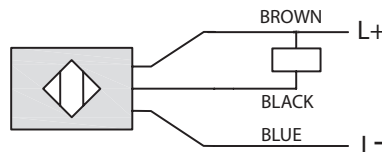


**Diagram 2**

**NPN Cable Version**



**Connector**

**M12 connector**



**Diagram 3**

**PNP M12 Connector**

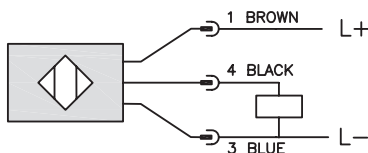
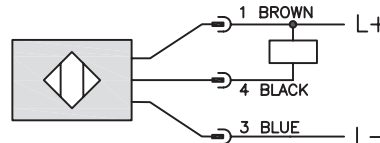


**Diagram 4**

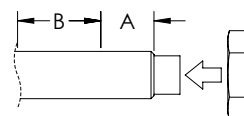
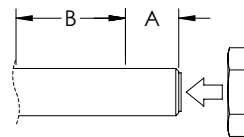
**NPN M12 Connector**



# ProSense Basic M18 Inductive Proximity Sensors

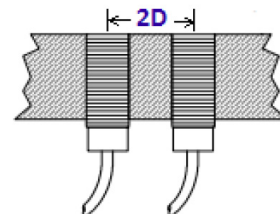
| Basic M18 Inductive Proximity Sensor Specifications |                                                                |               |
|-----------------------------------------------------|----------------------------------------------------------------|---------------|
| Mounting Type                                       | Flush                                                          | Non-flush     |
| Nominal Sensing Distance                            | 5mm [0.20 in]                                                  | 8mm [0.31 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                                              | 145g [5.11 oz] (cable version) – 95g [3.35 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                                     | 18mm [0.71 in]             |
| Tightening Torque for A (A = 11mm [0.43 in]) | 20 N•m [14.75 lb•ft]       |
| Tightening Torque for B                      | 30 N•m [22.13 lb•ft]       |



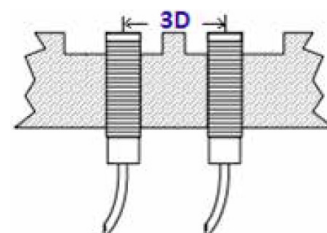
## Flush Mounting

Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be  $\geq 3s_n$  (where  $s_n$ =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  $\geq 2s_n$  (where  $s_n$ =nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be  $\geq 3s_n$ , 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 18mm Sensors

## Axial Mounting Bracket

Axial mounting bracket available in zinc plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included. For use with 18mm sensors.

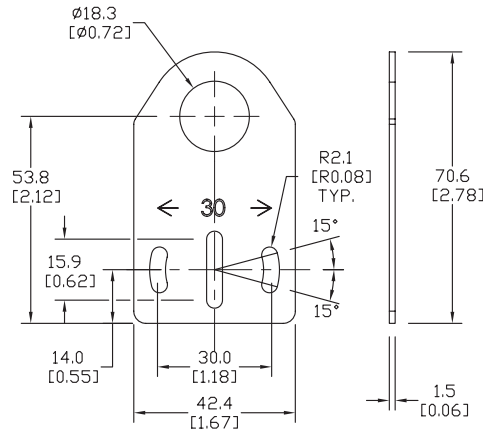
| Accessories for 18mm Sensors   |        |                                                                                           |               |
|--------------------------------|--------|-------------------------------------------------------------------------------------------|---------------|
| Part Number                    | Price  | Description                                                                               | Weight lb [g] |
| <a href="#"><u>ST18A</u></a>   | \$2.00 | Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.    | 0.06 [27.2]   |
| <a href="#"><u>ST18A7W</u></a> | \$7.25 | Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2]   |



**ST18A**

## Dimensions

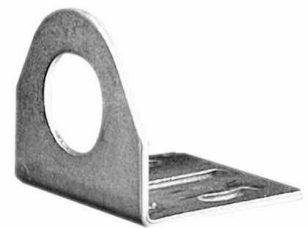
mm [inches]



## Right-angle Mounting Bracket

Right-angle mounting bracket for use with 18mm sensors. Has two mounting holes (use 4mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

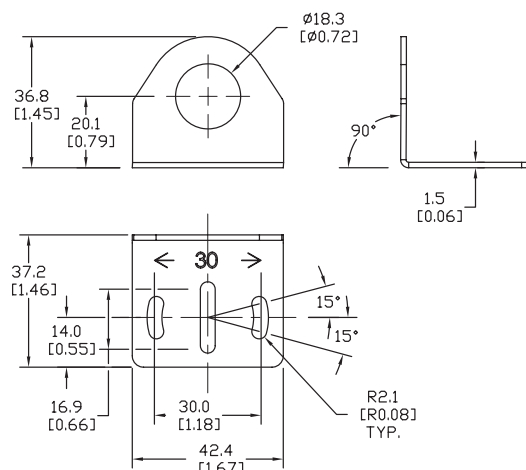
| Accessories for 18mm Sensors   |        |                                                                                                 |               |
|--------------------------------|--------|-------------------------------------------------------------------------------------------------|---------------|
| Part Number                    | Price  | Description                                                                                     | Weight lb [g] |
| <a href="#"><u>ST18C</u></a>   | \$2.00 | Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.    | 0.06 [27.2]   |
| <a href="#"><u>ST18C7W</u></a> | \$7.25 | Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2]   |



**ST18C**

## Dimensions

mm [inches]



# Accessories for 18mm Sensors

## Right-angle Mounting Brackets

Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. Available with or without fixed insertion stop.

| Accessories for 18mm Sensors |         |                                                                                                             |                     |               |
|------------------------------|---------|-------------------------------------------------------------------------------------------------------------|---------------------|---------------|
| Part Number                  | Price   | Description                                                                                                 | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2104</a>      | \$10.50 | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. | <a href="#">PDF</a> | 0.06 [27.2]   |
| <a href="#">OPT2105</a>      | \$10.50 | Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors.                                  | <a href="#">PDF</a> | 0.06 [27.2]   |



[OPT2104](#), [OPT2105](#)

## Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 18mm sensors. Available in all 304 stainless steel or with an aluminum head and a stainless steel mounting plate.

| Accessories for 18mm Sensors |         |                                                                                                                                                              |                     |                     |                     |               |
|------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------|
| Part Number                  | Price   | Description                                                                                                                                                  | Mounting Head       | Mounting Plate      | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2116</a>      | \$11.50 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.            | Aluminum            | 304 Stainless steel | <a href="#">PDF</a> | 0.15 [68.0]   |
| <a href="#">OPT2117</a>      | \$21.00 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors. | 304 Stainless steel | 304 Stainless steel | <a href="#">PDF</a> | 0.28 [127.0]  |



[OPT2116](#), [OPT2117](#)

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)    |
| <a href="#">OPT2109</a>                                 | \$13.00 | Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.41<br>[185.97] |
| <a href="#">OPT2110</a>                                 | \$16.00 | Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.60<br>[272.16] |
| <a href="#">OPT2111</a>                                 | \$21.00 | Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.98<br>[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>                        | \$16.00 | Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111. | <a href="#">PDF</a> | 0.07<br>[31.8] |

