

# PFK Series IP69K-rated Proximity Sensors

## 18mm Stainless Steel - DC



**PFK1-BN-1H**

- 18mm diameter
- 316 L stainless steel housing
- M12 quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M18 mounting hex nuts included
- Lifetime warranty



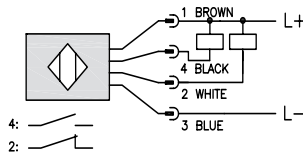
### PFK Series Food and Beverage DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard								
<a href="#">PFK1-BN-1H</a>	\$55.00	0 to 5 mm [0 to 0.197 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
<a href="#">PFK1-BP-1H</a>	\$55.00				PNP	M12 [12mm] connector	Diagram 2	Figure 3
<a href="#">PFK1-BN-2H</a>	\$55.00	0 to 8 mm [0 to 0.315 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
<a href="#">PFK1-BP-2H</a>	\$55.00				PNP	M12 [12mm] connector	Diagram 2	Figure 3
Extended								
<a href="#">PFK1-BN-3H</a>	\$55.00	0 to 8 mm [0 to 0.315 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
<a href="#">PFK1-BP-3H</a>	\$55.00				PNP	M12 [12mm] connector	Diagram 2	Figure 3
<a href="#">PFK1-BN-4H</a>	\$55.00	0 to 12 mm [0 to 0.472 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
<a href="#">PFK1-BP-4H</a>	\$55.00				PNP	M12 [12mm] connector	Diagram 2	Figure 3
<a href="#">PFK1-AP-4H</a>	Retired				N.O.	PNP	M12 [12mm] connector	Diagram 3

## Wiring Diagrams

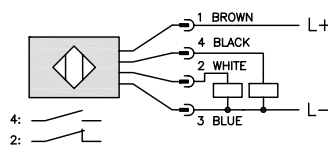
**Diagram 1**

**NPN Output**



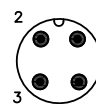
**Diagram 2**

**PNP Output**



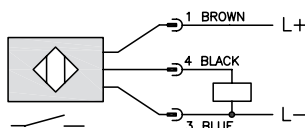
**Connector**

**M12 connector**



**Diagram 3**

**PNP Output**



Note: Class 2 power supply required

# PFK Series IP69K-rated Proximity Sensors

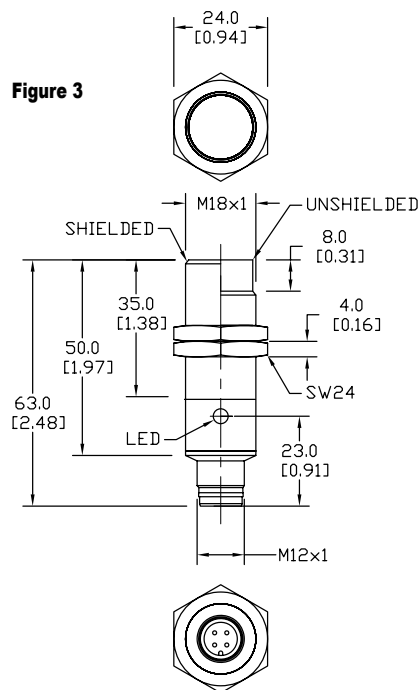
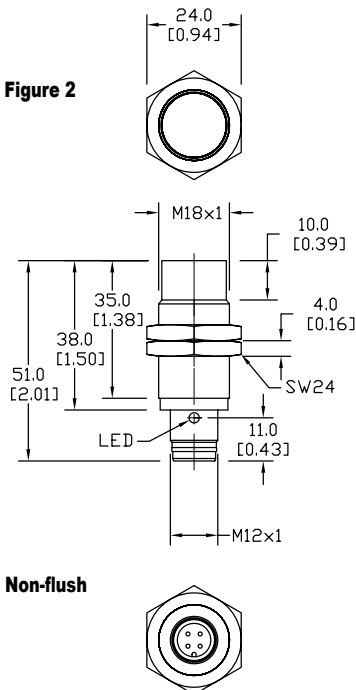
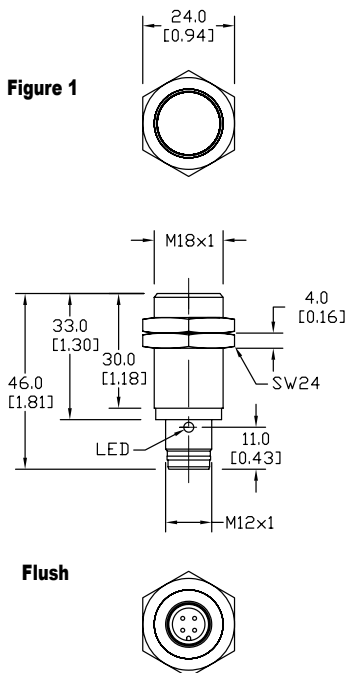
PFK Series Specifications	Standard		Extended			
Mounting Type	Flush	Non-flush	Flush	Non-flush	Flush*	Non-flush*
Nominal Sensing Distance	5mm [0.196 in]	8mm [0.315 in]	8mm [0.315 in]	12mm [0.472 in]	8mm [0.315 in]	12mm [0.472 in]
Operating Distance	NA					
Material Correction Factors	See the <a href="#">Material influence table</a>					
Output Type	NPN or PNP/4-wire, N.O./N.C.				PNP, N.O. only	
Operating Voltage	10 - 30 VDC				10 - 36 VDC	
No-load Supply Current	≤ 15mA				≤10mA	
Operating (Load) Current	≤200mA				≤ 100mA	
Off-state (Leakage) Current	≤10 µA				NA	
Voltage Drop	≤2.0 V				≤ 2.5 V	
Switching Frequency	1500Hz				600Hz	300Hz
Differential Travel (% of Nominal Distance)	1 - 20%					3 - 15%
Repeat Accuracy	5%				10%	
Ripple	≤10%				NA	
Time Delay Before Availability (tv)	50ms				30ms	
Reverse Polarity Protection	Yes					
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)					
Operating Temperature	-40 to 80°C [-40 to 176°F], Short exposure (15 minutes) to 100°C [212°F] during cleaning processes				0 to 100°C [32 to 212°F]	
Protection Degree (DIN 40050)	IEC IP67, IP68, IP69K				IEC IP68, IP69K	
Indication/Switch Status	Normally Open output energized - Yellow					
Housing Material	316 L stainless steel					
Sensing Face Material	PPS (FDA certified)				PEEK (Polyether Ether Ketone)	
Shock/Vibration	See <a href="#">Proximity Sensor Terminology</a>					
Tightening Torque	107 Nm [79 lb-ft]				50 Nm [37 lb-ft]	
Weight	35g [1.23 oz]				45g [1.587 oz]	
Connection	M12 plug with gold-plated pins					
Agency Approvals	UL file E187310, CE, ECOLAB, RoHS				UL file E187310, CE, ECOLAB, RoHS	

\* Part number PFK1-AP-4H have N.O. PNP outputs only.

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

## Dimensions

mm [inches]



# 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.

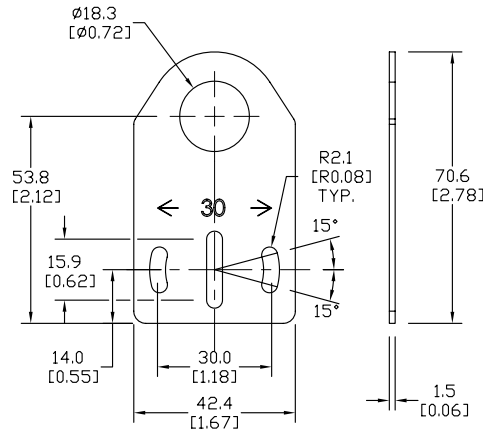
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18A</b>	\$2.25	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18A7W</b>	\$8.00	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



**ST18A**

## Dimensions

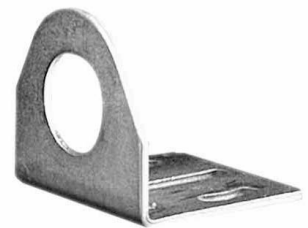
mm [inches]



## 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.

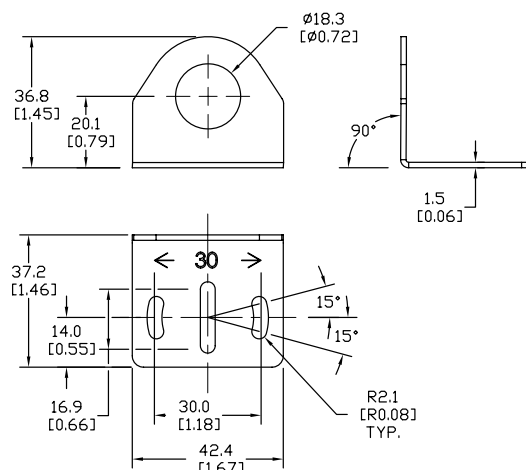
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18C</b>	\$2.25	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18C7W</b>	\$8.00	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



**ST18C**

## Dimensions

mm [inches]



# Accessories for 18mm Sensors

## Right-angle Fine Tune Mounting Bracket

Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors. Allows for fine tuning vertical and horizontal placement.

Accessories for 18mm Sensors				
Part Number	Price	Description	Drawing Link	Weight [lb]
<b>OPT2036</b>	\$41.50	Wenglor mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel plated steel. For use with 18mm sensors.	<a href="#">PDF</a>	0.02

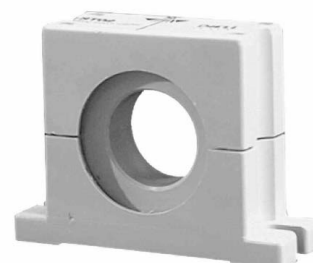


**OPT2036**

## Swivel Mounting Bracket

Mounting bracket, ball swivel, plastic. For use with 18mm sensors. Has a ball-joint and set screws to adjust sensor orientation. Allows angular orientation up to 15 degrees (from center) in all directions for photoelectric sensors (Will not work with C18 series).

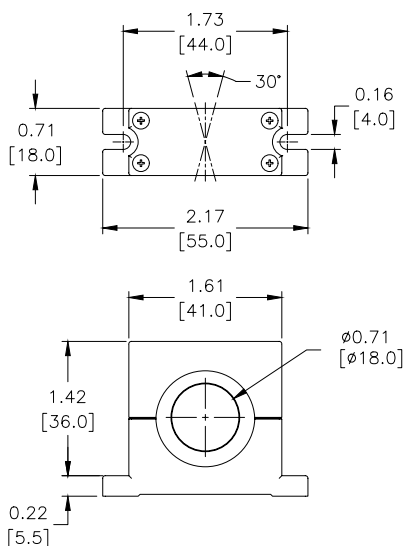
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
ST02	\$10.50	Micro Detectors mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06



**ST02**

## 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>	\$11.50	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>	\$11.50	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>	\$12.50	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>	\$22.50	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>	\$14.00	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	<a href="#">PDF</a>	0.41 [185.97]
<a href="#">OPT2110</a>	\$17.50	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	<a href="#">PDF</a>	0.60 [272.16]
<a href="#">OPT2111</a>	\$22.50	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>	\$17.50	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]

