

# PFK Series IP69K-rated Proximity Sensors

## 18 mm stainless steel - DC



**PFK1-BN-1H**

- 10 models available
- 18 mm 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

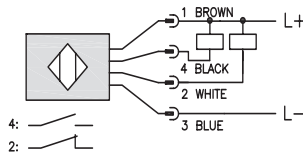


PFK Series Food and Beverage DC Inductive Prox Selection Chart								
Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
<b>Standard</b>								
<b>PFK1-BN-1H</b>	\$54.00	0 to 5 mm (0 to 0.197 in)	Flush	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-1H</b>	\$54.00				PNP	M12 (12mm) connector	Diagram 2	Figure 3
<b>PFK1-BN-2H</b>	\$54.00	0 to 8 mm (0 to 0.315 in)	Non-flush	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-2H</b>	\$54.00				PNP	M12 (12mm) connector	Diagram 2	Figure 3
<b>Extended</b>								
<b>PFK1-BN-3H</b>	\$54.00	0 to 8 mm (0 to 0.315 in)	Flush	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-3H</b>	\$54.00				PNP	M12 (12mm) connector	Diagram 2	Figure 3
<b>PFK1-AP-3H</b>	\$38.50			N.O.	PNP	M12 (12mm) connector	Diagram 3	Figure 1
<b>PFK1-BN-4H</b>	\$59.00	0 to 12 mm (0 to 0.472 in)	Non-flush	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-4H</b>	\$59.00				PNP	M12 (12mm) connector	Diagram 2	Figure 3
<b>PFK1-AP-4H</b>	\$38.50				N.O.	M12 (12mm) connector	Diagram 3	Figure 2

## Wiring diagrams

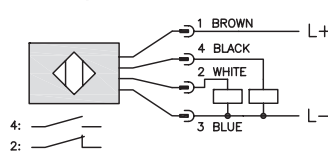
**Diagram 1**

NPN Output



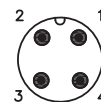
**Diagram 2**

PNP Output



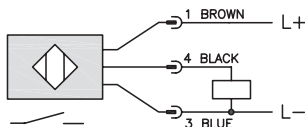
**Connector**

M12 connector



**Diagram 3**

PNP Output



**NOTE: CLASS 2 POWER SUPPLY REQUIRED**

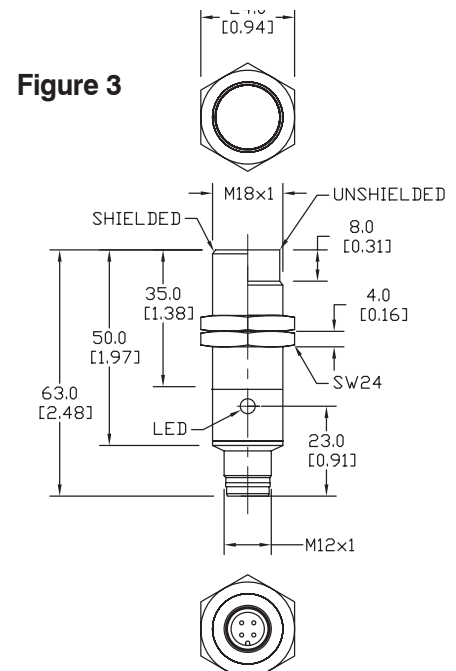
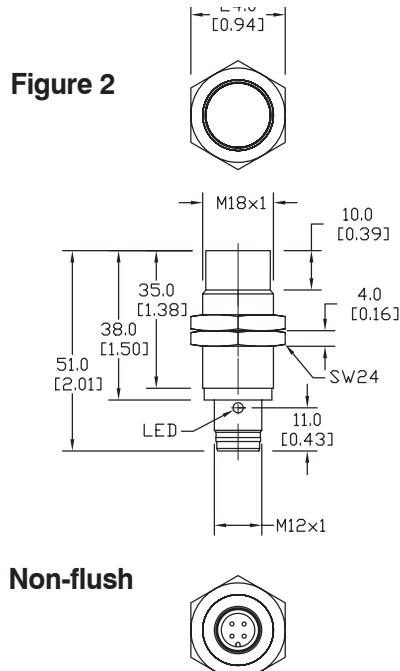
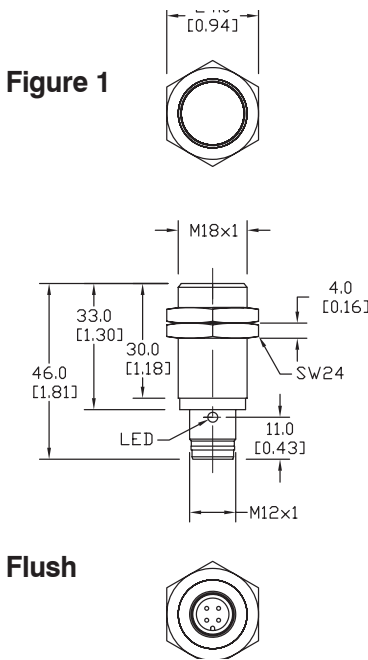
# PFK Series IP69K-rated Proximity Sensors

PFK Series Specifications	Standard		Extended			
	Flush	Non-flush	Flush	Non-flush	Flush*	Non-flush*
<b>Mounting Type</b>	Flush	Non-flush	Flush	Non-flush	Flush*	Non-flush*
<b>Nominal Sensing Distance</b>	5 mm (0.196 in)	8 mm (0.315 in)	8 mm (0.315 in)	12 mm (0.472 in)	8 mm (0.315 in)	12 mm (0.472 in)
<b>Operating Distance</b>	NA					
<b>Material Correction Factors</b>	See the <a href="#">Material influence table</a>					
<b>Output Type</b>	NPN or PNP/4-wire, N.O./N.C.				PNP, N.O. only	
<b>Operating Voltage</b>	10 - 30 VDC				10 - 36 VDC	
<b>No-load Supply Current</b>	≤ 15mA				≤ 10mA	
<b>Operating (Load) Current</b>	≤ 200mA				≤ 100mA	
<b>Off-state (Leakage) Current</b>	≤ 10 μA				NA	
<b>Voltage Drop</b>	≤ 2.0 V				≤ 2.5 V	
<b>Switching Frequency</b>	1500Hz				600Hz	300Hz
<b>Differential Travel (% of Nominal Distance)</b>	1 - 20%					3 - 15%
<b>Repeat Accuracy</b>	5%				10%	
<b>Ripple</b>	≤ 10%				NA	
<b>Time Delay Before Availability (tv)</b>	50ms				30ms	
<b>Reverse Polarity Protection</b>	Yes					
<b>Short-Circuit Protection</b>	Yes (switch auto-resets after overload is removed)					
<b>Operating Temperature</b>	-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)	
<b>Protection Degree (DIN 40050)</b>	IEC IP67, IP68, IP69K				IEC IP68, IP69K	
<b>Indication/Switch Status</b>	Normally Open output energized - Yellow					
<b>Housing Material</b>	316 L stainless steel					
<b>Sensing Face Material</b>	PPS (FDA certified)				PEEK (Polyether Ether Ketone)	
<b>Shock/Vibration</b>	See <a href="#">Proximity Sensor Terminology</a>					
<b>Tightening Torque</b>	107 Nm (79 lb-ft)				50 Nm (37 lb-ft)	
<b>Weight</b>	35g (1.23 oz)				45g (1.587 oz)	
<b>Connection</b>	M12 plug with gold-plated pins					
<b>Agency Approvals</b>	UL file E187310, CE, ECOLAB, RoHS				UL file E328811, CE, ECOLAB, RoHS	

\* PART NUMBERS PFK1-AP-3H AND PFK1-AP-4H HAVE NO NO PNP OUTPUTS ONLY.

## 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.

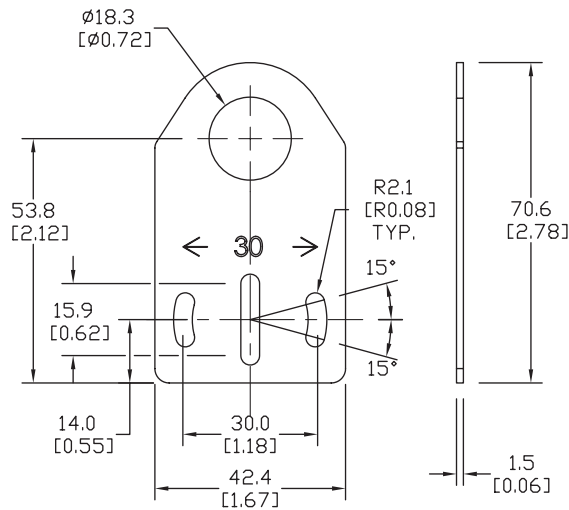
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb (g)
ST18A	\$2.00	Mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 (27.2)
ST18A7W	\$6.75	Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 (27.2)



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.

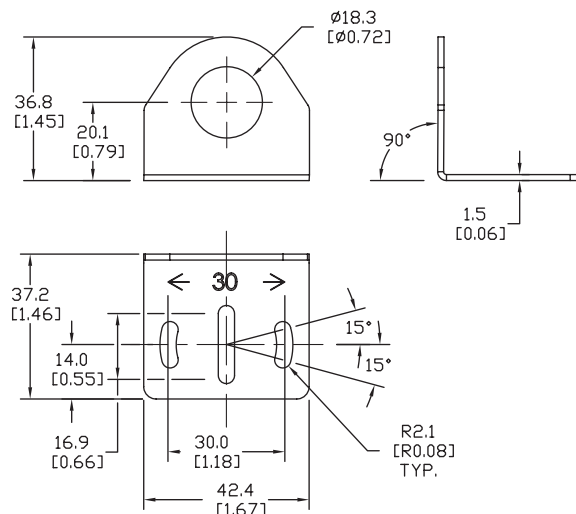
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb (g)
ST18C	\$2.00	Mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 (27.2)
ST18C7W	\$6.75	Mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 (27.2)



ST18C

### Dimensions

mm [inches]



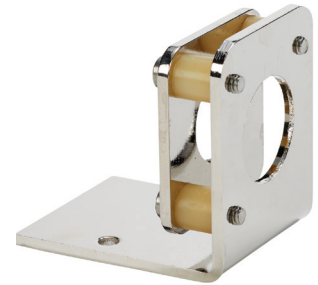
See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings

# 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>	\$34.50	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**

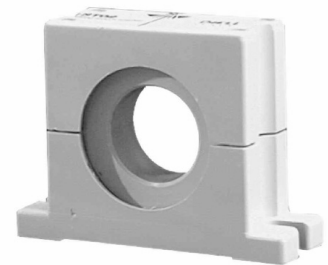
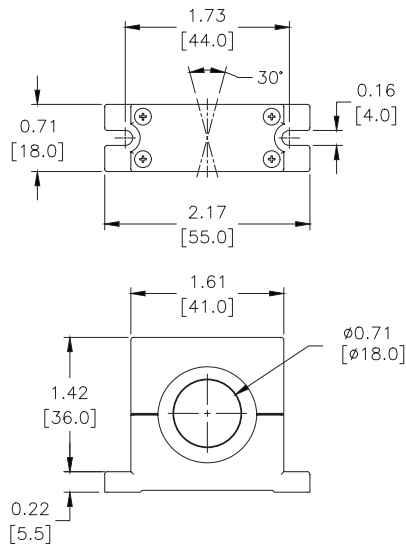
## Swivel Mounting Bracket

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]
<b>ST02</b>	\$9.00	Mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06

### Dimensions

mm [inches]



**ST02**

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

# 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)
<b>OPT2104</b>	\$9.25	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	<a href="#">PDF</a>	0.06 (27.2)
<b>OPT2105</b>	\$9.25	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)
<b>OPT2116</b>	\$10.50	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)
<b>OPT2117</b>	\$18.50	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**

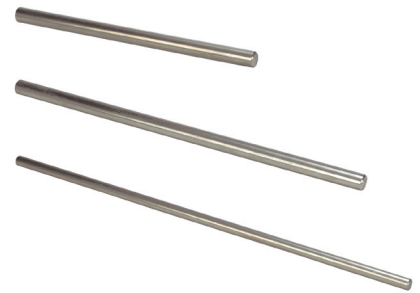
Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm [7.87 in] length), OPT2110 (300mm [11.81 in] length), and OPT2111 (500mm [19.69 in] length).

# 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)
<b>OPT2109</b>	\$11.50	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	<a href="#">PDF</a>	0.41 (185.97)
<b>OPT2110</b>	\$14.50	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	<a href="#">PDF</a>	0.60 (272.16)
<b>OPT2111</b>	\$18.50	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)
<b>OPT2108</b>	\$14.50	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)

