

# 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

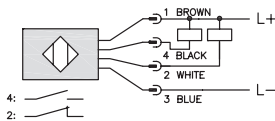


PFK Series Food and Beverage DC Inductive Prox Selection Chart								
Part Number	Price	Sensing Range	Housing	Output State	Logic	Connection	Wiring	Dimensions
<b>Standard</b>								
<b>PFK1-BN-1H</b>	\$49.50	0 to 5 mm (0 to 0.197 in)	Shielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-1H</b>	\$49.50				PNP	M12 (12 mm) connector	Diagram 2	Figure 3
<b>PFK1-BN-2H</b>	\$49.50	0 to 8 mm (0 to 0.315 in)	Unshielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-2H</b>	\$49.50				PNP	M12 (12 mm) connector	Diagram 2	Figure 3
<b>Extended</b>								
<b>PFK1-BN-3H</b>	\$49.50	0 to 8 mm (0 to 0.315 in)	Shielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-3H</b>	\$49.50				PNP	M12 (12 mm) connector	Diagram 2	Figure 3
<b>PFK1-AP-3H</b>	\$35.50			NO	PNP	M12 (12 mm) connector	Diagram 3	Figure 1
<b>PFK1-BN-4H</b>	\$55.00	0 to 12 mm (0 to 0.472 in)	Unshielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
<b>PFK1-BP-4H</b>	\$55.00				PNP	M12 (12 mm) connector	Diagram 2	Figure 3
<b>PFK1-AP-4H</b>	\$35.50			NO	PNP	M12 (12 mm) connector	Diagram 3	Figure 2

## Wiring diagrams

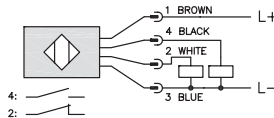
**Diagram 1**

NPN Output



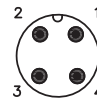
**Diagram 2**

PNP Output



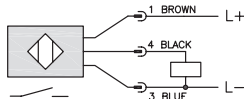
**Connector**

M12 connector



**Diagram 3**

PNP Output



*NOTE: CLASS 2 POWER SUPPLY REQUIRED*

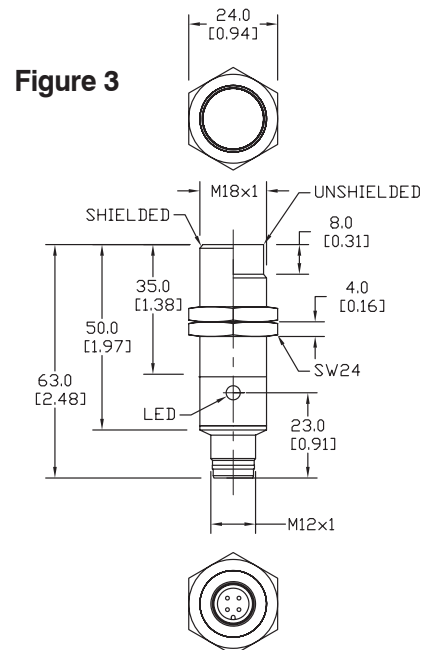
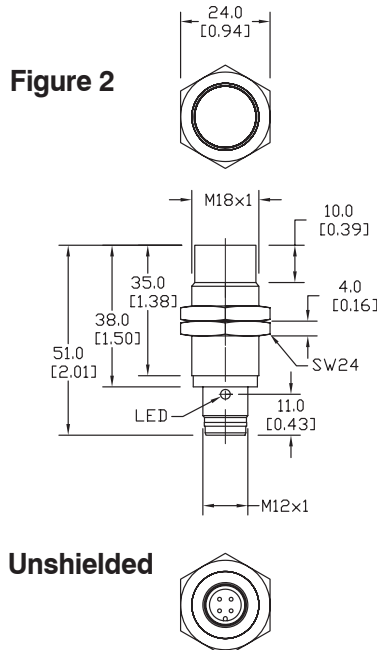
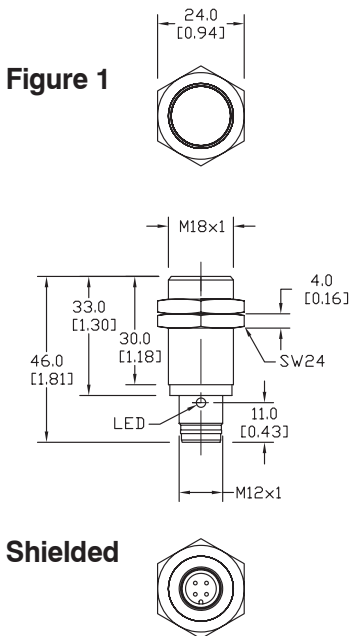
# PFK Series IP69K-rated Proximity Sensors

PFK Series Specifications	Standard		Extended			
<b>Mounting Type</b>	Shielded	Unshielded	Shielded	Unshielded	Shielded*	Unshielded*
<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, NO/NC				PNP, NO only	
<b>Operating Voltage</b>	10 - 30 VDC				10 - 36 VDC	
<b>No-load Supply Current</b>	≤15 mA				≤10 mA	
<b>Operating (Load) Current</b>	≤200 mA				≤100 mA	
<b>Off-state (Leakage) Current</b>	≤10 μA				NA	
<b>Voltage Drop</b>	≤2.0 V				≤2.5 V	
<b>Switching Frequency</b>	1500 Hz				600 Hz	300 Hz
<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>	50 ms				30 ms	
<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>	35 g (1.23 oz)				45 g (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

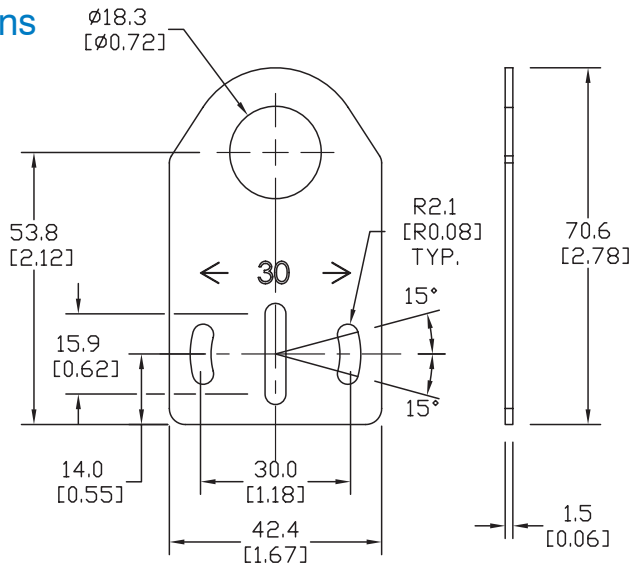
## Axial Mounting Bracket

Axial mounting bracket for use with 18mm sensors. 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.

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
ST18A	\$1.25	Mounting bracket, axial, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18A7W	\$6.00	Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

### Dimensions

mm [inches]



ST18A

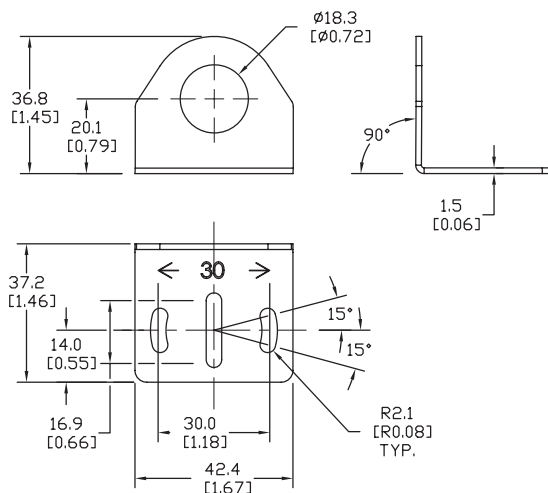
## Right-angle Mounting Bracket

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]
ST18C	\$1.25	Mounting bracket, right angle, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18C7W	\$6.00	Mounting bracket, right angle, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

### Dimensions

mm [inches]



ST18C

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.

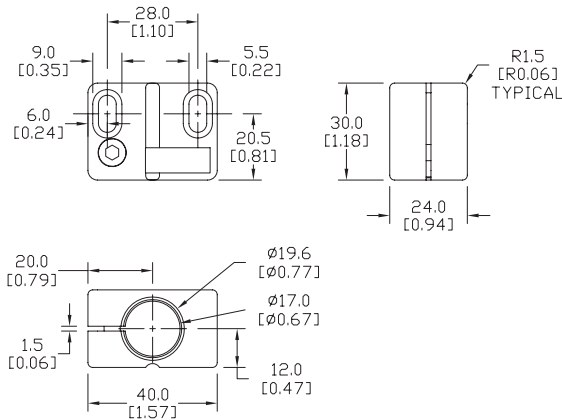
Accessories for 18mm Sensors					
Part Number	Price	Description	Mounting Head	Mounting Plate	Weight [lb]
OPT2104	\$8.00	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	Aluminum	304 Stainless Steel	0.06
OPT2105	\$8.00	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	304 Stainless Steel	304 Stainless Steel	0.06



OPT2104, OPT2105

## 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 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	Weight [lb]
OPT2116	\$9.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.	Aluminum	304 Stainless Steel	0.15
OPT2117	\$16.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors.	304 Stainless Steel	304 Stainless Steel	0.28

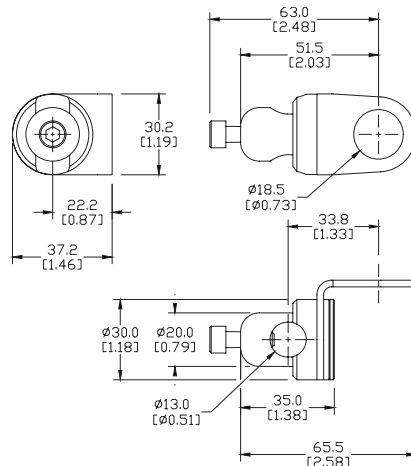


OPT2116, OPT2117

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

## Dimensions

mm [inches]



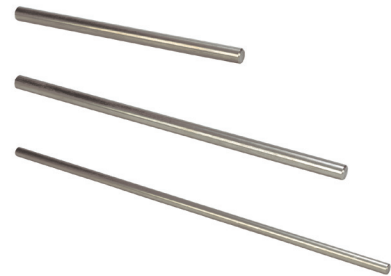
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# Mounting Rods

## Mounting Rods

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

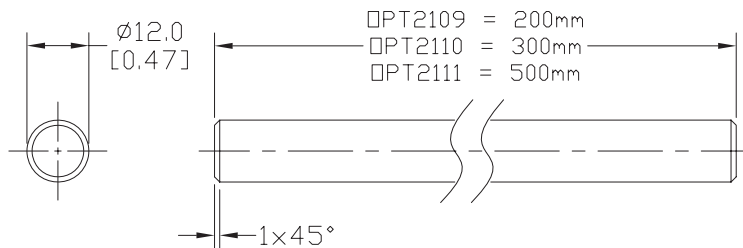
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
<b>OPT2109</b>	\$10.00	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
<b>OPT2110</b>	\$12.00	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
<b>OPT2111</b>	\$16.00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



**OPT2109, OPT2110, OPT2111**

## Dimensions

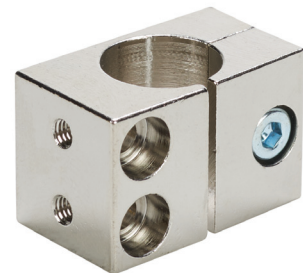
mm [inches]



## Right-angle Mounting Bracket

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

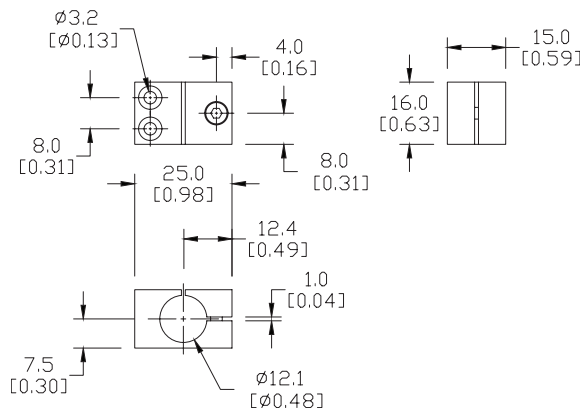
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
<b>OPT2108</b>	\$12.00	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



**OPT2108**

## Dimensions

mm [inches]



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