

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
Standard								
PFK1-BN-1H	\$49.50	0 to 5 mm (0 to 0.197 in)	Shielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
PFK1-BP-1H	\$49.50				PNP		Diagram 2	Figure 3
PFK1-BN-2H	\$49.50	0 to 8 mm (0 to 0.315 in)	Unshielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
PFK1-BP-2H	\$49.50				PNP		Diagram 2	Figure 3
Extended								
PFK1-BN-3H	\$49.50	0 to 8 mm (0 to 0.315 in)	Shielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
PFK1-BP-3H	\$49.50				PNP		Diagram 2	Figure 3
PFK1-AP-3H	\$35.50			NO	PNP	M12 (12 mm) connector	Diagram 3	Figure 1
PFK1-BN-4H	\$55.00	0 to 12 mm (0 to 0.472 in)	Unshielded	NO/NC	NPN	M12 (12 mm) connector	Diagram 1	Figure 3
PFK1-BP-4H	\$55.00				PNP		M12 (12 mm) connector	Diagram 2
PFK1-AP-4H	\$35.50			NO	PNP	M12 (12 mm) connector	Diagram 3	Figure 2

Wiring diagrams

Diagram 1

NPN Output

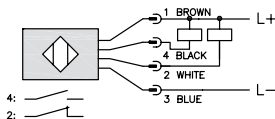
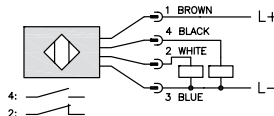


Diagram 2

PNP Output



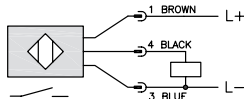
Connector

M12 connector



Diagram 3

PNP Output



NOTE: CLASS 2 POWER SUPPLY REQUIRED

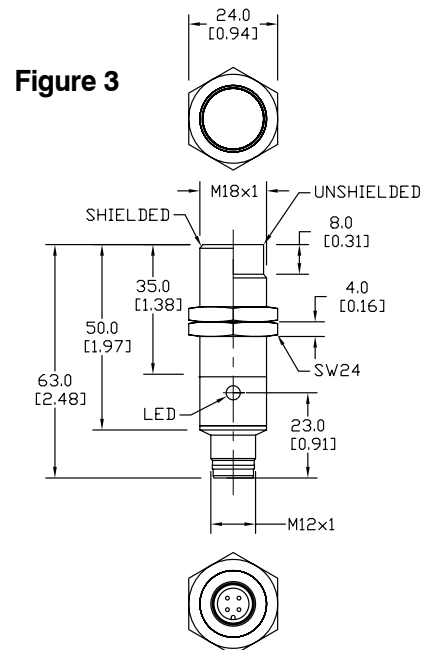
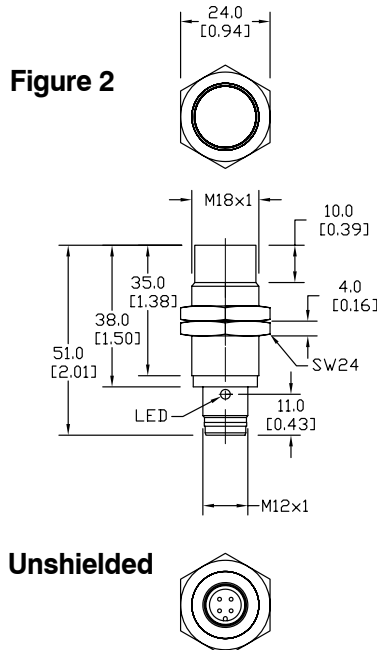
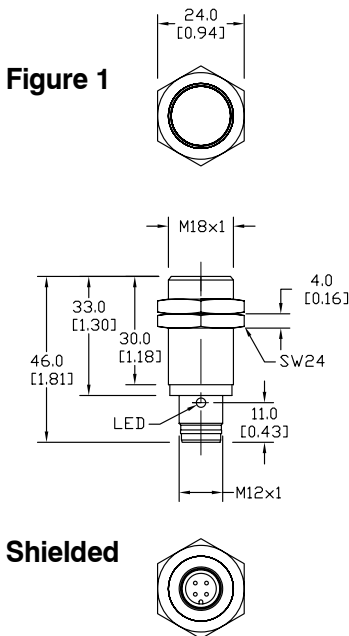
PFK Series IP69K-rated Proximity Sensors

PFK Series Specifications	Standard		Extended			
	Shielded	Unshielded	Shielded	Unshielded	Shielded*	Unshielded*
Mounting Type	Shielded	Unshielded	Shielded	Unshielded	Shielded*	Unshielded*
Nominal Sensing Distance	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)
Operating Distance	NA					
Material Correction Factors	See the Material influence table					
Output Type	NPN or PNP/4-wire, NO/NC				PNP, NO only	
Operating Voltage	10 - 30 VDC				10 - 36 VDC	
No-load Supply Current	≤15 mA				≤10 mA	
Operating (Load) Current	≤200 mA				≤100 mA	
Off-state (Leakage) Current	≤10 µA				NA	
Voltage Drop	≤2.0 V				≤2.5 V	
Switching Frequency	1500 Hz				600 Hz	300 Hz
Differential Travel (% of Nominal Distance)	1 - 20%				3 - 15%	
Repeat Accuracy	5%				10%	
Ripple	≤10%				NA	
Time Delay Before Availability (tv)	50 ms				30 ms	
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 Proximity Sensor Terminology					
Tightening Torque	107 Nm (79 lb-ft)				50 Nm (37 lb-ft)	
Weight	35 g (1.23 oz)				45 g (1.587 oz)	
Connection	M12 plug with gold-plated pins					
Agency Approvals	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

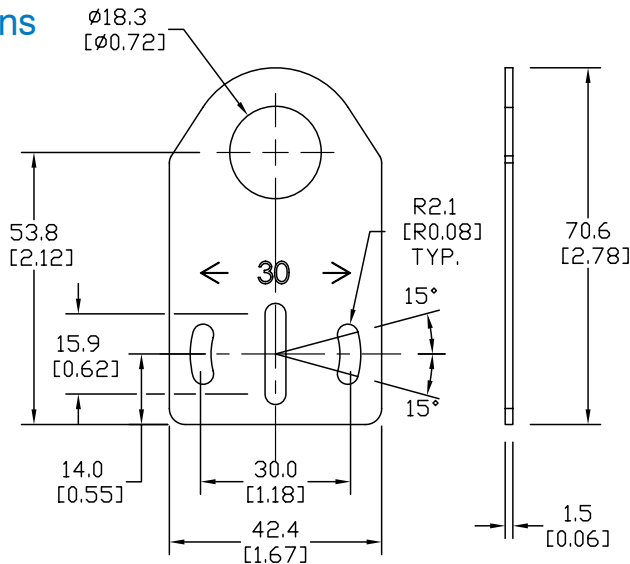
Axial Mounting Bracket

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

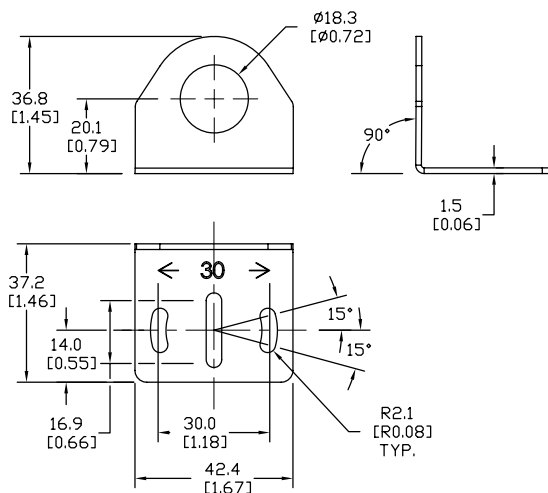
Right-angle Mounting Bracket

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

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Accessories for 18mm Sensors

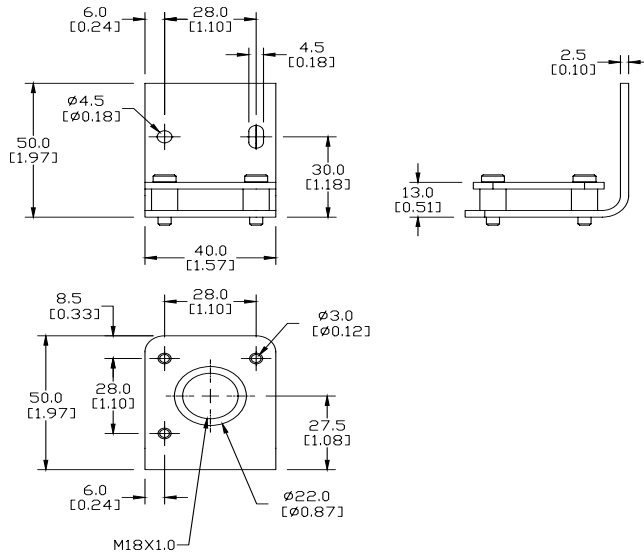
Right-angle Fine Tune Mounting Bracket

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	Weight [lb]
OPT2036	\$30.00	Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors.	0.02

Dimensions

mm [inches]



OPT2036

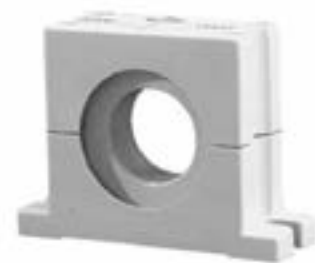
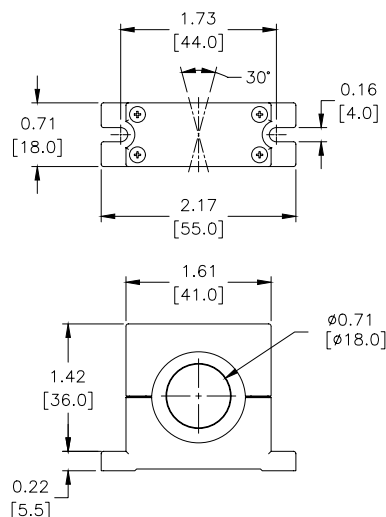
Swivel Mounting Bracket

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	\$8.25	Mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06

Dimensions

mm [inches]



ST02

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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.

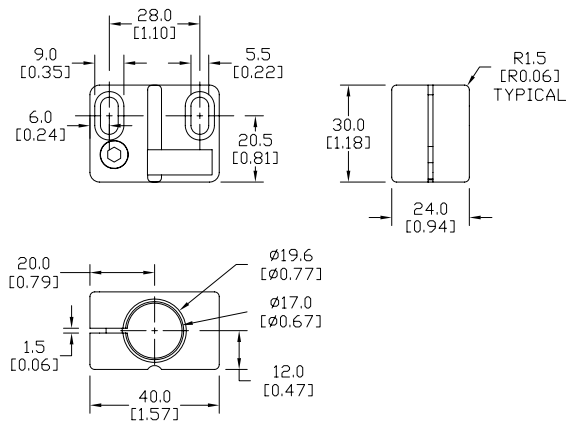
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
OPT2104	\$8.00	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
OPT2105	\$8.00	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



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

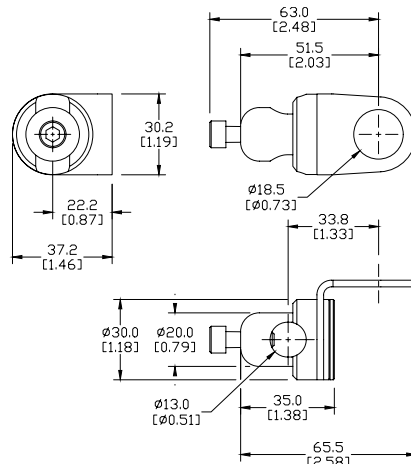
Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).



OPT2116, OPT2117

Dimensions

mm [inches]



See our website: www.AutomationDirect.com for complete engineering drawings

Mounting Rods

Mounting Rods

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

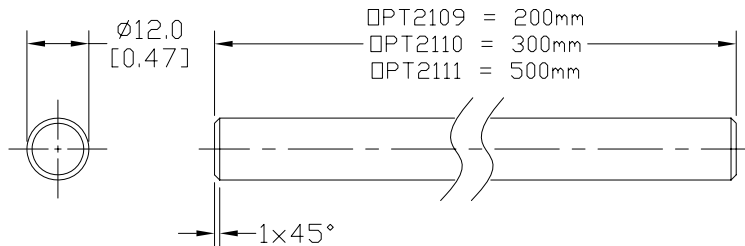
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
OPT2109	\$10.00	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
OPT2110	\$12.00	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
OPT2111	\$16.00	Mounting rod,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

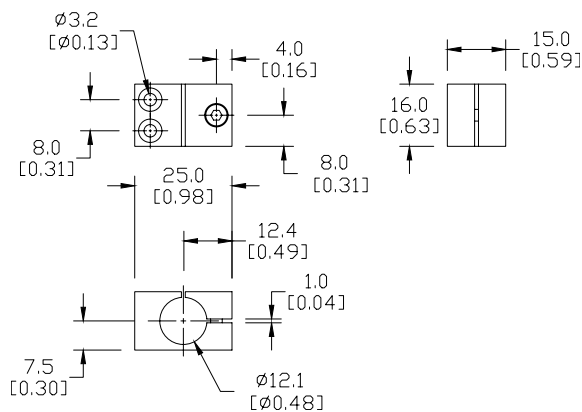
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
OPT2108	\$12.00	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



OPT2108

Dimensions

mm [inches]



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