

PFK Series IP69K-rated Proximity Sensors

18mm stainless steel - DC



PFK1-BN-1H

- 10 models available
- 18mm diameter
- 316L 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	<--->	0 to 5mm (0 to 0.197in)	Shielded	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
PFK1-BP-1H	<--->				PNP	M12 (12mm) connector	Diagram 2	Figure 3
PFK1-BN-2H	<--->	0 to 8mm (0 to 0.315in)	Unshielded	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
PFK1-BP-2H	<--->				PNP	M12 (12mm) connector	Diagram 2	Figure 3
Extended								
PFK1-BN-3H	<--->	0 to 8mm (0 to 0.315in)	Shielded	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 1	Figure 3
PFK1-BP-3H	<--->				PNP	M12 (12mm) connector	Diagram 2	Figure 3
PFK1-AP-3H	<--->			N.O.	PNP	M12 (12mm) connector	Diagram 3	Figure 1
PFK1-BN-4H	<--->	0 to 12mm (0 to 0.472in)	Unshielded	N.O./N.C.	NPN	M12 (12mm) connector	Diagram 2	Figure 3
PFK1-BP-4H	<--->				PNP	M12 (12mm) connector	Diagram 1	Figure 3
PFK1-AP-4H	<--->				N.O.	M12 (12mm) connector	Diagram 3	Figure 2

Wiring diagrams

Diagram 1

NPN Output

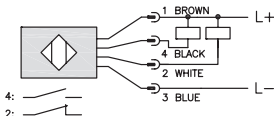
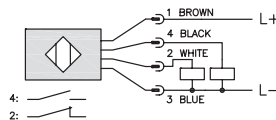


Diagram 2

PNP Output



Connector

M12 connector

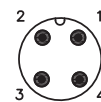
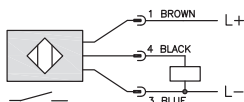


Diagram 3

PNP Output



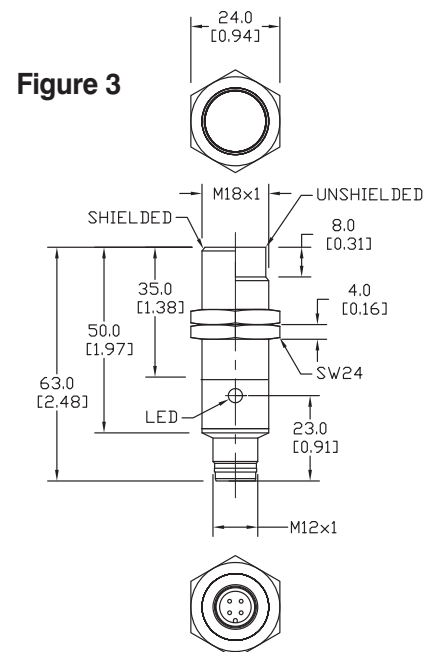
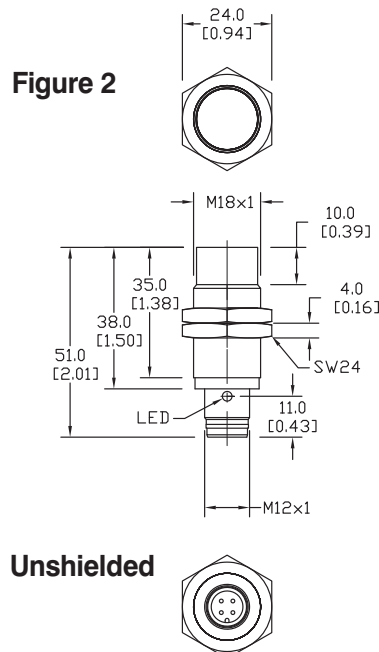
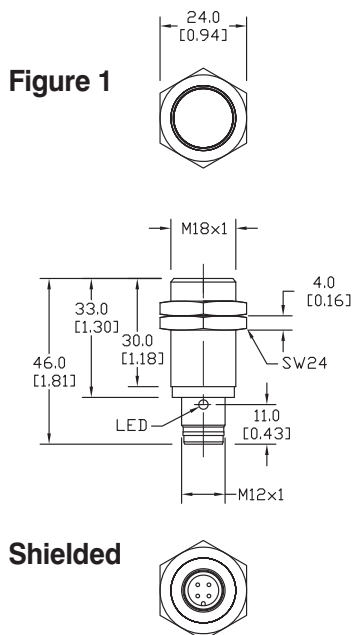
NOTE: CLASS 2 POWER SUPPLY REQUIRED

PFK Series IP69K-rated Proximity Sensors

PFK Series Specifications	Standard		Extended			
	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Mounting Type	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Nominal Sensing Distance	5mm (0.196in)	8mm (0.315in)	8mm (0.315in)	12mm (0.472in)	8mm (0.315in)	12mm (0.472in)
Operating Distance	N/A					
Material Correction Factors	See Material Influence table #2 later in this section.					
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	≤15 mA				≤10 mA	
Operating (Load) Current	≤200mA				≤100mA	
Off-state (Leakage) Current	≤10µA				-	
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%				-	
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	316L stainless steel					
Sensing Face Material	PPS (FDA certified)				PEEK (Polyether Ether Ketone)	
Shock/Vibration	See Terminology Section					
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	

Dimensions

mm [inches]

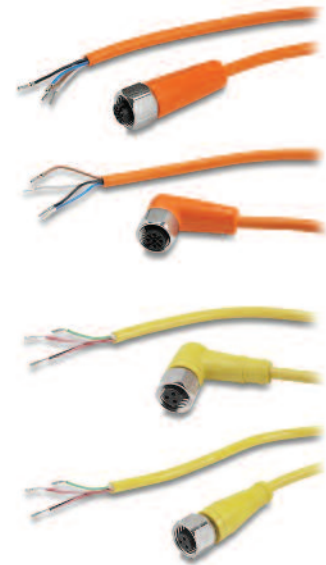


Sensors Accessories – IP69K-rated Cables

Cables with quick-disconnect plugs

- Industry standard axial and right-angle M12 or 1/2" micro connectors with open leads
- 5m and 10m cable lengths

- PVC (polyvinyl chloride) jacket for food and beverage industrial applications
- IP69K rated for food and beverage industrial applications
- 316L stainless steel coupling nut
- EPDM o-ring



M12 Quick-Disconnect Cables (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M12 Quick-Disconnects							
EVT221	<-->	5m (16.4 ft)	4	Axial female	No	Orange PVC	Figure 4
EVT222	<-->	5m (16.4 ft)	4	Right-angle female	No	Orange PVC	Figure 1
EVT223	<-->	10m (32.8 ft)	4	Axial female	No	Orange PVC	Figure 4
EVT224	<-->	10m (32.8 ft)	4	Right-angle female	No	Orange PVC	Figure 1
Micro AC Volt 1/2 Inch - 20UNF Cables							
1/2" Quick-Disconnects							
E18446	<-->	5m (16.4 ft)	3	Axial female	No	Yellow PVC	Figure 6
E18447	<-->	5m (16.4 ft)	3	Right-angle female	No	Yellow PVC	Figure 5
E18448	<-->	10m (32.8 ft)	3	Axial female	No	Yellow PVC	Figure 6
E18449	<-->	10m (32.8 ft)	3	Right-angle female	No	Yellow PVC	Figure 5

Patch cables with quick-disconnect plugs on each end

Available patch cables include:

- Industry standard M12 screw-lock connectors
- One male and one female connector

- Axial and right-angle connector models
- 0.3m, 0.6m, 1m, 2m and 5m cable lengths
- PVC (polyvinyl chloride) jacket for food and beverage industrial applications
- IP69K rating, suitable for food and beverage industrial applications
- 316L stainless steel coupling nut
- EPDM o-ring



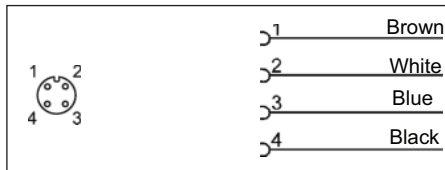
M12 Patch Cables with Quick-Disconnect on Each End (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M12 Quick-Disconnect Patch Cables						
EVT225	<-->	0.3m (0.98 ft)	4	Axial female plug to axial male plug	Orange PVC	Figure 3
EVT226	<-->	0.3m (0.98 ft)	4	Right angle female plug to axial male plug	Orange PVC	Figure 2
EVT227	<-->	0.6m (1.97 ft)	4	Axial female plug to axial male plug	Orange PVC	Figure 3
EVT228	<-->	0.6m (1.97 ft)	4	Right angle female plug to axial male plug	Orange PVC	Figure 2
EVT229	<-->	1m (3.3 ft)	4	Axial female plug to axial male plug	Orange PVC	Figure 3
EVT230	<-->	1m (3.3 ft)	4	Right angle female plug to axial male plug	Orange PVC	Figure 2
EVT231	<-->	2m (6.6 ft)	4	Axial female plug to axial male plug	Orange PVC	Figure 3
EVT232	<-->	2m (6.6 ft)	4	Right angle female plug to axial male plug	Orange PVC	Figure 2
EVT233	<-->	5m (16.4 ft)	4	Axial female plug to axial male plug	Orange PVC	Figure 3
EVT234	<-->	5m (16.4 ft)	4	Right angle female plug to axial male plug	Orange PVC	Figure 2

Sensors Accessories – IP69K-rated Cables

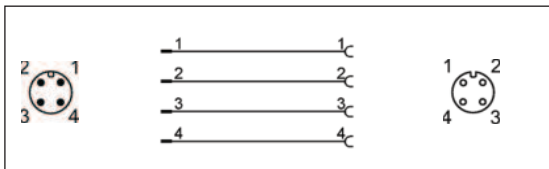
Cable Specifications		
Specification	M12	1/2"
Length	0.3m (0.98 ft), 0.6m (1.97 ft), 1m (3.3 ft), 2m (6.6 ft), 5m (16.4 ft), 10m (32.8 ft)	5m (16.4 ft), 10m (32.8 ft)
Nominal Voltage	250 VAC/300 VDC	300 VAC/VDC
Max Current	4A	4A
Protection Degree	IEC IP67 / IP68 / IP69K	IEC IP67 / IP68 / IP69K
Material Nut	316L Stainless steel	316L Stainless steel
Jacket Material	PolyVinyl Chloride (PVC)	PolyVinyl Chloride (PVC)
Housing Material	PolyVinyl Chloride (PVC)	PolyVinyl Chloride (PVC)
Contacts Material	Gold plated	Gold plated
Tightening Torque	0.6 to 1.5 Nm	
Conductors Cross Section (AWG)	22 AWG	22 AWG
Ø Outer Cable	4.9 mm	4.5 mm
Temperature Range	-25° to 100°C (-13° to 212°F)	-10° to 100°C (14° to 212°F)
Environmental	Halogen free, Silicone free	Halogen free, Silicone free
Bending Radius	min. 10 x cable diameter	
Agency Approvals	UL E191684	UL E177636

Wiring - M12 DC

EVT221, EVT222, EVT223, EVT224

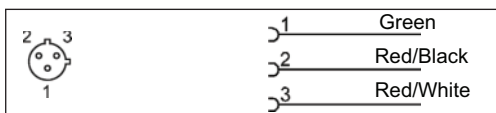


EVT225, EVT226, EVT227, EVT228, EVT229, EVT230, EVT231, EVT232, EVT233, EVT234



Wiring - 1/2" Micro AC

E18446, E18447, E18448, E18449



UL Reference	
Part Number	UL Catalog Number
EVT221	ADOGH040VAS0005E04
EVT222	ADOAH040VAS0005E04
EVT223	ADOGH040VAS0010E04
EVT224	ADOAH040VAS0010E04
EVT225	VDOGH040VAS00.3E04STGH040VAS
EVT226	VDOAH040VAS00.3E04STGH040VAS
EVT227	VDOGH040VAS00.6E04STGH040VAS
EVT228	VDOAH040VAS00.6E04STGH040VAS
EVT229	VDOGH040VAS0001E04STGH040VAS
EVT230	VDOAH040VAS0001E04STGH040VAS
EVT231	VDOGH040VAS0002E04STGH040VAS
EVT232	VDOAH040VAS0002E04STGH040VAS
EVT233	VDOGH040VAS0005E04STGH040VAS
EVT234	VDOAH040VAS0005E04STGH040VAS

Sensors Accessories – IP69K-rated Cables

Dimensions

mm [inches]

Figure 1

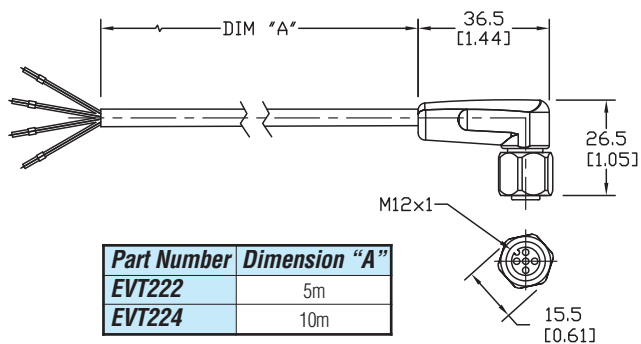


Figure 2

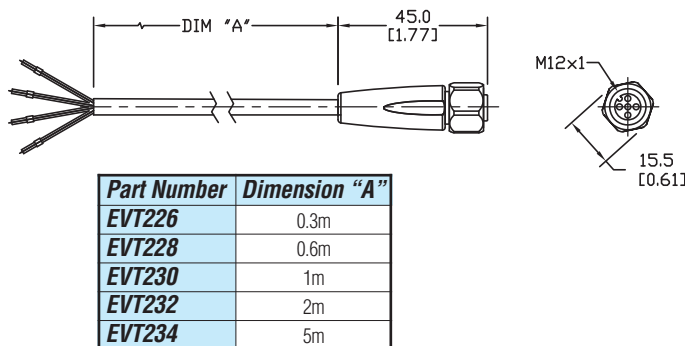


Figure 3

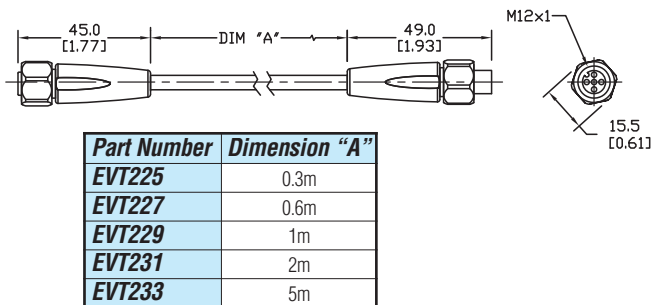


Figure 4

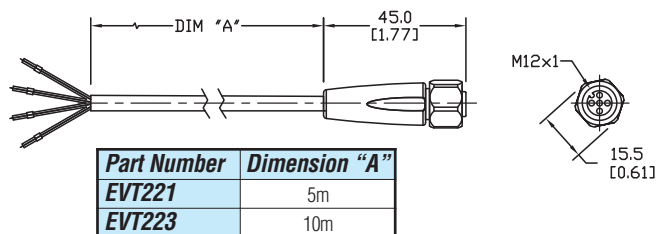


Figure 5

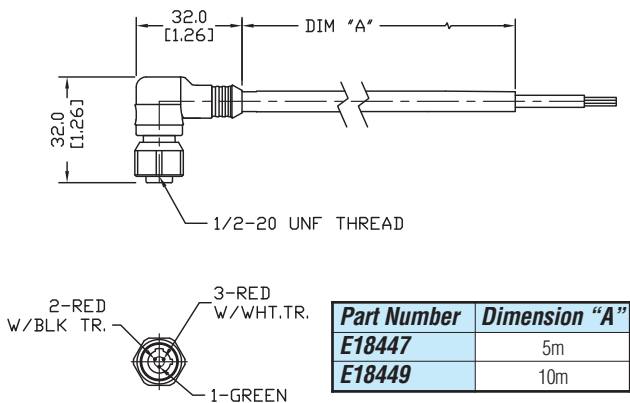
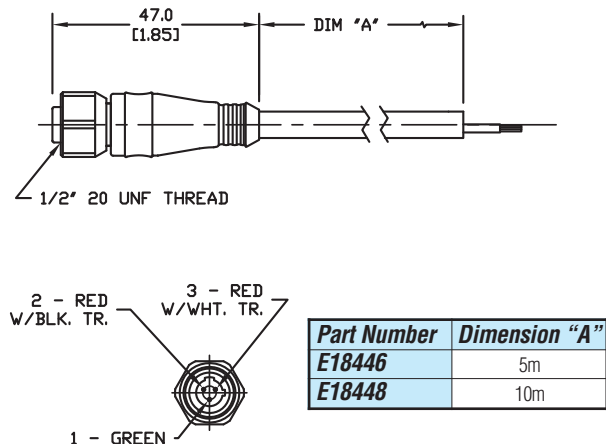


Figure 6



We sell good proximity sensors at great prices – and we back them up!

AutomationDirect Lifetime Warranty

Registration required

For inductive proximity sensors sold to the Original User for the lifetime of the original application.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1. This warranty is available only to AUTOMATIONDIRECT's authorized Value Added Resellers and to the Original User. In the event the ownership of the product is transferred to a person, firm, or corporation other than the Original User, this WARRANTY shall terminate.
2. This WARRANTY is applicable only to the original installation of the product. In the event the machinery, equipment, or production line to which the product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
3. This WARRANTY shall be valid only if the product was purchased by the Original User from AUTOMATIONDIRECT, or from an authorized AUTOMATIONDIRECT Value Added Reseller, or was an integral part of a piece of machinery and equipment obtained by the Original User from an original equipment manufacturer, where the part was purchased by the original equipment manufacturer directly from AUTOMATIONDIRECT or from an authorized AUTOMATIONDIRECT Value Added Reseller.

Purchaser's remedies

This remedy shall apply to all WARRANTIES. If an AUTOMATIONDIRECT Value Added Reseller desires to make a WARRANTY claim, the Value Added Reseller shall, if requested by AUTOMATIONDIRECT, ship the product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. If the Original User desires to make a WARRANTY Claim, they shall notify the authorized Value Added Reseller from whom it was purchased or, if purchased directly from AUTOMATIONDIRECT, shall notify AUTOMATIONDIRECT and, if requested by AUTOMATIONDIRECT, ship the Product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. AUTOMATIONDIRECT shall, at its option, take any of the following two courses of action for any products which AUTOMATIONDIRECT determines are defective in materials or workmanship.

1. Repair or replace the product and ship the product to the Original User or to the authorized AUTOMATIONDIRECT Value Added Reseller, postage or freight prepaid; or
2. Repay to the Original User that price paid by the Original User; provided that if the claim is made under the lifetime warranty, and such product is not then being supplied by AUTOMATIONDIRECT, then the amount to be repaid by AUTOMATIONDIRECT to the Original User shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original User	Percent of Original Purchase Price To Be Paid by AutomationDirect
10	50 percent
15	25 percent
20	10 percent
More than 20	5 percent

REMEDIES OF PURCHASER'S AND VALUE ADDED RESELLERS SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED ABOVE AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL USER'S SITE. AUTOMATIONDIRECT.COM SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

Inductive proximity sensors warranty form may be obtained online at:

<http://www.automationdirect.com/static/specs/proxwarranty.pdf>