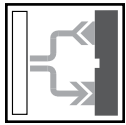


Introduction to Fiber Optic Cables



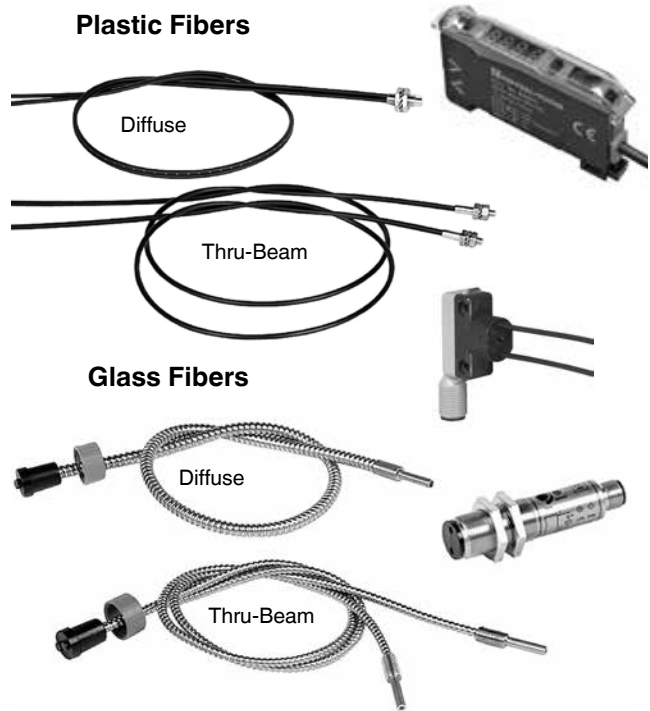
Fiber Optic Diffuse and Thru-Beam Mode

In applications involving small targets or unfavorable conditions, fiber optic cables may be the sensible solution.

Glass fiber optic cables are constructed from tiny strands of glass that are bundled together inside an application-specific sheath. Plastic fiber optic cables are manufactured from a light conductive plastic monofilament material, which is protected by a PVC jacket.

When attached to the end of certain photoelectric sensors, they guide the light through the cable and out at the sensing head. A separate fiber attached to the receiver returns the light. Pepperl+Fuchs offers both glass and plastic fiber optic cables. The diameter of the glass fiber optic cables is generally larger than plastic and provides a longer sensing range. Pepperl+Fuchs' glass cables can withstand temperatures as high as 900 °F while the plastic cables are rated as high as 221 °F. The plastic cables are typically used due to their small size and narrow beam diameter. This enables easy detection of small parts such as pins on an IC chip. Plastic cables can be "cut-to-length" in the field; therefore, the correct length doesn't have to be specified when ordering. Obtaining the maximum light intensity possible in each application is accomplished by customizing the plastic cables to the shortest possible length. This reduces the inherent "light losses" that occur inside the cable. Pepperl+Fuchs offers three standard types of sheaths: stainless steel, silicone, and PVC.

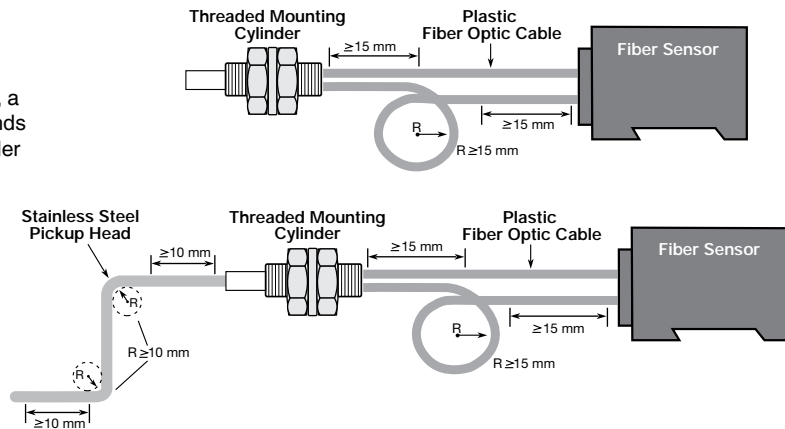
In diffuse mode sensing, a bifurcated cable (2 in 1) is used. Thru-beam requires two individual cables.



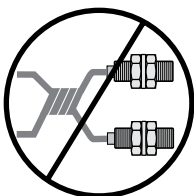
Mounting and Fitting

When positioning plastic fiber optic cable, a minimum bending radius of 15 mm must be maintained. In addition, a straight section of ≥ 15 mm must be maintained at both ends of fiber optic cable between the threaded mounting cylinder and optical sensor.

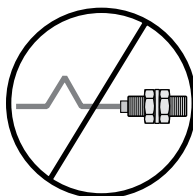
Some fiber optic cables have a flexible stainless steel pickup attached. In such a case, a minimum bending radius of 10 mm must be maintained. Also, to avoid damage to the pickup head light guide, a straight section of 10 mm must be maintained at both ends.



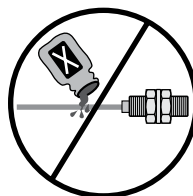
Please Note!



Do not twist or kink plastic fiber optic cables.



Avoid contact with petroleum or organic solvents.



Excessive pulling will lead to severe damage.

Plastic Fiber Optic Cables

Diffuse Plastic Fiber Optic Cables
for SU18, SU19, SU17.1, ML17-LL, and MHP-FR Sensors

Threaded Cylindrical						
Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
HPF-D004-H	2 m	1.0 mm	Black polyethylene	SU18 High Power	118 mm	
				SU18 High Speed	16 mm	
				SU19	16 mm	
				SU17.1	100 mm	
				ML17-LL	13 mm	
				MHP-FR	not compatible	
KLR-C09-1.25-2.0-K76	2 m	1.25 mm	PVC	SU18 High Power	100 mm	
				SU18 High Speed	30 mm	
				SU19	30 mm	
				SU17.1	85 mm	
				ML17-LL	16 mm	
				MHP-FR	not compatible	
KLR-C02-1.3-2.0-K84	2 m	1.3 mm	PVC	SU18 High Power	280 mm	
				SU18 High Speed	80 mm	
				SU19	80 mm	
				SU17.1	238 mm	
				ML17-LL	45 mm	
				MHP-FR	not compatible	
KLR-C09-1.25-2.0-K74	2 m	1.25 mm	PVC	SU18 High Power	100 mm	
				SU18 High Speed	30 mm	
				SU19	30 mm	
				SU17.1	85 mm	
				ML17-LL	16 mm	
				MHP-FR	not compatible	
HPF-D002-H	2 m	2.2 mm	Black polyethylene	SU18 High Power	471 mm	
				SU18 High Speed	66 mm	
				SU19	66 mm	
				SU17.1	400 mm	
				ML17-LL	60 mm	
				MHP-FR	18 mm	
HPF-D002-HL5	5 m	2.2 mm	Black polyethylene	SU18 High Power	471 mm	
				SU18 High Speed	50 mm	
				SU19	50 mm	
				SU17.1	400 mm	
				ML17-LL	60 mm	
				MHP-FR	18 mm	

Plastic Fiber Optic Cables

Diffuse Plastic Fiber Optic Cables

for SU18, SU19, SU17.1, ML17-LL, and MHP-FR Sensors

2
3

Photoelectric Sensors, Standard Sensors, Fiber optic cables

Threaded Cylindrical (cont.)						
Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
KLR-C16-2.2-2.0-K71	2 m	2.2 mm	PVC	SU18 High Power	300 mm	
				SU18 High Speed	85 mm	
				SU19	85 mm	
				SU17.1	255 mm	
				ML17-LL	48 mm	
				MHP-FR	20 mm	
HPF-D001-H	2 m	2.2 mm	Black polyethylene	SU18 High Power	647 mm	
				SU18 High Speed	88 mm	
				SU19	88 mm	
				SU17.1	550 mm	
				ML17-LL	85 mm	
				MHP-FR	33 mm	
HPF-D001-HL03	3 m	2.2 mm	Black polyethylene	SU18 High Power	647 mm	
				SU18 High Speed	88 mm	
				SU19	88 mm	
				SU17.1	550 mm	
				ML17-LL	85 mm	
				MHP-FR	33 mm	

Bendable Probe						
Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
HPF-D006	2 m	1 mm	Black polyethylene	SU18 High Power	122 mm	
				SU18 High Speed	23 mm	
				SU19	23 mm	
				SU17.1	104 mm	
				ML17-LL	20 mm	
				MHP-FR	not compatible	
KLR 00-2.2-2.0-K57	2 m	2.2 mm	PVC	SU18 High Power	210 mm	
				SU18 High Speed	60 mm	
				SU19	60 mm	
				SU17.1	179 mm	
				ML17-LL	34 mm	
				MHP-FR	6 mm	