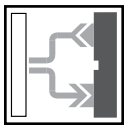
Introduction to Fiber Optic Cables

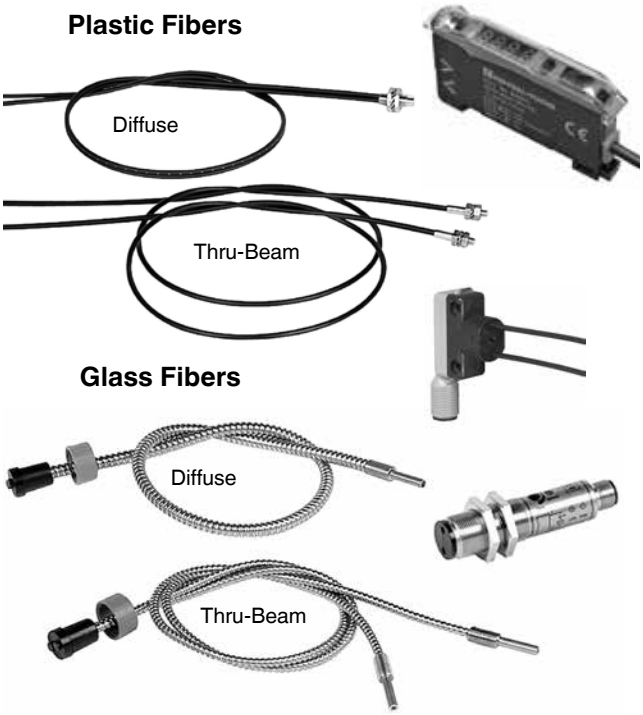


Fiber Optic Diffuse and Thru-Beam Mode

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.

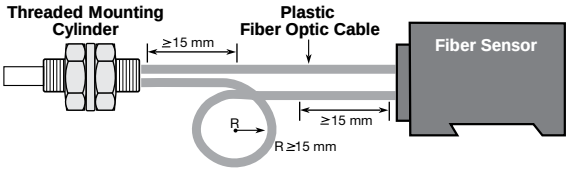
In diffuse mode sensing, a bifurcated cable (2 in 1) is used. Thru-beam requires two individual cables.

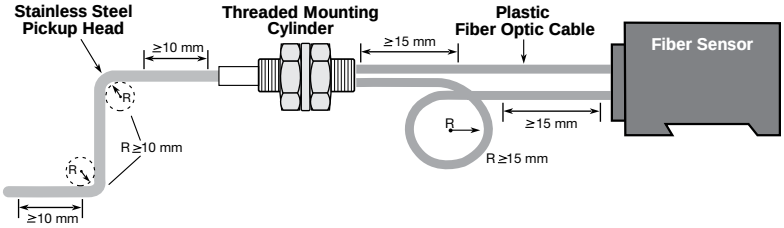


Mounting and Fitting

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.





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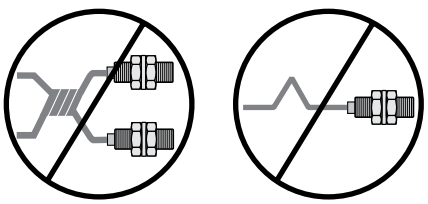
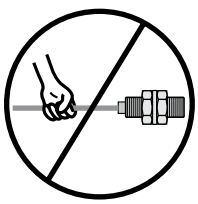


Do not twist or kink plastic fiber optic cables.

Avoid contact with petroleum or organic solvents.



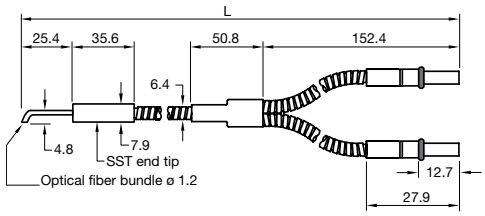
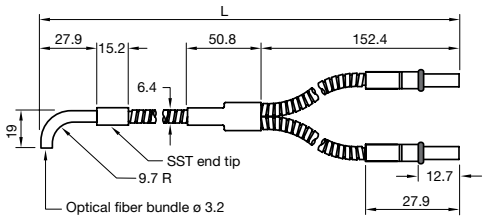
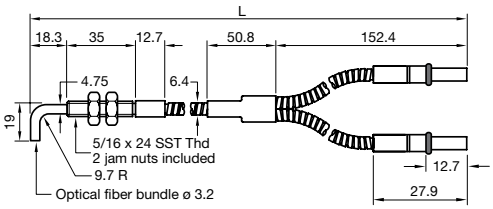
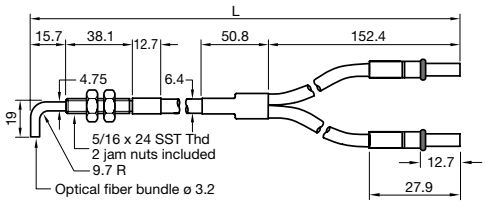
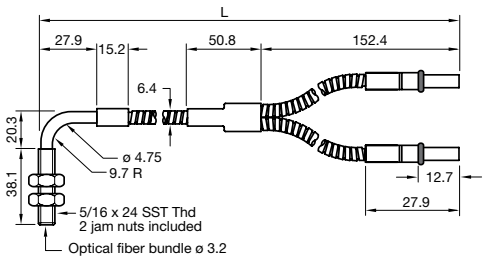
Excessive pulling will lead to severe damage.

Glass Fiber Optic Cables

Diffuse Mode Glass Fiber Optic Cables

for RL(K)61-LL, MPG and MHP-F Sensors

Right Angle Sensing Head

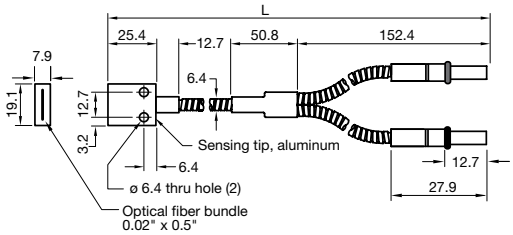
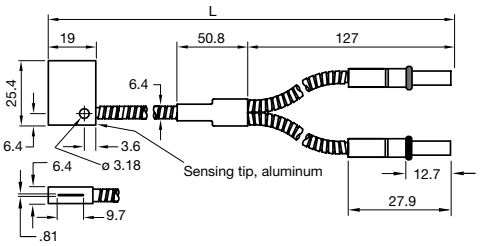
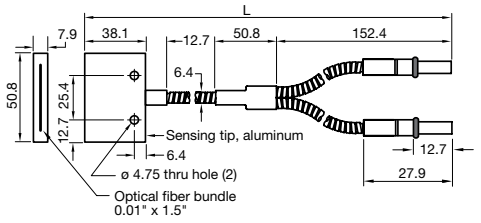
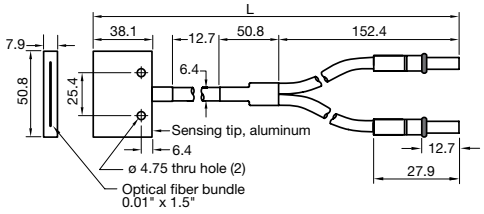
Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-BHSRA3S-3*	3 ft	1.2 mm	Stainless Steel	MHP-F Visible Red	6 mm	
				MHP-F Infrared	12 mm	
FE-BHSRA3S-5	5 ft			RL(K)61-LL	27 mm	
				MPG Infrared	30 mm	
FE-BAS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	45 mm	
				MHP-F Infrared	97 mm	
FE-BAS6S-5	5 ft			RL(K)61-LL	160 mm	
				MPG Infrared	180 mm	
FE-BTSAS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	36 mm	
				MHP-F Infrared	80 mm	
FE-BTSAS6S-5	5 ft			RL(K)61-LL	155 mm	
				MPG Infrared	170 mm	
FE-BTSAS6M-3*	3 ft	3.2 mm	PVC	MHP-F Visible Red	36 mm	
				MHP-F Infrared	80 mm	
FE-BTSAS6M-5	5 ft			RL(K)61-LL	155 mm	
				MPG Infrared	170 mm	
FE-BASTS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	52 mm	
				MHP-F Infrared	100 mm	
FE-BASTS6S-5	5 ft			RL(K)61-LL	170 mm	
				MPG Infrared	190 mm	

* Sensing ranges based on this model.

Glass Fiber Optic Cables

Diffuse Mode Glass Fiber Optic Cables
for RL(K)61-LL, MPG and MHP-F Sensors

Array Sensing Head

Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-BRL6S-3*	3 ft	0.02" x 0.5"	Stainless Steel	MHP-F Visible Red	42 mm	
				MHP-F Infrared	92 mm	
FE-BRL6S-5	5 ft			RL(K)61-LL	190 mm	
				MPG Infrared	212 mm	
FE-BRL6S-3RA*	3 ft	0.81 mm x 9.7 mm	Stainless Steel	MHP-F Visible Red	40 mm	
				MHP-F Infrared	86 mm	
FE-BRL6S-5RA	5 ft			RL(K)61-LL	190 mm	
				MPG Infrared	210 mm	
FE-BRL7S-3*	3 ft	0.01" x 1.5"	Stainless Steel	MHP-F Visible Red	46 mm	
				MHP-F Infrared	104 mm	
FE-BRL7S-5	5 ft			RL(K)61-LL	205 mm	
				MPG Infrared	230 mm	
FE-BRL7M-3	3 ft	0.01" x 1.5"	PVC	MHP-F Visible Red	46 mm	
				MHP-F Infrared	104 mm	
				RL(K)61-LL	205 mm	
				MPG Infrared	230 mm	

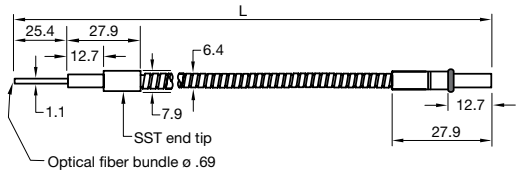
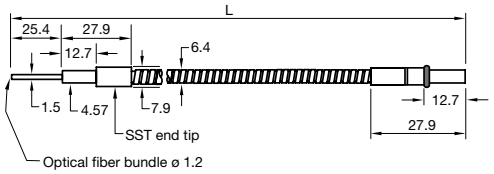
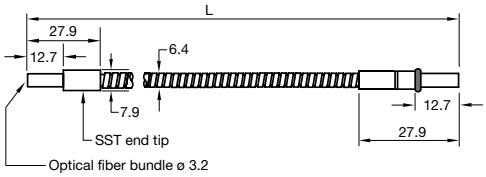
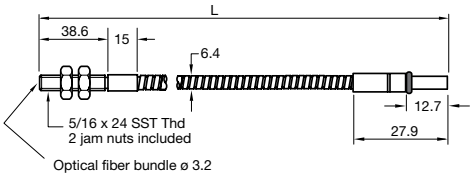
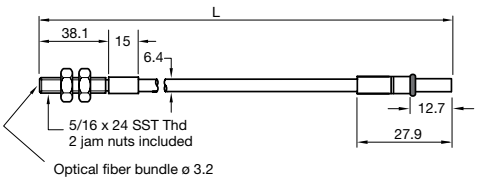
* Sensing ranges based on this model.

Glass Fiber Optic Cables

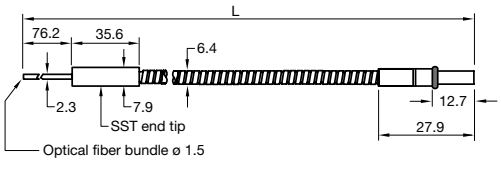
Thru-Beam Mode Glass Fiber Optic Cables
for RL(K)61-LL, MPG and MHP-F Sensors

Sold individually. To complete a thru-beam pair, two units are required.

Cylindrical Sensing Head

Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-IHS1S-3*	3 ft	0.69 mm	Stainless Steel	MHP-F Visible Red	90 mm	
				MHP-F Infrared	210 mm	
FE-IHS1S-5	5 ft			RL(K)61-LL	460 mm	
				MPG Infrared	510 mm	
FE-IHS3S-3*	3 ft	1.2 mm	Stainless Steel	MHP-F Visible Red	95 mm	
				MHP-F Infrared	220 mm	
FE-IHS3S-5	5 ft			RL(K)61-LL	470 mm	
				MPG Infrared	520 mm	
FE-IFS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	320 mm	
				MHP-F Infrared	770 mm	
FE-IFS6S-5	5 ft			RL(K)61-LL	470 mm	
				MPG Infrared	1300 mm	
FE-ITS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	300 mm	
FE-ITS6S-3HT†				MHP-F Infrared	825 mm	
FE-ITS6S-5	5 ft			RL(K)61-LL	1305 mm	
FE-ITS6S-5HT†				MPG Infrared	1450 mm	
FE-ITS6M-3*	3 ft	3.2 mm	PVC	MHP-F Visible Red	300 mm	
				MHP-F Infrared	825 mm	
FE-ITS6M-5	5 ft			RL(K)61-LL	1305 mm	
				MPG Infrared	1450 mm	

Bendable Sensing Tip

Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-IPS4S-3*	3 ft	1.5 mm	Stainless Steel	MHP-F Visible Red	190 mm	
				MHP-F Infrared	560 mm	
FE-IPS4S-5	5 ft			RL(K)61-LL	900 mm	
				MPG Infrared	1000 mm	

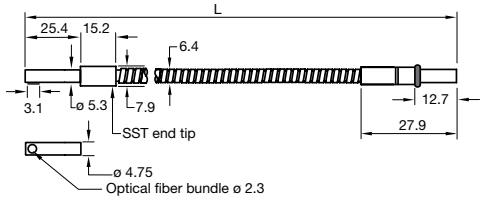
* Sensing ranges based on this model.
† High temperature model.

Glass Fiber Optic Cables

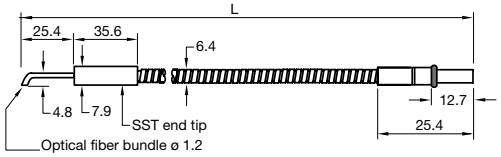
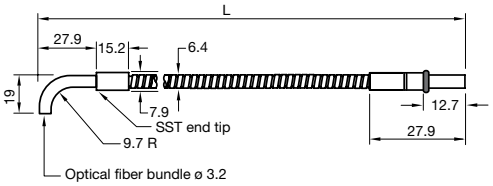
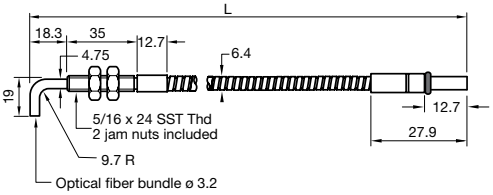
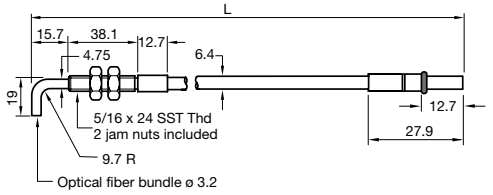
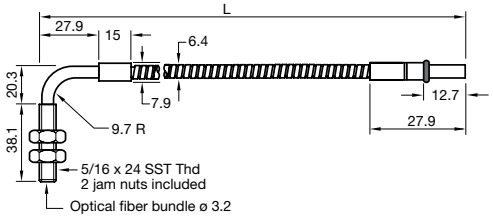
Sold individually. To complete a thru-beam pair, two units are required.

Thru-Beam Mode Glass Fiber Optic Cables
for RL(K)61-LL, MPG and MHP-F Sensors

Side View/Periscope Sensing Head

Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-INSRA5S-3*	3 ft	2.3 mm	Stainless Steel	MHP-F Visible Red	180 mm	
				MHP-F Infrared	400 mm	
FE-INSRA5S-5	5 ft			RL(K)61-LL	730 mm	
				MPG Infrared	810 mm	

Right Angle Sensing Head

Model Number	Cable Length	Fiber Diameter	Sheathing Material	Compatible Sensors	Sensing Range	Dimensions (mm)
FE-IHSRA3S-3*	3 ft	1.2 mm	Stainless Steel	MHP-F Visible Red	90 mm	
				MHP-F Infrared	190 mm	
FE-IHSRA3S-5	5 ft			RL(K)61-LL	485 mm	
				MPG Infrared	540 mm	
FE-IAS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	340 mm	
				MHP-F Infrared	950 mm	
FE-IAS6S-5	5 ft			RL(K)61-LL	1305 mm	
				MPG Infrared	1450 mm	
FE-ITSAS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	260 mm	
				MHP-F Infrared	660 mm	
FE-ITSAS6S-5	5 ft			RL(K)61-LL	1150 mm	
				MPG Infrared	1280 mm	
FE-ITSAS6M-3*	3 ft	3.2 mm	PVC	MHP-F Visible Red	260 mm	
				MHP-F Infrared	660 mm	
FE-ITSAS6M-5	5 ft			RL(K)61-LL	1150 mm	
				MPG Infrared	1280 mm	
FE-IASTS6S-3*	3 ft	3.2 mm	Stainless Steel	MHP-F Visible Red	300 mm	
				MHP-F Infrared	800 mm	
FE-IASTS6S-5	5 ft			RL(K)61-LL	1170 mm	
				MPG Infrared	1300 mm	

* Sensing ranges based on this model.