

Glass Fiber Optic Cables



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Glass Fiber Optic Cables

Product Description

Glass Fiber Optic Cables from Eaton’s electrical sector transmit light through a cable containing a bundle of tiny glass fibers. The cable can curve back and forth through equipment to the target and still transmit light with very little signal loss.

Two cable types are available:

Duplex fibers contain both source and detector fibers intermixed at the cable end for diffuse reflective sensing. One cable is required for sensing. (It is also possible to use this style of cable and a retroreflector for reflex sensing.)

Diffuse Reflective Sensing with a Single Duplex Fiber



Single fibers are used for thru-beam sensing. Separate cables are needed to carry the source light and the detector light, respectively. Two cables are required for sensing.

Thru-Beam Sensing with Two Single Fibers



Features

- Fiber optic cables allow remote sensing in areas where space is restricted or tight viewing angles are required
- Ideal for high temperature applications up to 480°F (249°C)
- Choose from many styles and lengths to exactly suit your needs
- Use PVC jacket models for most applications, stainless steel for high temperature and harsh environments
- Larger fiber bundle size offers higher excess gain for longer ranges. Small size is useful for sensing extremely small targets

DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.

For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada call 1-800-426-9184.

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Fiber Optic Cables

Glass Fiber Optic Cables



Product Overview

Ordering Information

Mounting End Compatibility

Two mounting end styles are available; standard and collar. Collar mounting cables and standard mounting cables are not interchangeable and must be coupled to the correct sensor.

Mounting Ends


	Description	Compatible Fiber Optic Sensors	Catalog Number
Standard Mounting End 	Standard mounting end	Prism™ Series, Comet® Series, 50 Series, 55 Series, 80 Series, 70 Series and E51 Sensor Heads—Catalog Numbers E51DF1 and E51DF11	Starts with: E51KF_
Collar Mounting End 	Collar mounting end	E51 Sensor Heads—Catalog Numbers E51DF3, E51DF4 and E51DF33	Starts with: E51KT_

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Non-Standard Cable Lengths

To order fiber optic cable in a non-standard length, replace last digit of listed catalog number with code suffix from table below. Example: For E51KF113 with a 10 ft cable, order E51KF11**10**. Built-to-order. May require minimum order quantity.

Non-Standard Cable Lengths

	Length of Fiber Optic Cable	Code Suffix
Glass Fiber Optic Cables 	18 in (1.5 ft)	15
	24 in (2.0 ft)	2
	48 in (4.0 ft)	4
	72 in (6.0 ft)	6
	120 in (10.0 ft)	10

Product Selection

Duplex Cables (for Diffuse Reflective Sensing)

Duplex Cables

	Fiber Bundle Size A	Mounting End Style ①	Stainless Steel Jacket Catalog Number	PVC/Monocoil Jacket Catalog Number
 Forward Viewing, Unthreaded	Forward Viewing, Unthreaded			
	0.125 in (3.2 mm)	Standard	E51KF713	E51KF313
 Right-Angle Viewing, Unthreaded	Right-Angle Viewing, Unthreaded			
	0.125 in (3.2 mm)	Standard	E51KF733	E51KF333
 Forward Viewing, Threaded	Forward Viewing, Threaded Cable End			
	0.125 in (3.2 mm)	Standard	E51KF723	E51KF323
 Forward Viewing, Rectangular	Forward Viewing, Rectangular Fiber Bundle, Threaded Cable End			
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF593	E51KF193
 Right-Angle Viewing, Threaded Cable Shaft	Right-Angle Viewing, Threaded Cable Shaft			
	0.125 in (3.2 mm)	Standard	E51KF7A3	E51KF3A3
 Right-Angle Viewing, Threaded Cable End	Right-Angle Viewing, Threaded Cable End			
	0.125 in (3.2 mm)	Standard	E51KF7B3	E51KF3B3
 Right-Angle Viewing, Tight Viewing Angle	Right-Angle Viewing, Tight Viewing Angle, Unthreaded			
	0.094 in (2.4 mm)	Standard	E51KF563	E51KF163
 Forward Viewing, Miniature Probe	Forward Viewing, Miniature Probe, Unthreaded			
	0.0625 in (1.6 mm)	Standard	E51KF583	E51KF183
 Right-Angle Viewing, Miniature Probe	Right-Angle Viewing, Miniature Probe, Unthreaded			
	0.0625 in (1.6 mm)	Standard	E51KF573	E51KF173
 Forward Viewing, Fiber Bundle	Forward Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting			
	0.032 x 0.382 in (0.8 x 9.7 mm)	Standard	E51KF743	E51KF343
		Collar	—	E51KT343
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF543	E51KF143
 Right-Angle Viewing, Fiber Bundle	Right-Angle Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting			
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF553	E51KF153
	Collar	—	E51KT153	

Dimensions, see Page V8-T9-12.

Note

① Collar mounting cables and standard mounting cables are not interchangeable and must be coupled to the correct sensor. See compatibility chart on **Page V8-T9-8.**

Single Cables (for Thru-Beam Sensing)

Single Cables

	Fiber Bundle Size A	Mounting End Style ①	Stainless Steel Jacket Catalog Number	PVC/Monocoil Jacket Catalog Number
 Forward Viewing, Unthreaded	Forward Viewing, Unthreaded			
	0.125 in (3.2 mm)	Standard	E51KF813	E51KF413
		Collar	E51KT813	E51KT413
 Right-Angle Viewing, Unthreaded	Right-Angle Viewing, Unthreaded			
	0.125 in (3.2 mm)	Standard	E51KF833	E51KF433
		Collar	E51KT833	E51KT433
 Forward Viewing, Threaded	Forward Viewing, Threaded Cable End			
	0.125 in (3.2 mm)	Standard	E51KF823	E51KF423
		Collar	E51KT823	E51KT423
 Forward Viewing, Rectangular	Forward Viewing, Rectangular Fiber Bundle, Threaded Cable End			
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF693	E51KF293
		Collar	E51KT693	E51KT293
 Right-Angle Viewing, Threaded Cable Shaft	Right-Angle Viewing, Threaded Cable Shaft			
	0.125 in (3.2 mm)	Standard	E51KF8A3	E51KF4A3
		Collar	E51KT8A3	—
 Right-Angle Viewing, Threaded Cable End	Right-Angle Viewing, Threaded Cable End			
	0.125 in (3.2 mm)	Standard	E51KF8B3	E51KF4B3
		Collar	E51KT8B3	—
 Right-Angle Viewing, Tight Viewing Angle	Right-Angle Viewing, Tight Viewing Angle, Unthreaded			
	0.094 in (2.4 mm)	Standard	E51KF663	E51KF263
		Collar	E51KT663	E51KT263
 Forward Viewing, Miniature Probe	Forward Viewing, Miniature Probe, Unthreaded			
	0.0625 in (1.6 mm)	Standard	E51KF683	E51KF283
		Collar	E51KT683	E51KT283
 Right-Angle Viewing, Miniature Probe	Right-Angle Viewing, Miniature Probe, Unthreaded			
	0.0625 in (1.6 mm)	Standard	E51KF673	E51KF273
		Collar	E51KT673	E51KT273
 Forward Viewing, Fiber Bundle	Forward Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting			
	0.032 x 0.382 in (0.8 x 9.7 mm)	Standard	E51KF843	E51KF443
		Collar	—	E51KT443
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF643	E51KF243
 Right-Angle Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting	Right-Angle Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting			
	0.020 x 0.154 in (0.5 x 3.9 mm)	Standard	E51KF653	E51KF253
		Collar	—	E51KT253

Dimensions, see **Page V8-T9-13**.

Note






① Collar mounting cables and standard mounting cables are not interchangeable and must be coupled to the correct sensor. See compatibility chart on **Page V8-T9-8**.

Accessories

Lenses

Provide increased sensing range in thru-beam mode for use with fiber optic cables with threaded tip.

Lenses

	Description	Range Increase ^①	Catalog Number
	0.5 in diameter, threaded	15X	6230A-6501
	1.0 in diameter, threaded	30X	6230A-6502
	0.5 in diameter, smooth	7X	E51KFH1
	0.75 in diameter, smooth	18X	E51KFH2
	1.0 in diameter, smooth	35X	E51KFH3

Dimensions, see Page V8-T9-14.

Technical Data and Specifications

Glass Fiber Optic Cables

Description	PVC/Monocoil Specification	Stainless Steel Specification
Temperature range	-40° to 221°F (-40° to 105°C)	-50° to 480°F (-45° to 249°C)
Bend radius	2.5X sheathing O.D. minimum	2.5X sheathing O.D. minimum
Cable length	3 ft (0.9m) standard; other lengths available, see Page V8-T9-8.	3 ft (0.9m) standard; other lengths available, see Page V8-T9-8.

Note

^① Theoretical range increase with lens on both source and detector fiber optic cable.

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Fiber Optic Cables

Glass Fiber Optic Cables

Dimensions

Approximate Dimensions in Inches (mm)

Mounting Ends ^①

Standard Mounting End

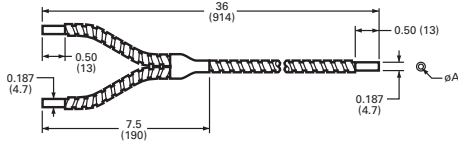


Collar Mounting End

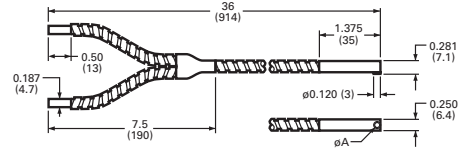


Duplex Cables (for Diffuse Reflective Sensing)

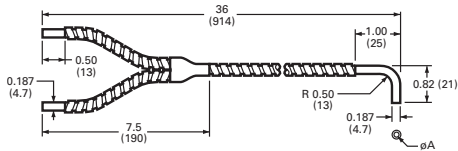
Forward Viewing, Unthreaded



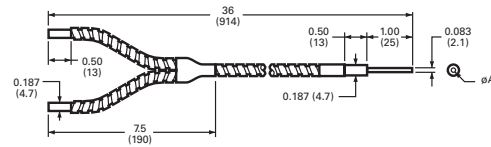
Right-Angle Viewing, Tight Viewing Angle, Unthreaded



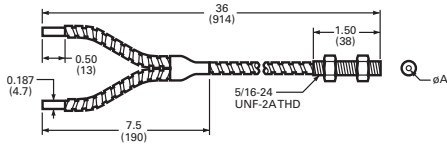
Right-Angle Viewing, Unthreaded



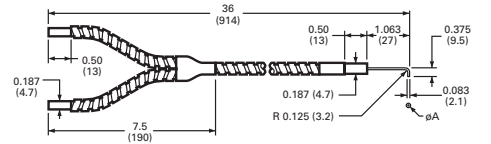
Forward Viewing, Miniature Probe, Unthreaded



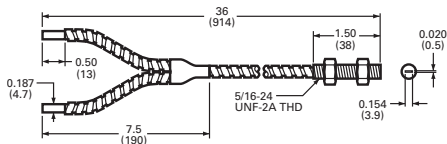
Forward Viewing, Threaded Cable End



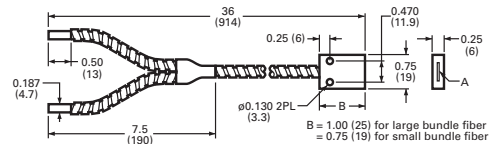
Right-Angle Viewing, Miniature Probe, Unthreaded



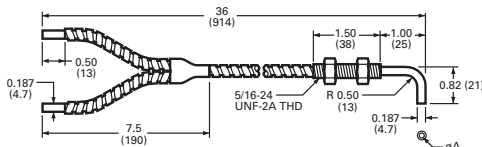
Forward Viewing, Rectangular Fiber Bundle, Threaded Cable End



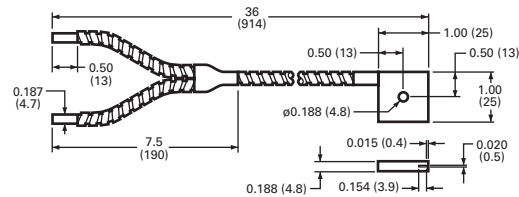
Forward Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting



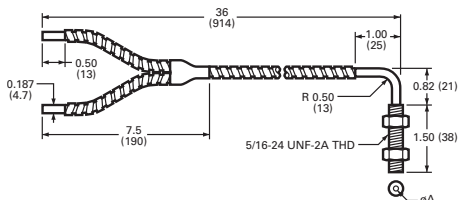
Right-Angle Viewing, Threaded Cable Shaft



Right-Angle Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting



Right-Angle Viewing, Threaded Cable End



Note

^① Collar mounting cables and standard mounting cables are not interchangeable and must be coupled to the correct sensor. See compatibility chart on **Page V8-T9-8**.

Approximate Dimensions in Inches (mm)

Mounting Ends ①

Standard Mounting End

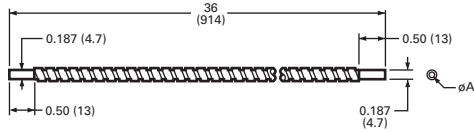


Collar Mounting End

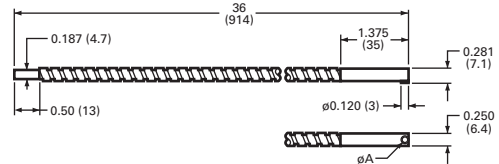


Single Cables (for Thru-Beam Sensing)

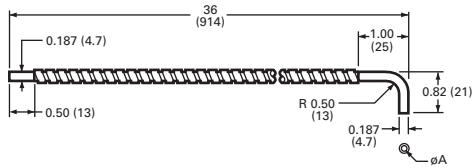
Forward Viewing, Unthreaded



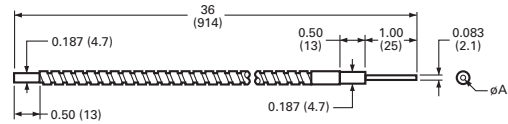
Right-Angle Viewing, Tight Viewing Angle, Unthreaded



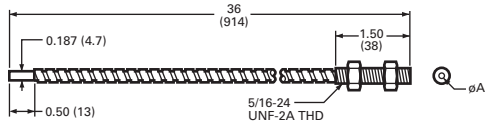
Right-Angle Viewing, Unthreaded



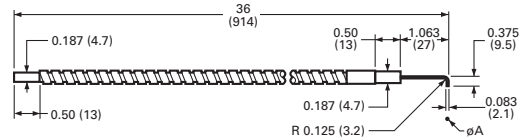
Forward Viewing, Miniature Probe, Unthreaded



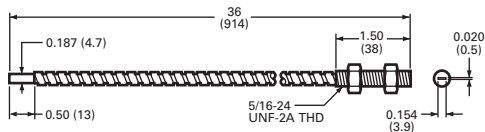
Forward Viewing, Threaded Cable End



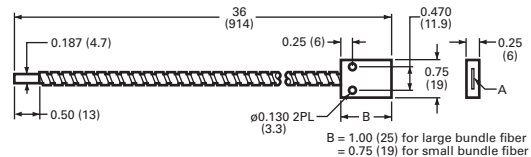
Right-Angle Viewing, Miniature Probe, Unthreaded



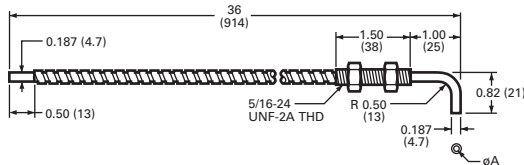
Forward Viewing, Rectangular Fiber Bundle, Threaded Cable End



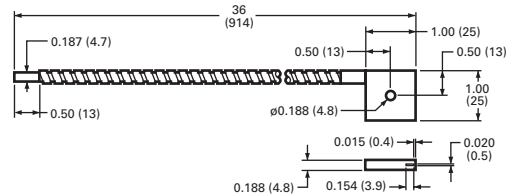
Forward Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting



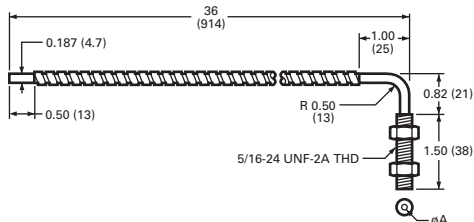
Right-Angle Viewing, Threaded Cable Shaft



Right-Angle Viewing, Rectangular Fiber Bundle, Thru-Hole Mounting



Right-Angle Viewing, Threaded Cable End



Note

① Collar mounting cables and standard mounting cables are not interchangeable and must be coupled to the correct sensor. See compatibility chart on **Page V8-T9-8**.

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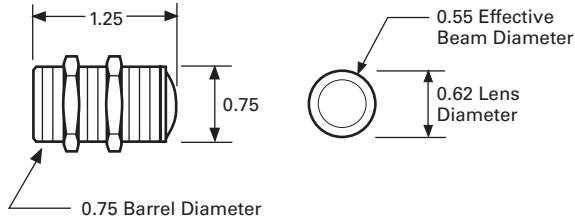
Fiber Optic Cables

Glass Fiber Optic Cables

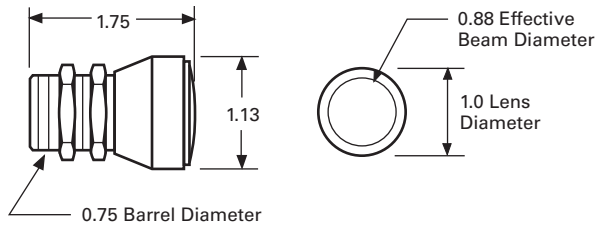
Accessories—Lenses

Approximate Dimensions in Inches

0.5 In Diameter, Threaded

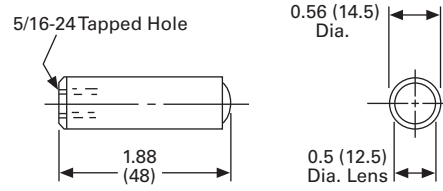


1 In Diameter, Threaded

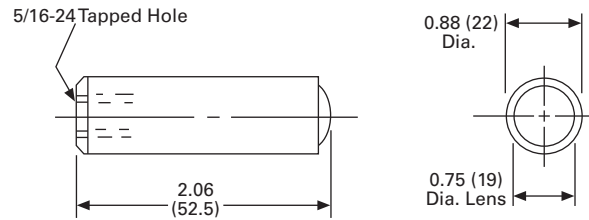


Approximate Dimensions in Inches (mm)

0.5 In Diameter, Smooth



0.75 In Diameter, Smooth



1.0 In Diameter, Smooth

