

Plastic Fiber Optic Cables

Introduction



Application Recommendations

1. Many plastic fiber optic cables are available in different core diameters. Larger core diameter cables can carry more light between the sensor and application. These cables will generally offer longer sensing ranges.

Smaller core diameter cables provide greater resolution and the ability to detect smaller targets.

2. Note that different sensing distances can be achieved depending upon the cable core diameter. These sensing distances must be de-rated for adverse environments.

Longer custom cables will attenuate the light and reduce the operating range. Light loss is approximately 3% per foot for Plastic Fiber Optic cables. Contact your local Rockwell Automation sales office or Allen-Bradley distributor for application assistance.

3. Avoid sharp bends that can permanently deform the cable. Minimum radius bend is listed for each part.
4. Some plastic fiber optic cables can be cut to length. A very sharp right angle cut is essential to provide good performance. The supplied cable cutter Cat. No. 57-127, must be used. Each opening in the cutter can be used only once.
5. Some sensing tips cannot be bent. **Only special sensing tips can be bent as specified.** Bends should only be attempted in the areas shown in the illustrations. Do not exceed the minimum bend radius for the cable.
6. Plastic fiber optic cables are suitable for applications where the sensor must be isolated from high voltage.
7. X-RAY or GAMMA radiation will cause plastic fibers to eventually become opaque. Custom cables constructed with special optical quartz fibers must be ordered for use in areas with high radiation.
8. Use Transmitted Beam sensing in submerged applications when possible.
9. A plastic fiber optic sensor with a duplex cable can provide Retroreflective or Diffuse sensing depending upon the distance to the target and the sensitivity adjustment on the sensor. If the sensor and cable are to be used for Retroreflective sensing, the sensitivity of the sensor must be adjusted low enough to avoid unwanted diffuse response from the targets to be sensed.
10. **Plastic fiber optic cables have a wide field of view.** A smaller field of view can be achieved by attaching an Extended Range Lens Assembly such as the Cat. No. 63-118 (see page 1-288) to the sensing end of the fiber. These lens assemblies will also increase the available sensing distance.
11. Plastic fiber optics cables can be used in applications where constant motion or flexing of the cable is required. Coiled cables (such as 43PR-NES57VS) are particularly well suited for these applications.
12. Plastic fiber optic cables can be successfully applied in most industrial environments. However, where abrasion or occasional impact to the cable is a concern, glass fiber optic cables may provide more durability.
13. Chemical Resistance: Acid and alkali solvents could damage the Polyethylene Fiber Core. The jacket will offer some washdown protection but long term use in chemical environments could destroy the core material.
14. The maximum temperature rating of standard plastic fiber optic cables is 70°C (158°F). Custom cables with temperature ratings of 115°C (239°F) are available.

ATTENTION



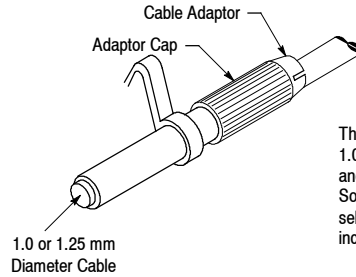
Fiber optic cables are not recommended for explosion-proof applications in hazardous environments. The fiber optic cable can provide a path for explosive fumes to travel from the hazardous area to the safe area.

Plastic Fiber Optic Cables

Cables for Small Aperture Sensors [2.2 mm (0.09 in.)]

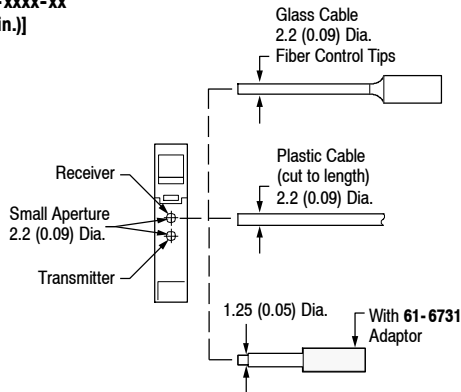
Plastic Fiber Optic Cables for use with Small Aperture Sensors

The plastic fiber optic cables on pages 1-272...1-280 are for use with small aperture sensors. The cables shown on pages 1-277...1-279 require an adaptor (included with the cable).

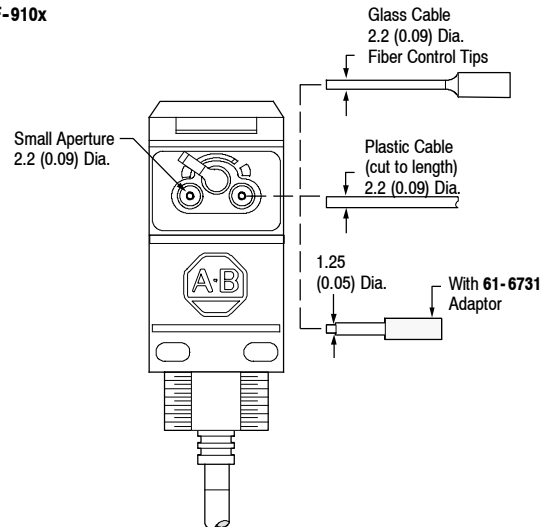


The drawing of the Cat. No. 61-6731 adaptor shows how 1.0/1.25 mm (0.04/0.05 in.) OD fibers (shown on pages 1-277 and 1-279) can be used with most small aperture sensors. Some sensors have adaptors for this purpose included. Product selection pages for each sensor will indicate if an adaptor is included as standard.

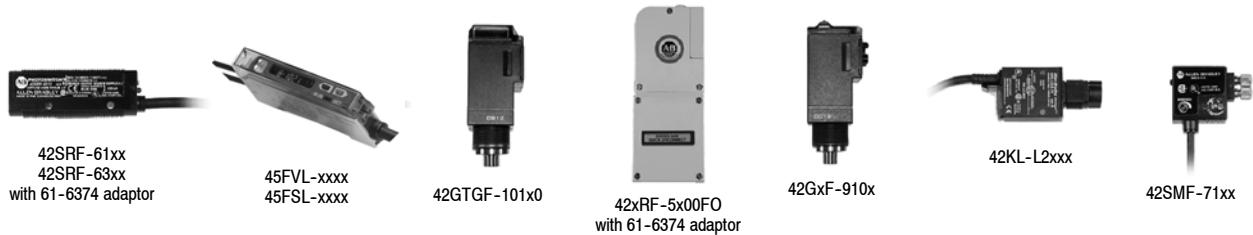
45Fxx-xxxx-xx
[mm (in.)]



42GxF-910x



Small Aperture Sensors:



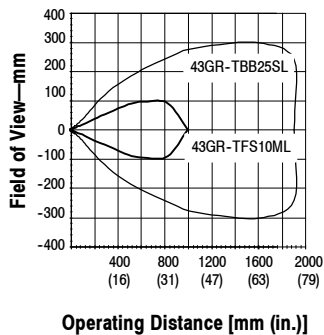
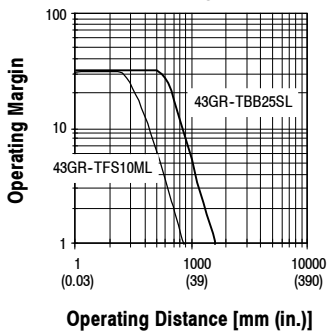
Note: Sensing Distance

- Due to the variation between fiber optic cables, sensing distance can vary widely
- The sensing distance of bifurcated cables is measured with white paper (90% reflectivity). Other surfaces may be less reflective and therefore would have shorter sensing distances.
- The published numbers are based on extensive testing and are conservative
- The sensing distance of transmitted beam cables is measured from tip to tip
- Application considerations that effect distance
 - Sensor selected
 - Reflectivity of target
 - Environment
 - Accessories such as focusing lens
 - Length of the cable
- The cut of the plastic. Re-cutting the cable with the proper tool (Cat. No. 57-127) will typically give a better surface for the sensor to interface with, allowing a longer sensing distance.
- Bending a bendable tip beyond the minimum bend radius of the cable will reduce sensing distance.
- Consult product support for additional information.

All dimensions indicated are typical. Contact your local Rockwell Automation sales office or Allen-Bradley distributor for exact dimensions.

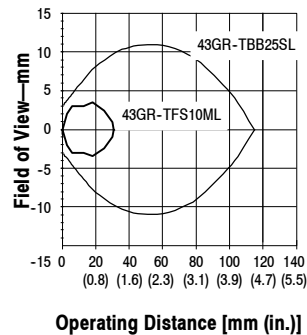
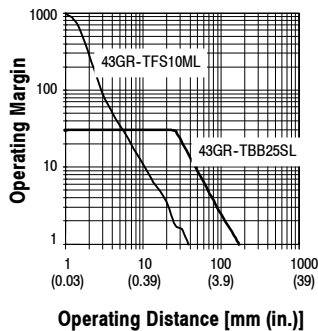
Typical Response Curve Beam Pattern

Large Aperture Fiber Optic
Retroreflective (using 3 in. dia. reflector)

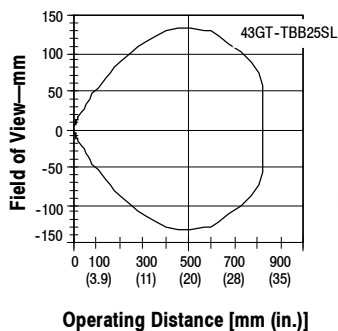
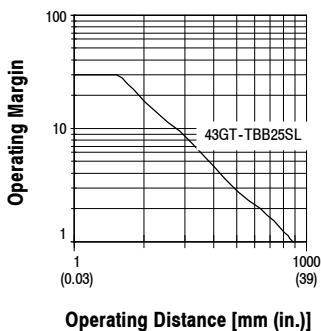


Typical Response Curve Beam Pattern

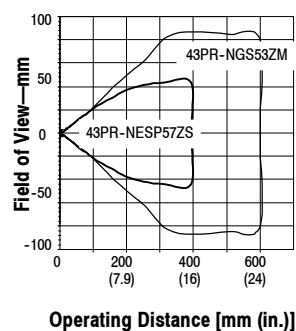
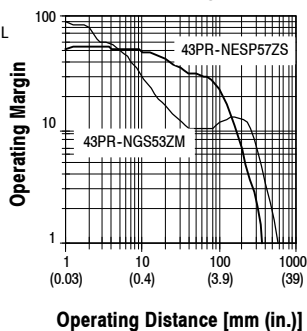
Large Aperture Fiber Optic
Diffuse



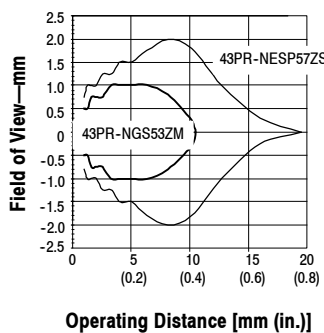
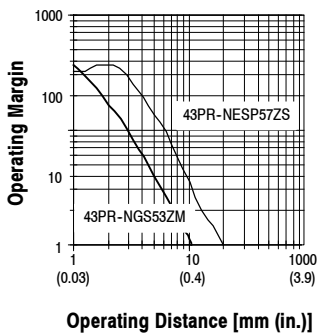
Large Aperture Fiber Optic
Transmitted Beam



Small Aperture Fiber Optic
Retroreflective (using 3 in. dia. reflector)



Small Aperture Fiber Optic
Diffuse



Small Aperture Fiber Optic
Transmitted Beam

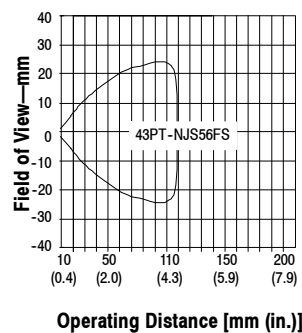
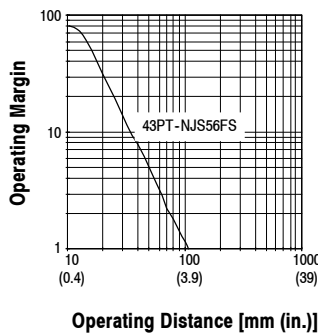


Figure 1 is a mechanical drawing of the receiver and transmitter assembly. It shows a side view of the receiver and transmitter connected by a cord. The receiver is on the left, and the transmitter is on the right. The cord is connected to the transmitter via a cord bushing. The receiver has a mounting bracket attached to its side. The transmitter has a mounting bracket attached to its side. The drawing includes various dimensions in inches and millimeters. Key dimensions include the overall length of the receiver (60 in), the length of the receiver (9 in), the length of the transmitter (5 in), and the distance between the mounting brackets (36.5 in). The drawing also shows the location of the receiver and transmitter relative to the cord bushing and the mounting bracket.

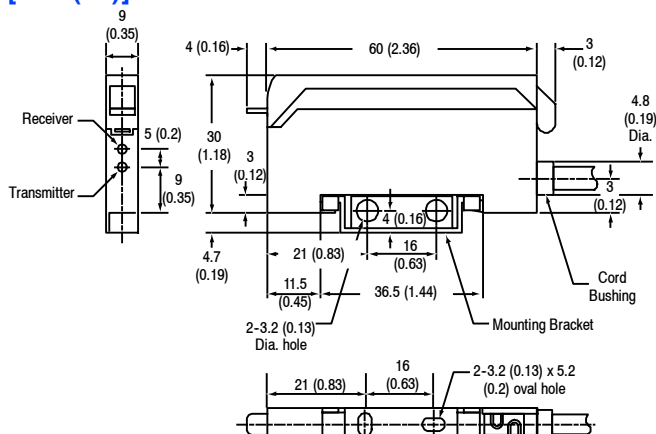
LED	Sensing Mode	Plastic Fiber Diameter [mm (in.)]	Typical Fiber Model	Typical Range
Red	Diffuse (Bifurcated Fiber)	1 (0.040)	43PR-NES57ZS	Refer to the Fiber Optic section on page 1-231.
		0.5 (0.020)	43PR-NJS53ZM	
	Transmitted Beam (Individual Fiber)	1 (0.040)	43PT-NJS56FS	
		0.5 (0.020)	43PT-NBS52FM	
Green	Diffuse (Bifurcated Fiber)	1 (0.040)	43PR-NES57ZS	
	Transmitted Beam (Individual Fiber)		43PT-NJS56FS	
Blue	Diffuse (Bifurcated Fiber)		43PR-NES57ZS	
	Transmitted Beam (Individual Fiber)		43PT-NJS56FS	
White	Diffuse (Bifurcated Fiber)		43PR-NES57ZS	
	Transmitted Beam (Individual Fiber)		43PT-NJS56FS	

Sensing Mode	Operating Voltage	Response Time	Output Characteristics		LED	Cat. No.		
			Type	Max Load Current		Cable	Pico	Power Bus (QD required)
Field of View: Refer to Plastic Fiber Optic section page 1-270 Emitter LED: Visible red 660 nm, Visible green 565 nm or Visible blue 470 nm Visible white Indicators: Orange: Output Green: Stability	12...24V DC ±10%	600 μs	PNP	Output: 100 ma	Red	45FVL-2LHE-A2	45FVL-2LHE-P4	45FVL-2LHE-C4 ①
Green					45FVL-3LHE-A2	45FVL-3LHE-P4	45FVL-3LHE-C4 ①	
Blue					45FVL-6LHE-A2	45FVL-6LHE-P4	45FVL-6LHE-C4 ①	
White					45FVL-5LHE-A2	45FVL-5LHE-P4	45FVL-5LHE-C4 ①	
NPN			Red		45FVL-2LGE-A2	45FVL-2LGE-P4	45FVL-2LGE-C4 ①	
			Green		45FVL-3LGE-A2	45FVL-3LGE-P4	45FVL-3LGE-C4 ①	
			Blue		45FVL-6LGE-A2	45FVL-6LGE-P4	45FVL-6LGE-C4 ①	
			White		45FVL-5LGE-A2	45FVL-5LGE-P4	45FVL-5LGE-C4 ①	

Description	Cat./Page No.	Description	Cat./Page No.
Pico QD Cordset, Straight, 4-pin, 2 m	889P-F4AB-2	PowerBus master/3 conductor QD	45F-A3C-A2
Fiber Optic Cables	1-231	PowerBus slave/1 conductor QD	45F-A1C-A2
Fiber Optic Adaptor Replacements		PowerBus caps	
1.25...2.2 mm O.D.	61-6731	Male	45F-AMC
1.00...2.2 mm O.D.	61-6742	Female	45F-AFC
Mounting Assembly	60-2638		

PHOTOSWITCH® Photoelectric Sensors
45FSL Visible Red or White Plastic Fiber Optic
General Purpose DIN Style

Approximate Dimensions [mm (in.)]



Typical Plastic Fiber Optic Cable Selection

LED	Sensing Mode	Plastic Fiber Diameter [mm (in.)]	Typical Fiber Model	Typical Range
Red	Diffuse (Bifurcated Fiber)	1 (0.040)	43PR-NES57ZS	Refer to the Fiber Optic section on page 1-231.
		0.5 (0.020)	43PR-NJS53ZM	
	Transmitted Beam (Individual Fiber)	1 (0.040)	43PT-NJS56FS	
		0.5 (0.020)	43PT-NBS52FM	
White	Diffuse (Bifurcated Fiber)	1 (0.040)	43PR-NES57ZS	
	Transmitted Beam (Individual Fiber)		43PT-NJS56FS	

Product Selection

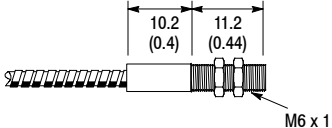
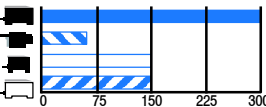
Sensing Mode	Operating Voltage	Response Time	Output Characteristics		LED	Cat. No.		
			Type	Max Load Current		Cable	Pico	Power Bus (QD required)
 Field of View: Refer to Plastic Fiber Optic section page 1-270 Emitter LED: Visible red 660 nm, Visible white Indicators: Orange: Output Green: Stability	12...24V DC ±10%	Selectable 250 μs or 500 μs	PNP	Output: 100 ma Stability: 50 ma	Red	45FSL-2LHE-A2	45FSL-2LHE-P4	45FSL-2LHE-C4 ①
NPN			White		45FSL-5LHE-A2	45FSL-5LHE-P4	45FSL-5LHE-C4 ①	
30 μs		PNP	Red		45FSL-2LGE-A2	45FSL-2LGE-P4	45FSL-2LGE-C4 ①	
			White		45FSL-5LGE-A2	45FSL-5LGE-P4	45FSL-5LGE-C4 ①	
		NPN	Red		45FSL-2LWE-A2	45FSL-2LWE-P4	45FSL-2LWE-C4 ①	
			White		45FSL-5LWE-A2	45FSL-5LWE-P4	45FSL-5LWE-C4 ①	
			Red		45FSL-2LVE-A2	45FSL-2LVE-P4	45FSL-2LVE-C4 ①	
			White		45FSL-5LVE-A2	45FSL-5LVE-P4	45FSL-5LVE-C4 ①	

① PowerBus master/4 conductor QD = 45F-A4C-A2
 PowerBus slave/2 conductor QD = 45F-A2C-A2

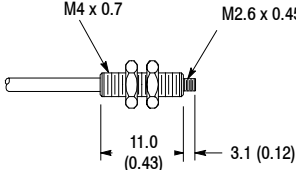
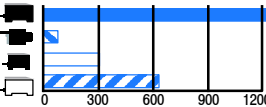
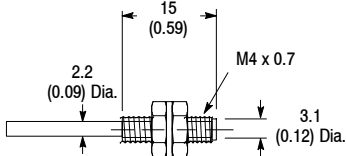
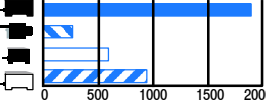
Cordsets and Accessories

Description	Cat./Page No.	Description	Cat./Page No.
Pico QD Cordset, Straight, 4-pin, 2 m	889P-F4AB-2	PowerBus master/4 conductor QD	45F-A4C-A2
Fiber Optic Cables	1-231	PowerBus slave/2 conductor QD	45F-A2C-A2
Fiber Optic Adaptor Replacements 1.25...2.2 mm O.D. 1.00...2.2 mm O.D.	61-6731 61-6742	PowerBus caps Male Female	45F-AMC 45F-AFC
Mounting Assembly	60-2638		

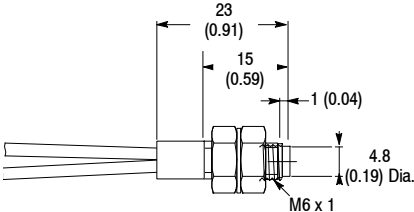
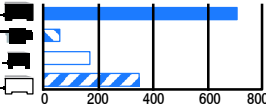
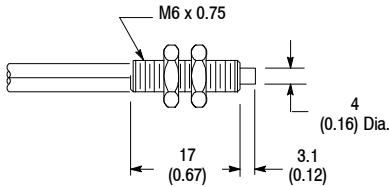
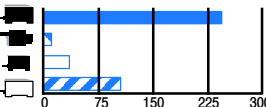
45FPL Visible Red Small Aperture Teachable Fiber Optic**Extended Range with Digital Display****43GR Glass Fiber Optic Cable Selection****Threaded Bifurcated Cables for Small Aperture Sensors [2.2 mm (0.09 in.)]**

				Approximate Metric / Standard Distances							
				0	50	100	150	200	250	300	mm
45FPL-xxxx	42KL-L2xxx	45FSL-xxxx	45FVL-xxxx	0	2	4	6	8	10	12	in.
Approximate Dimensions [mm (in.)]	Sensing Tip Material	Fiber Bundle Diameter [mm (in.)]	Sheathing Material	Sensing Distance [mm] ①	Cat. No.						
	Brass	2.2 (0.09)	Stainless Steel		43GR-TAB20SS						

43PT Plastic Fiber Optic Cable Selection**Threaded Transmitted Beam Cables for Small Aperture Sensors [2.2 mm (0.09 in.)]**

Approximate Dimensions [mm (in.)]	Bend Radius [mm (in.)]	Fiber Bundle Diameter [mm (in.)]	Sheathing Material	Sensing Distance [mm] ①	Cat. No.
	25 (1.0)	1 (0.04)	Polyethylene		43PT-NJS56FS
	40 (1.6)	1.5 (0.06)	Polyethylene		43PT-NAS58FS

Bifurcated Cables for Small Aperture Sensors [2.2 mm (0.09 in.)]

Approximate Dimensions [mm (in.)]	Bend Radius [mm (in.)]	Fiber Bundle Diameter [mm (in.)]	Sheathing Material	Sensing Distance [mm] ①	Cat. No.
	40 (1.6)	2 x 1.5 (0.06)	Polyethylene		43PR-NDS59FS
	25 (1.0)	2 x 1 (0.04)	Polyethylene		43PR-NES57ZS

① The sensing distance for the 45FPL is two times the sensing distance for the 45FVL when used in long range mode.

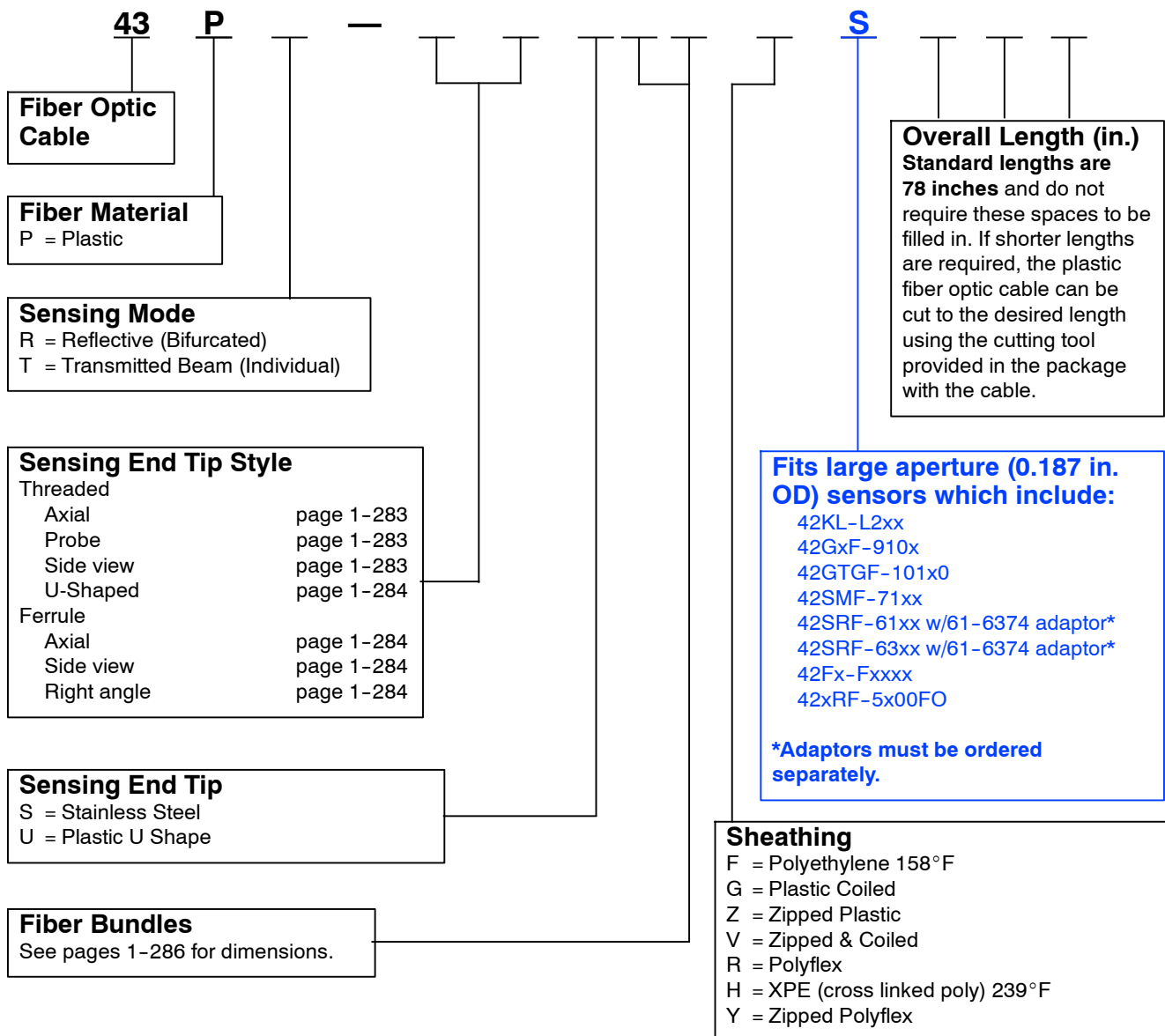
Plastic Fiber Optic Cables**Additional Cables for Small Aperture Sensors [2.2 mm (0.09 in.) OD Sensor End Tip]****Custom Fiber Optic Cables**

Rockwell Automation/Allen-Bradley can provide custom plastic fiber optic cables to meet nearly any application requirement.

Typical cable modifications include:

- Custom lengths are available
- Custom temperature ratings up to 115°C (239°F)
- Custom configurations including multiple sensing tips
- Custom sensing end tips—nearly any modification is possible

For more information contact your local Rockwell Automation sales office or Allen-Bradley distributor.

To Build a Custom Fiber Optic

PHOTOSWITCH® Photoelectric Sensors
Plastic Fiber Optic Cable Sensing Tips
 Use with Configurators on page 1-281 and 1-282.

Approximate Dimensions	Code	Standard Bundle [mm]	Approximate Dimensions [mm (in.)]					
			A	B	C	D	E	F
	NA	0.5	14.9 (0.59)	—	M4, P=0.7	0.51 (0.02)	3.0 (0.12)	—
	NB	0.5	9.9 (0.39)	—	M3, P=0.5	NA	—	—
	NC	0.25	11.9 (0.47)	—	M4, P=0.7	3.05 (0.12)	1.02 (0.04)	—
	ND	1.5	13.9 (0.55)	23.1 (0.91)	M6, P=1	1.02 (0.04)	4.8 (0.19)	—
	NE	1.0	17.0 (0.67)	—	M6, P=0.75	3.05 (0.12)	4.06 (0.16)	—
	NF	0.5	11.9 (0.47)	—	M4, P=0.7	3.05 (0.12)	2.54 (0.10)	—
	NG	0.75	10.9 (0.43)	14.9 (0.59)	M3, P=0.5	NA	—	3.05 (0.12)
	NJ	1.0	11.9 (0.47)	—	M4, P=0.7	3.05 (0.12)	—	—
	NK	0.5	11.9 (0.47)	—	M6, P=0.75	3.05 (0.12)	2.54 (0.10)	—
	NL	0.5	14.9 (0.59)	23.1 (0.91)	M6, P=1	4.8 (0.19)	6.1 (0.24)	6.1 (0.24)

Approximate Dimensions	Code	Standard Bundle [mm]	Approximate Dimensions [mm (in.)]						
			A	B	C	D	E	F	G
	PA	0.5	14.9 (0.59)	35.0 (1.38)	2.54 (0.1)	1.02 (0.04)	0.76 (0.03)	M4, P=0.7	—
	PB	0.5	14.9 (0.59)	69.8 (2.75)	2.54 (0.1)	1.02 (0.04)	0.76 (0.03)	M4, P=0.7	—
	PD	0.5	9.9 (0.39)	69.8 (2.75)	2.03 (0.08)	1.02 (0.04)	0.76 (0.03)	M3, P=0.5	—
	PE	0.5	14.9 (0.59)	35.0 (1.38)	2.54 (0.1)	1.52 (0.06)	1.27 (0.05)	M6, P=1	23.1 (0.91)
	PF	0.5	14.9 (0.59)	69.8 (2.75)	2.54 (0.1)	1.52 (0.06)	1.27 (0.05)	M6, P=1	23.1 (0.91)
	PG	0.5	14.9 (0.59)	69.8 (2.75)	2.54 (0.1)	1.52 (0.06)	1.27 (0.05)	M4, P=0.7	—
	PH	0.5	10.9 (0.43)	69.8 (2.75)	2.03 (0.08)	1.52 (0.06)	1.27 (0.05)	M3, P=0.5	14.9 (0.59)

Approximate Dimensions	Code	Standard Bundle [mm]	Approximate Dimensions [mm (in.)]			
			A	B	C	D
	PC	0.5	14.9 (0.59)	14.9 (0.59)	0.76 (0.03)	M3, P=0.5
	PI	1.0	17.0 (0.67)	88.9 (3.5)	2.54 (0.1)	M6, P=0.75
	PJ	0.5	11.4 (0.45)	88.9 (3.5)	1.27 (0.05)	M3, P=0.5
	PK	1.0	17.0 (0.67)	88.9 (3.5)	1.27 (0.05)	M6, P=0.75
	PL	0.5	10.9 (0.43)	88.9 (3.5)	0.86 (0.034)	M3, P=0.5

Approximate Dimensions [mm (in.)]	Code	Standard Bundle [mm]
	SA	1.0

43PT Plastic Fiber Optic Cables**Threaded Transmitted Beam Cables for Small Aperture Sensors [2.2 mm (0.09 in.)]**

Approximate Dimensions [mm (in.)]	Bend Radius [mm (in.)]	Fiber Bundle Diameter	Sheathing Material	Sensing Distance [mm]	Cat. No.
	25 (1.0)	1 (0.04)	Polyethylene		43PT-NJS56FS
	25 (1.0)	1 (0.04)	Polyethylene		43PT-NJS56GS
	40 (1.6)	1.5 (0.06)	Polyethylene		43PT-NAS58FS
	2 (0.08)	1.0 (0.04)	1 R Polyflex	Characterization not available at time of publication	43PT-NAS66RS
	15 (0.6)	0.5 (0.02)	Polyethylene		43PT-PAS52FS
	15 (0.6)	0.5 (0.02)	Polyethylene		43PT-PBS52FS

Notes: Standard length for plastic fiber optic cables is 2 m (78 in.) tip to tip.
Two cables per one plastic transmitted beam cat. no.

PHOTOSWITCH® Photoelectric Sensors
Fiber Optic Cable Cross Reference

Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
99-1000-1	43GR-TAS20ML	99-461-1	43GT-MMS10ML	99-721-1	43GT-MIS15ML
99-1003-1	43GR-XDB25SL	99-477-1	43GT-TFS00ML	99-722-1	43GT-TMS25ML
99-108	43PT-PLS52FS	99-479-1	43GT-MUS10ML	99-723-1	43GT-TMS15MS
99-109	43PT-PLS52GS	99-487-1	43GT-MRS10ML	99-751-1	43GR-XAS10SS
99-110	43PR-PJS53ZS	99-490-1	43GT-MHS15SL	99-752-1	43GR-TIS10SS
99-116-1	43GT-MIS15SL	99-491-1	43GT-MHS15ML	99-753-1	43GR-FTS10SS
99-161-1	43GR-TAB20SS	99-494-1	43GT-BCA73SL	99-755-1	43GR-TDS10SS
99-181-1	43GT-TWC25SL	99-495-1	43GT-BCA73ML	99-794-1	43GR-BRA79SL
99-184-1	43GT-2FAS20SL	99-500-1	43GT-TBS25SL	99-800	43PR-NDS59FS
99-201-1	43GR-FOS20ML	99-50-1	43GT-FAS25SL	99-801	43PR-NDS57ZS
99-206-1	43GR-FPS20SL	99-501-1	43GT-TBS25ML	99-802	43PR-NAS57ZM
99-214-1	43GR-FJS30SL	99-502-1	43GT-TBB30SL	99-803	43PR-NAS60FM
99-222-1	43GR-TMC25SL	99-504-1	43GT-TQC25SL	99-804	43PR-NKS57ZS
99-224-1	43GR-TMC15SL	99-505-1	43GT-TQC25ML	99-805	43PR-NKS61FS
99-238-1	43GR-FGS25SL	99-508-1	43GT-TRC30SL	99-806	43PR-NFS53FM
99-275-1	43GR-TFS10ML	99-51-1	43GT-FAS25ML	99-808Z	43PR-NGS53ZM
99-279-1	43GR-MUS10ML	99-52-1	43GT-TBB25SL	99-809Z	43PR-NGS55ZM
99-283-1	43GR-MS10ML	99-530-1	43GT-TTC20SL	99-810	43PR-PES53FS
99-290-1	43GR-MHS15SL	99-53-1	43GT-TBB25ML	99-811	43PR-PFS53FS
99-291-1	43GR-MHS15ML	99-54-1	43GT-FIS25SL	99-814	43PR-CBS53ZM
99-294-1	43GR-BCA73SL	99-55-1	43GT-FIS25ML	99-816	43PR-AAS53ZM
99-300-1	43GR-TBS25SL	99-56-1	43GT-BAA72SL	99-818	43PR-VBS53ZM
99-30-1	43GR-FAS25SL	99-57-1	43GT-BAA72ML	99-819	43PT-NAS58FS
99-301-1	43GR-TBS25ML	99-58-1	43GT-MKS00SL	99-820	43PT-NBS56FM
99-302-1	43GR-TBB30SL	99-59-1	43GT-MKS00ML	99-821	43PT-NBS54FM
99-304-1	43GR-TQC25SL	99-614-1	43GR-MQS15SL	99-822	43PT-NBS52FM
99-308-1	43GR-TRC30SL	99-623-1	43GR-2FAS25SL	99-823	43PT-PAS52FS
99-31-1	43GR-FAS25ML	99-626-1	43GT-6TBB15SL	99-825	43PT-PCS52FM
99-315-1	43GR-TKC25ML	99-643-1	43GR-4TBB22SL	99-827	43PT-CBS56FS
99-32-1	43GR-TBB25SL	99-68-1	43GR-MVS00ML	99-828	43PT-SAS56FS
99-330-1	43GR-TTS20SL	99-69-1	43GT-TMC25SL	99-833	43PR-SCS57ZS
99-33-1	43GR-TBB25ML	99-700-1	43GR-TBS20MS	99-838	43PR-SBS57ZS
99-34-1	43GR-FIS25SL	99-701-1	43GR-TBS15ML	99-85-1	43GR-TGB33SL
99-350-1	43GR-FRS40SL	99-702-1	43GR-TAS20MS	99-90	43PT-NJS56FS
99-35-1	43GR-FIS25ML	99-704-1	43GR-TAS20SS	99-900	43PR-RAS57ZS
99-36-1	43GR-BAA72SL	99-705-1	43GR-TMS25ML	99-91	43PT-NJS56GS
99-37-1	43GR-BAA72ML	99-706-1	43GR-TMS20MS	99-92	43PT-PKS56FS
99-39-1	43GR-MKS00ML	99-708-1	43GR-TQS20MS	99-93	43PT-PKS56GS
99-400-1	43GT-FOS20SL	99-710-1	43GT-TBS15MS	99-94	43PR-NES57ZS
99-408-1	43GT-FPS10SL	99-714-1	43GT-TAS15SS	99-95	43PR-NES57VS
99-424-1	43GT-TMC15SL	99-714-1	43GT-TAS15SS	99-951-1	43GT-XAS10SS
99-426-1	43GT-TOC30SL	99-715-1	43GT-TFS10ML	99-952-1	43GT-TIS10SS
99-436-1	43GT-FAS30SL	99-716-1	43GT-TOS30ML	99-953-1	43GT-FTS10SS
99-453-1	43GT-TJC30ML	99-717-1	43GT-TQS25ML	99-955-1	43GT-TDS10SS
99-458-1	43GT-MBS10SL	99-718-1	43GT-TQS15MS	99-96	43PR-PIS57ZS
99-46-1	43GR-TXC25SL	99-720-1	43GT-TRS30ML	99-97	43PR-PIS57VS