

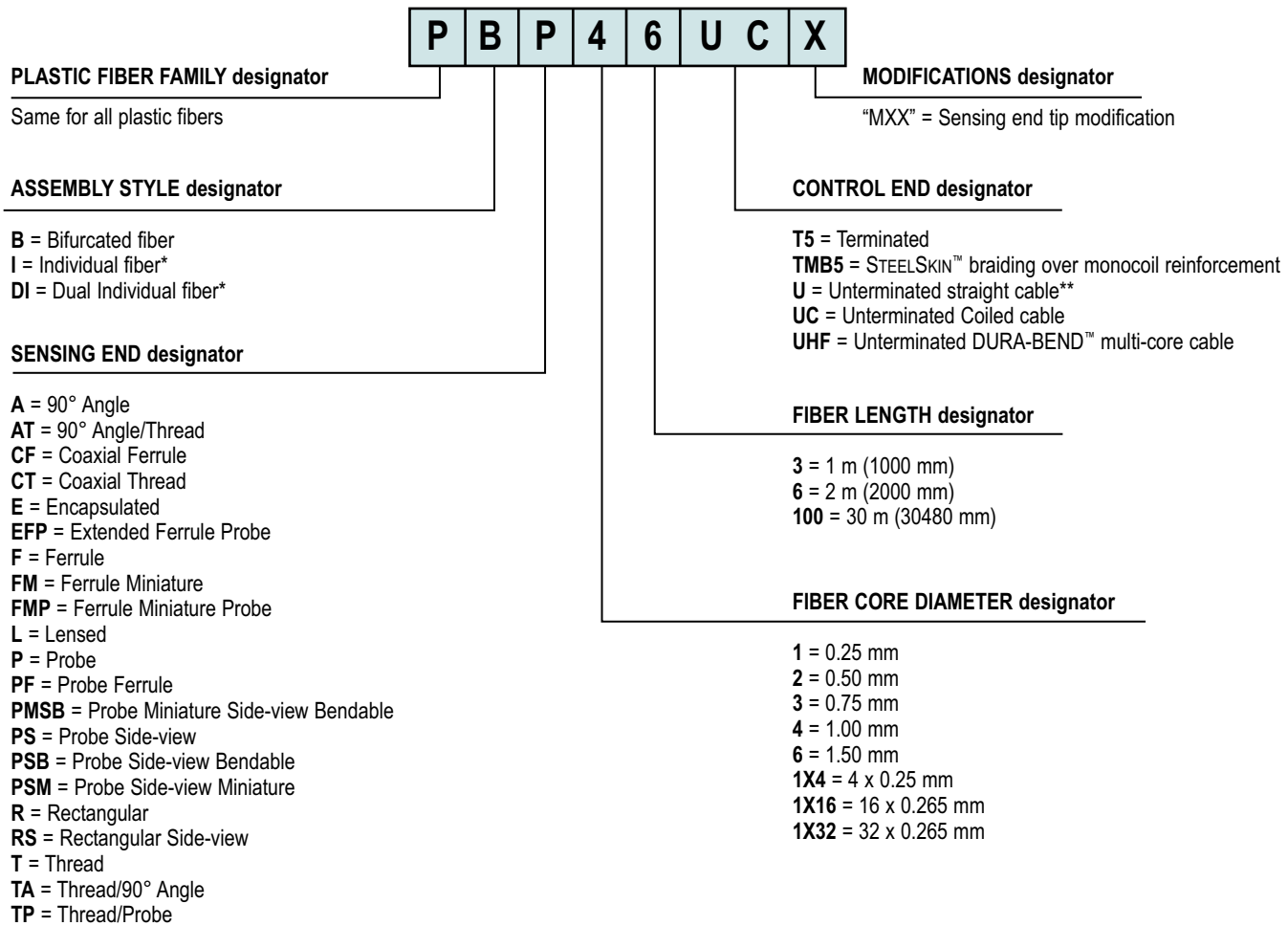


Plastic Fiber Optics

- Provide an economical alternative to glass fiber optics for piping photoelectric sensing light to and from confined areas with suitable environments
- Ideal for detecting small objects
- Withstand repeated flexing and bending
- Available in individual or bifurcated styles*
- Available with optional DURA-BEND™ fibers for improved flexibility in difficult-to-access locations, without the decreased performance to which excessively bent standard plastic fibers optics are prone
- Available with core diameters of 0.25, 0.50, 0.75, 1.0 and 1.5 mm

- Photoelectrics Sensors
- Fiber Optic Sensors**
- Special Purpose Sensors
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- Safety Light Screens
- Safety Laser Scanners
- Fiber Optic Safety Systems
- Safety Controllers & Modules
- Safety Two-Hand Control Modules
- Safety Interlock Switches
- Emergency Stop Devices

Plastic Fiber Optic Model Key



- FIBER SENSORS
- PLASTIC FIBERS**
- GLASS FIBERS

* All individual plastic fiber optics are sold and used in pairs. Bifurcated fibers are two-way fibers with a single sensing end that both emits and receives light and with dual-control sensor ends that attach separately to the sensor's LED and photodetector.

** Plastic fibers with "U" in the suffix of the model numbers have unterminated control ends; cut them to the required length using the supplied cutter.

Plastic Fiber Optics Specifications

Construction	Optical Fiber: acrylic (PMMA) monofilament, except as noted Protective Jacket: black polyethylene, except as noted Threaded End Tips and Hardware: nickel-plated brass, except as noted Probe End Tips: annealed (bendable) 304 stainless steel Angled End tips: hardened 304 stainless steel Ferrule End Tips: 303 stainless steel
Sensing Range	Refer to the specific fiber optic/sensor combination
Implied Dimensional Tolerance	All dimensions are in millimeters: $x = \pm 2.5$ mm, $x.x = \pm 0.25$ mm and $x.xx = \pm 0.12$ mm, unless specified. "L" = ± 40 mm per meter
Minimum Bend Radius	8 mm for 0.25 mm diameter fibers 12 mm for 0.5 mm diameter fibers (except DURA-BEND™) 25 mm for 1.0 mm diameter fibers (except DURA-BEND™) 38 mm for 1.5 mm diameter fibers
Repeat Bending/Flexing	Life expectancy of plastic fiber optic cable is in excess of one million cycles at bend radii of no less than the minimum and a bend of 90° or less. Avoid stress at the point where the cable enters the sensor ("control end") and at the sensing end tip. Coiled plastic fiber optic assemblies are recommended for any application requiring reciprocating fiber motion.
Chemical Resistance	The acrylic core of the monofilament optical fiber will be damaged by contact with acids, strong bases (alkalis) and solvents. The polyethylene jacket will protect the fiber from most chemical environments. However, materials may migrate through the jacket with long term exposure. Samples of fiber optic material are available from Banner for testing and evaluation.
Temperature Extremes	Temperatures below -30° C will cause embrittlement of the plastic materials but will not cause transmission loss. Temperatures above +70° C will cause both transmission loss and fiber shrinkage.
Operating Temperature	-30° to +70° C, unless otherwise specified

⚠ APPLICATION NOTES AND WARNINGS ⚠

- 1** Plastic fiber assemblies with "U" in the suffix of the model numbers have unterminated control ends (the end that is coupled to the photoelectric sensor). The customer can cut these fiber optic assemblies to the required length using the supplied cutter. Use only the supplied cutter to ensure optimal light coupling efficiency.
- 2** Terminated plastic fiber assemblies are optically ground and polished and cannot be shortened, spliced or otherwise modified.
- 3** Do not subject the plastic fibers to sharp bends, pinching, high tensile loads or high levels of radiation.
- 4** When ordering fiber lengths in excess of 2 m, take into account light signal attenuation due to the additional length.
- 5** Due to their light transmission properties, plastic fiber optics are recommended for use only with visible light fiber optic sensors.
- 6** Use caution when applying fiber optics in hazardous locations. Although fiber optic assemblies are, by themselves, intrinsically safe, the sensor and associated electronics must be LOCATED IN A SAFE ENVIRONMENT. Alternatively, fiber optics may be used with NAMUR sensor model Q45AD9FP (page 196). Fiber optics do not necessarily provide a hermetic seal between a hazardous environment and the safe environment.



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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Diffuse Standard		0.25	8	• Smooth ferrule	✓	
		0.5	12	• Smooth ferrule	✓	
		1.0	25	• Smooth ferrule	✓	
		1.0	25	• Smooth ferrule; thin jacket (ø 1.3)	✓	
		1.5	38	• Smooth ferrule; long range	✓	
		0.25	8	• Non-bendable miniature tip	✓	
		1.0	25	• Smooth ferrule	✓	
		0.25	8	• Thread	✓	
		0.5	12	• Thread	✓	
		1.0	25	• Thread	✓	
		1.5	38	• Thread; long range	✓	

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NA: WORLD-BEAM QS18 not recommended.
* Fibers can be free cut using fiber cutter (see page 255).



Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Probe		0.5	12	• Smooth ferrule; non-bendable tip	✓	
		0.25	8	• Smooth ferrule; non-bendable tip	✓	
		0.25	8	• Thread; bendable tip	✓	
		0.5	12	• Thread; bendable tip	✓	
		1.0	25	• Thread; bendable tip	✓	
		0.5	12	• Thread; bendable tip	✓	
Diffuse		0.5	12	• Flat mounting block; bendable tip	✓	
		0.75	20	• Smooth ferrule; bendable tip	✓	
		0.5	12	• Smooth ferrule; bendable tip	✓	
		1.0	25	• Smooth ferrule; bendable tip	✓	
		1.0	25	• Thread; non-bendable tip	✓	
		1.5	38	• Smooth ferrule; non-bendable tip	✓	

NA: WORLD-BEAM QS18 not recommended.

* Fibers can be free cut using fiber cutter (see page 255).





Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)	
Right-Angle PBAT46UHFWTA		1.0	2	• Right Angle, threaded, stainless steel	✓		
Coaxial	PBCF21X46U		0.5 4X 0.25	12	• Miniature probe tip	✓	
	PBCF46U		1.0 16X 0.265	25	• Smooth ferrule	✓	
	PBCT21X46U		0.5 4X 0.25	12	• Miniature thread	✓	
	PBCT26U		0.5 9X 0.25	12	• Thread	✓	
	PBCT26UM3		0.5 9X 0.25	12	• Miniature thread	✓	
	PBCT26UM4M2.5		0.5 9X 0.25	12	• Thread	✓	
	PBCT46U		1.0 16X 0.265	25	• Thread	✓	
	High-Flex	PBFM1X43T5		4X 0.25	8	• Best for repetitive flexing (1,000s of cycles)	✓
PBP46UC			1.0	25	• For applications involving reciprocating motion	✓	
PBT46UC			1.0	25	• For applications involving reciprocating motion	✓	

NA: WORLD-BEAM QS18 not recommended. NA: MINI-BEAM Expert not recommended.

* Fibers can be free cut using fiber cutter (see page 255).

Indicates lens available for model. See page 247 for details.

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Convergent Beam Spot	PLI-A10 	0.5 9X 0.25	12	<ul style="list-style-type: none"> Anodized AL tip; \varnothing 0.5-3.2 mm beam spot Glass lens 	✓	
	PBF46UHF 	1.0	1	<ul style="list-style-type: none"> Smooth ferrule 	✓	
DURA-BEND™	PBFM46UHF 	1.0	1	<ul style="list-style-type: none"> Smooth ferrule 	✓	
	PBP46UHF 	1.0	1	<ul style="list-style-type: none"> Thread; bendable tip 	✓	
	PBPS46UHF 	1.0	1	<ul style="list-style-type: none"> Smooth ferrule; non-bendable tip 	✓	
	PBT26UHF 	0.5	1	<ul style="list-style-type: none"> Thread 	✓	
	PBT46UHF 	1.0	1	<ul style="list-style-type: none"> Thread 	✓	
	PBR1X326U 	32X 0.265	25	<ul style="list-style-type: none"> Rectangular tip 	✓	
Area Sensing (Array)	PBR51X326U 	32X 0.265	25	<ul style="list-style-type: none"> Rectangular tip; side sensing 	✓	

NA: WORLD-BEAM QS18 not recommended.

* Fibers can be free cut using fiber cutter (see page 255).

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)	
Mechanical Convergent	P22-C1		0.5	12	• Straight exit with lenses; 3 mm range; DURA-BEND fiber	✓	
	P12-C1		0.5	12	• Side exit with lenses; 3 mm range; DURA-BEND fiber	✓	
	P32-C6		1.0	25	• Flat mount; 6 mm range; lensed convergent optics	✓	
Diffuse	STEELSKIN™	PBAT43TMB5		1.0	12	• 90° angle/thread	
		PBCT23TMB5		0.5 9X 0.25	12	• Miniature thread	
		PBCT23TMB5M4		0.5 9X 0.25	12	• Thread	
		PBF43TMB5		1.0	12	• Smooth ferrule	
		PBPS43TMB5		1.0	12	• Smooth ferrule; non-bendable tip	
		PBT43TMB5		1.0	12	• Thread	
		PBTA43TMB5		1.0	12	• Thread/90° angle	

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NA: WORLD-BEAM QS18 not recommended.

Indicates lens available for model. See page 247 for details.

* Fibers can be free cut using fiber cutter (see page 255).





Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)	
STEELSKIN™ PBT43TMB5		1.0	12	• Thread; bendable tip			
High-Temp PBT46UHT1		1.0	25	• Thread; withstands 105° C	✓		
Diffuse	Liquid Level						
	PBE46UTMLLP		1.0	25	• Fluoropolymer encapsulated • Sensor switches when tip of fiber is immersed in liquid	✓	
	PBE46UTMLLPH1		1.0	25	• Fluoropolymer encapsulated; withstands 105° C • Sensor switches when tip of fiber is immersed in liquid	✓	
	PBT26UM6M.1		0.5	12	• Quartz probe; polypropylene housing	✓	
TGR3/8MPFMQ		0.5	12	• Sensor switches when tip of quartz is immersed in liquid			
PDI46U-LLD		1.0	1	• Clear tube mount; DURA-BEND fiber • Sensor switches when liquid meniscus reaches optical axis	✓		
Flat Pack PBR526U		0.5	12	• 3.2 mm thickness; DURA-BEND fiber	✓		
Chemical Resistant PBE46UTMNL		1.0	25	• Fluoropolymer encapsulated tip	✓		

NA: WORLD-BEAM QS18 not recommended.

NA: D10-Discrete not recommended.

* Fibers can be free cut using fiber cutter (see page 255).

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Diffuse Convergent Spot Lens	L4C6 	ref. model PBCT26U	ref. model PBCT26U	<ul style="list-style-type: none"> Anodized AL housing; \varnothing 0.25 mm beam spot @ 6 mm Fixed focus 		
	L4C20 	ref. model PBCT26U	ref. model PBCT26U	<ul style="list-style-type: none"> Anodized AL housing; \varnothing 4 mm beam spot @ 20 mm Fixed focus 		
	LZ3C8 	ref. model PBT26UM3	ref. model PBCT26UM3	<ul style="list-style-type: none"> Anodized AL housing; \varnothing 0.5 - 3.2 mm adj. beam spot Adjustable focus 		

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Opposed Standard	PIA16U 	0.25	8	• 90° angle	✓	
	PIA26U 	0.5	12	• 90° angle	✓	
	PIAT16U 	0.25	8	• 90° angle/thread	✓	
	PIAT26U 	0.5	12	• 90° angle/thread	✓	
	PIAT46U 	1.0	25	• 90° angle/thread	✓	

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NA: WORLD-BEAM QS18 not recommended.

Indicates lens available for model. See page 253 for details.

* Fibers can be free cut using fiber cutter (see page 255).





Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
PIAT46UM.4X.AMT		10.	25	• 90° angle/thread	✓	
PIAT66U		1.5	38	• 90° angle/thread; long range	✓	
PIF16U		0.25	8	• Smooth ferrule	✓	
PIF26U		0.5	12	• Smooth ferrule	✓	
PIF26UMLS		0.5	12	• Smooth ferrule; thick jacket (ø 2.2 mm)	✓	
PIF46U		1.0	25	• Smooth ferrule	✓	
PIF66U		1.5	38	• Smooth ferrule; long range	✓	
PIFM46U		1.0	25	• Smooth ferrule; miniature tip	✓	
PIL46U		1.0	25	• Plastic lens; ultra-long range • Lens available separately, see page 253.	✓	
PIT16U		0.25	8	• Thread	✓	

NA: WORLD-BEAM QS18 not recommended. Indicates lens available for model. See page 253 for details.

* Fibers can be free cut using fiber cutter (see page 255).

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Standard		0.5	12	• Thread	✓	NA
		1.0	25	• Thread	✓	NA
		1.5	38	• Thread; long range	✓	NA
Probe		0.25	8	• Smooth ferrule; non-bendable tip	✓	NA
		0.5	12	• Thread; bendable tip	✓	NA
		1.0	25	• Thread; bendable tip	✓	NA
Side-View		0.5	12	• Low beam divergence angle of 2° • Ideal for wafer mapping	✓	NA
		0.5	12	• Smooth ferrule; non-bendable tip	✓	NA
		1.0	25	• Smooth ferrule; non-bendable tip	✓	NA
		1.5	38	• Smooth ferrule; non-bendable tip	✓	NA
		1.0	25	• Smooth ferrule; bendable tip	✓	NA

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NA: WORLD-BEAM QS18 not recommended.

* Fibers can be free cut using fiber cutter (see page 255).



		D10 SERIES					
Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)	
Side-View	PIPSM26U 	0.5	12	• Miniature smooth ferrule; non-bendable tip			
	L2RA 	ref. model PIT46U	ref. model PIT46U	• Compact glass prism • M2.5 thread	✓		
Right-Angle	PIA46UHFMB8X12 	1.0	2	• Right angle; side exit; Delrin	✓		
	PIAT46UHFMTA 	1.0	2	• Right angle; threaded, stainless steel	✓		
Opposed High-Flex	PIFM1X46U 	4X 0.25	8	• Best for repetitive flexing (1,000s of cycles)	✓		
	PIT1X46U 	4X 0.25	8	• Best for repetitive flexing (1,000s of cycles)	✓		
	PIP46UC 	1.0	25	• For applications involving reciprocating motion	✓		
	PIT46UC 	1.0	25	• For applications involving reciprocating motion	✓		
DURA-BEND™	PIAT46UHF 	1.0	1	• 90° angle/thread	✓		
	PIF46UHF 	1.0	1	• Smooth ferrule	✓		

NA: WORLD-BEAM QS18 not recommended.

Indicates lens available for model. See page 253 for details.

* Fibers can be free cut using fiber cutter (see page 255).

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
DURA-BEND™	PIEW46UHF 	1.0	1	• Smooth ferrule; miniature tip	✓	50-1000
	PIP46UHF 	1.0	1	• Thread; bendable tip	✓	50-1000
	PIPS46UHF 	1.0	1	• Smooth ferrule; non-bendable tip	✓	50-450
	PIPSB46UHF 	1.0	1	• Smooth ferrule; bendable tip	✓	50-450
	PIT26UHF 	0.5	1	• Thread	✓	NA, 50-300
	PIT46UHF 	1.0	1	• Thread	✓	50-1000
Chemical Resistant	PIE46UT 	1.0	25	• Fluoropolymer encapsulated; lens	✓	500-3000
	PIE66UTMNL 	1.5	38	• Fluoropolymer encapsulated; lens	✓	200-1400
	PIES46UT 	1.0	25	• Fluoropolymer encapsulated; side-view prism	✓	100-600
Area Sensing (Array)	PIRX166U 	16X 0.265	25	• Ultra-compact head; straight exit; 5.25 mm width	✓	NA, 100-900
	PIRS166U 	16X 0.265	25	• Ultra-compact head; side exit; 5.25 mm width	✓	NA, 100-900

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Opposed

NA: WORLD-BEAM QS18 not recommended.

Indicates lens available for model. See page 253 for details.

* Fibers can be free cut using fiber cutter (see page 255).



		D10 SERIES					
		Discrete	Bargraph	Super High Speed	High Speed	High Power	Super High Power
Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)	
Area Sensing (Array)	PIRS1X166JMA4		16X 0.265	25	• Compact head; side exit; 10 mm width	✓	
	PIRS1X166UMPM.75		16X 0.265	25	• Side exit; 19 mm width	✓	
	PIRS1X166UMPMAL		16X 0.265	25	• Side exit; 34 mm width	✓	
High-Temp	PIT46UHT1		1.0	25	• Thread; withstands 105° C	✓	
	Slot	PDIS16UM5		0.25	10	Easy mount "fork" head; 5 mm gap	✓
PDIS16UM10			0.25	10	Easy mount "fork" head; 10 mm gap	✓	
PDIS46UM12			1.0	25	• Easy mount "fork" head; DURA-BEND fiber	✓	
PDISM46UM5MA			1.0	25	• 90° angle; compact "fork" head; DURA-BEND fiber	✓	

NA: WORLD-BEAM QS18 not recommended.

Indicates lens available for model. See page 253 for details.

* Fibers can be free cut using fiber cutter (see page 255).

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
STEEL SKIN™	PIAT43TMB5 	1.0	12	• 90° angle/thread		
	PIF43TMB5 	1.0	12	• Smooth ferrule		
	PIPS43TMB5 	1.0	12	• Smooth ferrule; non-bendable tip		
	PIT43TMB5 	1.0	12	• Thread		
	PITA43TMB5 	1.0	12	• Thread/90° angle		
	PITP43TMB5 	1.0	12	• Thread; bendable tip		
Dual Individual	PDIT26T5 	0.5	12	• Accomplish 2 inspections using only one sensor		
	PDIT4100U 	1.0	25	• 30 m duplex fiber cable		✓ Contact factory for sensing range.
Vacuum	PIF66JM52M.19D 	1.5	38	• For use with VFT-M8MVS (ambient side) See page 261.	✓	Contact factory for sensing range.
Extended Range Lens	L2 	ref. model PIT46U	ref. model PIT46U	• Range-extending lens • M2.5 thread		
	LO8FP 	ref. model PIL46U	ref. model PIL46U	• Ultra-long range-extending lens; use with raw plastic fiber		

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Opposed

NA: WORLD-BEAM QS18 not recommended. NA: MINI-BEAM Expert not recommended.
* Fibers can be free cut using fiber cutter (see page 255).

Indicates lens available for model. See page 253 for details.

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Model Number	Drawing & Dimensions (mm)	Core Dia. (mm)	Min. Bend Radius (mm)	Features	Free Cut*	Typical Range (mm)
Diffuse High-Temp BMT16.6S-HT		1.57	19	<ul style="list-style-type: none"> High performance glass fiber optics for use with Banner D10 plastic fiber sensors Miniature thread; end tip withstands 315° C 		
Opposed High-Temp IMT.756.6S-HT†		1.27	19	<ul style="list-style-type: none"> High performance glass fiber optics for use with Banner D10 plastic fiber sensors Miniature thread; end tip withstands 315° C 		


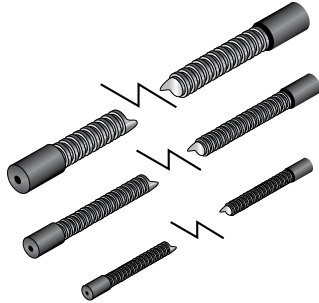
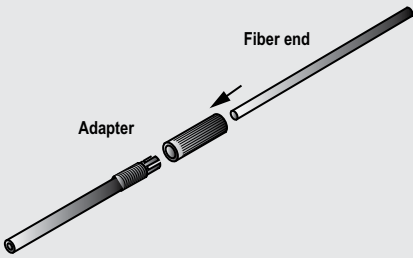
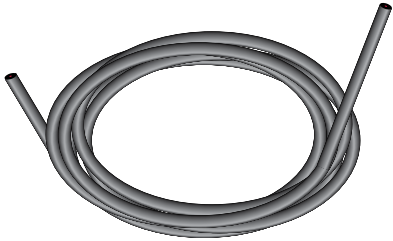
NA: WORLD-BEAM QS18 not recommended. NA: MINI-BEAM Expert not recommended.
 * Fibers can be free cut using fiber cutter (see page 255).
 † Fibers are sold separately, must order two fibers to form a pair.

D10 Expert™ Small Object Counter Fiber Optic Arrays

Model Number*	Fiber Exit	Drawing & Dimensions (mm)	Detection Window	Minimum Object Detection†	Used With
PFCVA-10X25-S	Side Exit		10 x 25 mm	1.5 mm	<ul style="list-style-type: none"> D10DNCFP... D10DPCFP...
PFCVA-10X25-E	End Exit				
PFCVA-25X25-S	Side Exit		25 x 25 mm	3 mm	
PFCVA-25X25-E	End Exit				
PFCVA-34X25-S	Side Exit		34 x 25 mm	4 mm	
PFCVA-34X25-E	End Exit				

* Custom fiber arrays and mounting configurations are possible. Contact factory with your small object counting application.
 † With 2% Threshold Offset Percentage

Fiber Optic Accessories

Model Number		Model Specific Features	General Features		Drawings
Fiber Cutters	PFK20	• For use with 0.25 and 0.5 mm diameter cables.	<ul style="list-style-type: none"> • These kits are used with unterminated plastic fiber cables. • Each kit contains 40 bushings and 10 cutter assemblies (cutters can be purchased separately in packages of 25 - reference model PFC-2-25). 		 <p>NOTE: Bushings used with Q45, OMNI-BEAM, ECONO-BEAM, MAXI-BEAM and VALU-BEAM sensors only.</p>
	PFK40	• For use with 1 and 1.5 mm diameter cables.			
Plastic Fiber Field-Installable Sheathing	PFS69S6T	• May be used with bifurcated fiber assemblies having M6 x 0.75 threaded end tips (e.g., PBCT46U, PBP46U, PBT46UHT1 and PBT66U).	<ul style="list-style-type: none"> • Stainless steel sheathing with stainless steel end fittings (one end internally threaded to capture fiber end tips, other end non-threaded) is used in applications where protection is required for plastic fiber optic cables. • All models listed are 1.8 m in length. • Other lengths are available by contacting Banner Applications Department. 		
	PFS53S6T	• May be used with individual or bifurcated fiber assemblies having M4 x 0.7 threaded end tips (e.g., PBCT26U, PBP26U, PIP46U, PIT46U and PIT66U).			
	PFS44S6T	• May be used with individual fiber assemblies having M3 x 0.5 threaded end tips (e.g., PIP26U, PIT26U and PIT1X46U).			
Plastic Fiber Adapters	UPFA-1-100	• Use to adapt plastic fiber optic cables with outside jacket diameter of 1.0 mm, such as PIT26U and PBP16U.	<ul style="list-style-type: none"> • Compression fitting adapters are used with small-diameter unterminated plastic fiber cables. • Use when interfacing small-diameter plastic fibers to D10, D11, D12, QM42, QS18, R55F, FI22 and MINI-BEAM plastic fiber sensor families. • Each kit contains 100 pairs of adapters. One pair will interface either one bifurcated fiber optic cable or a pair of individual cables to a fiber optic amplifier. 		
	UPFA-2-100	• Use to adapt plastic fiber optic cables with outside jacket diameter of 1.25 mm or 1.3 mm, such as PBCT26U and PBF46UM3MJ1.3.			
Model Number	Core	Length	Type	Drawing	
Unterminated Individual and Bifurcated Plastic Fibers	PIU230U	0.5 mm	9 m	Single	
	PIU260U		18 m		
	PIU430U	1.0 mm	9 m	Single	
	PIU460U		18 m		
	PIU630U	1.5 mm	9 m	Single	
	PIU660U		18 m		
	PBU430U	1.0 mm	9 m	Duplex	
	PBU460U		18 m		

- Photoelectrics Sensors
- Fiber Optic Sensors**
- Special Purpose Sensors
- Measurement & Inspection Sensors
- Vision
- Wireless
- Indicators
- Safety Light Screens
- Safety Laser Scanners
- Fiber Optic Safety Systems
- Safety Controllers & Modules
- Safety Two-Hand Control Modules
- Safety Interlock Switches
- Emergency Stop Devices

FIBER SENSORS

PLASTIC FIBERS

GLASS FIBERS