

There are basically two types of fiber optics: diffuse or through-beam. The diffuse models have an integrated emitter and receiver at the cable end. The through-beams use two separate cables.

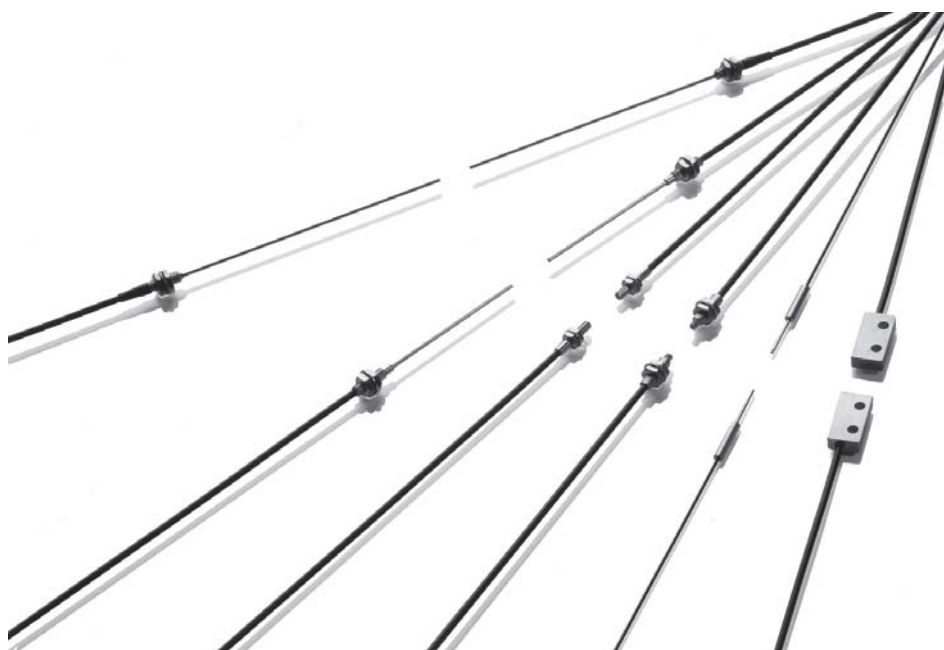
It's easy to see why fiber optics are so commonly used: The variety of end configurations, with straight or angled light exit, flexible optical head or coaxial fibers, the various fiber diameters and the ability to trim them to the desired length.



Another plus

For the ultimate in flexibility, fiber optics for user assembly are also available: any desired combinations are possible with the trim-to-length duplex cable and various end fittings.

Applications

- Small parts detection
- For tight mounting spaces
- Checking small parts features
- Counting (e.g. counting drops)
- Precise parts positioning
- Handling and assembly
- Robotics



Type	Optical head	Light exit		Fiber arrangement			Core diameter				Features			Page	
		Straight	90°	Standard	Coaxial	Light grid	1.5 mm	1.0 mm	0.5 mm	0.25 mm	Bendable optical tip	Extended temperature range	Highly flexible		
 Through-beam fiber optics															
BFO D22-LA-KB-EAK-10-02	M4	■		■				■							2.2.18
BFO D22-LAH-KB-EAK-10-02	M4	■		■				■						■	2.2.18
BFO D22-LAT-KB-EAK-10-02	M4	■		■				■					■		2.2.18
BFO D22-LAP-KB-EAK-15-02	M4	■		■			■								2.2.19
BFO D22-LAS-EB-EAK-10-02	M4	■		■				■							2.2.19
BFO D22-LA-TB-EAK-10-02	M4	■		■				■					■		2.2.19
BFO D22-LA-NB-PZK-10-02	M4	■		■				■					■		2.2.19
BFO D22-LA-RB-EAK-10-02	M3	■		■				■							2.2.18
BFO N22-LA-FB-EAK-05-01	M2	■		■					■						2.2.18
BFO D10-LA-CB-EAK-05-02	Ø2	■		■					■						2.2.18
BFO D22-LA-QB-PAK-05-02	Ø3		■	■				■							2.2.19
BFO D13-LA-QB-EAK-05-02	Ø3		■	■					■						2.2.19
BFO D13-LA-WB-EAK-05-02	Ø2		■	■				■							2.2.19
BFO D22-LA-AD-EAK-52-02	20x10	■				■						■			2.2.20
BFO D22-LA-BD-EAK-52-02	15x15		■			■						■			2.2.20
BFO D25-LA-CD-EAK-110-02	19x25	■				■						■			2.2.20
BFO D25-LA-ED-EAK-250-02	19x38		■			■						■			2.2.20
BFO D13-LG-05-EAK-30-02	15x41		■									■			2.2.20
BFO D13-LG-10-EAK-30-02	20x32		■									■			2.2.20
 Diffuse fiber optics															
BFO D22-XA-LB-EAK-20-02	M6	■		■				■							2.2.22
BFO D22-XAH-LB-EAK-20-02	M6	■		■				■						■	2.2.22
BFO D22-XAT-LB-EAK-20-02	M6	■		■				■					■		2.2.22
BFO D22-XAP-LB-EAK-30-02	M6	■		■			■								2.2.23
BFO D22-XA-DB-EAK-20-01	M6	■		■				■							2.2.23
BFO D22-XB-LB-EAK-15-02	M6	■				■		■							2.2.23
BFO D22-XBF-LB-EAK-15-02	M6	■				■		■						■	2.2.23
BFO D22-XA-SB-EAK-20-02	M6	■		■				■				■			2.2.23
BFO D22-XA-UB-EAK-20-02	M4	■		■				■							2.2.22
BFO D22-XB-UB-EAK-15-02	M4	■				■		■							2.2.22
BFO D13-XB-KB-EAK-10-02	M4	■				■			■						2.2.22
BFO D10-XA-HB-EAK-10-02	M3	■		■					■			■			2.2.23
BFO D10-XA-RB-EAK-10-02	M3	■		■					■						2.2.23
BFO D13-XB-RB-EAK-10-02	M3	■				■			■						2.2.23
BFO D10-XA-GB-EAK-10-02	M3	■		■					■			■			2.2.23
BFO D13-XA-JB-EAK-20-02	Ø3	■		■				■							2.2.23
BFO D22-XA-MB-PAK-10-02	Ø3		■	■					■						2.2.24
BFO D22-XA-CD-EAK-110-02	19x25	■				■						■			2.2.24
BFO D22-XA-ED-EAK-250-02	19x38		■			■						■			2.2.24

2.2

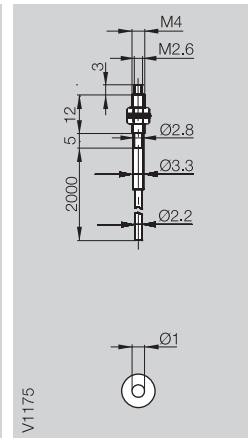
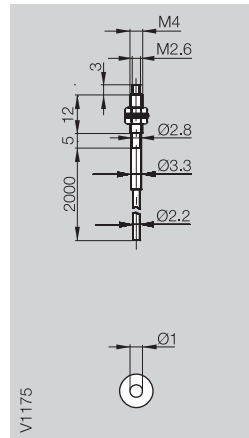
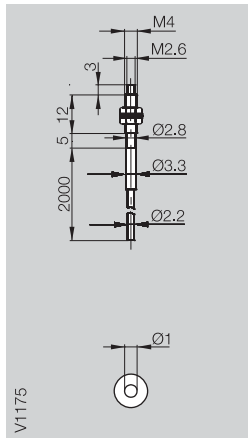
2.3

Photoelectric sensors accessories page 2.3.2 ...

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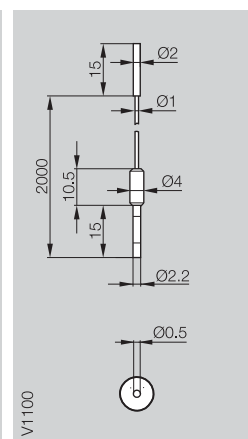
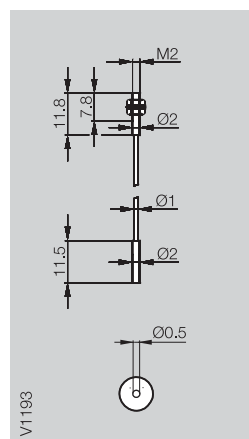
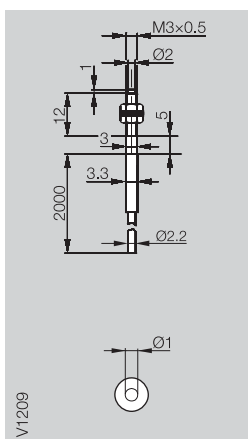
Connectors ... page 5.2 ...

Optical head	M4 thread	M4 thread	M4 thread
Features	Standard	Highly flexible	Temperature-rated
Ø Jacket	2.2 mm	2.2 mm	2.2 mm
Ø Core	1 mm	1 mm	1 mm



Ordering code	BFO D22-LA-KB-EAK-10-02	BFO D22-LAH-KB-EAK-10-02	BFO D22-LAT-KB-EAK-10-02
Fiber bending radius	≥ 25 mm	≥ 2 mm	≥ 25 mm
Head bending radius			
Temperature range	-55...+70 °C	-40...+70 °C	-55...+115 °C
Range	with BFB 75K-001 with BFB 75K-002** with BOS 73K with BOS 74K* with BOS 6K with BOS 18KF	500 mm 400 mm 400 mm 190 mm 200 mm 90 mm	600 mm 600 mm 500 mm 220 mm 230 mm 120 mm

Optical head	M3 thread	M2 thread	Ø 2 mm
Features	Standard	Precision	Precision
Ø Jacket	2.2 mm	1.0 mm	1.0 mm
Ø Core	1 mm	0.5 mm	0.5 mm



Ordering code	BFO D22-LA-RB-EAK-10-02	BFO N22-LA-FB-EAK-05-01	BFO D10-LA-CB-EAK-05-02
Fiber bending radius	≥ 25 mm	≥ 10 mm	≥ 15 mm
Temperature range	-55...+70 °C	-30...+60 °C	-55...+70 °C
Range	with BFB 75K-001 with BFB 75K-002** with BOS 73K with BOS 74K* with BOS 6K with BOS 18KF	500 mm 500 mm 450 mm 200 mm 220 mm 100 mm	140 mm 140 mm 130 mm 60 mm 50 mm 20 mm

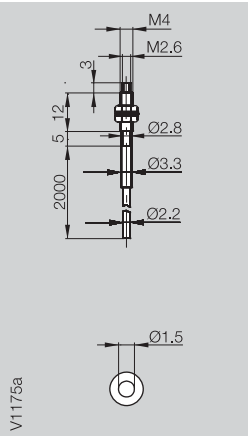
*When using base unit BOS 74K-UU-1FS-.. the sensing distance is reduced by 30 %.
**Range in Standard Mode.

Plastic Fiber Optics

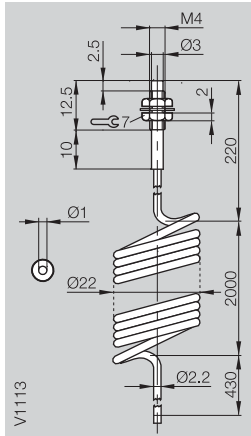
Photoelectric Sensors

BFO
Plastic Fiber Optics
Through-beam

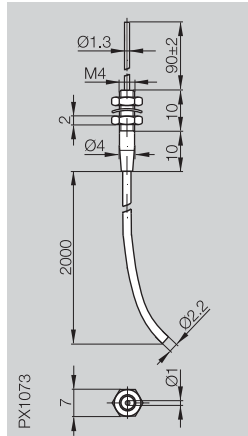
M4 thread	M4 thread	M4 thread	M4 thread
Long range	Spiral fibers	Bendable optical tip	Bendable optical tip
2.2 mm	2.2 mm	2.2 mm	2.2 mm
1.5 mm	1 mm	1 mm	1 mm



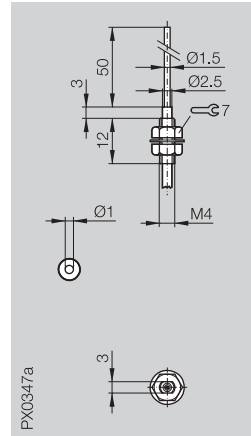
V1175a



V1113



PX1073



PX0347a

BFO D22-LAP-KB-EAK-15-02

BFO D22-LAS-EB-EAK-10-02

BFO D22-LA-TB-EAK-10-02

BFO D22-LA-NB-PZK-10-02

≥ 40 mm

≥ 25 mm

≥ 25 mm

≥ 25 mm

-55...+70 °C

-30...+60 °C

-30...+60 °C

-55...+70 °C

800 mm

400 mm

450 mm

500 mm

800 mm

400 mm

450 mm

500 mm

800 mm

350 mm

400 mm

500 mm

500 mm

190 mm

200 mm

230 mm

500 mm

190 mm

200 mm

250 mm

250 mm

100 mm

110 mm

120 mm

Ø 3 mm

Light exit on side

2.2 mm

1 mm

Ø 3 mm

Light exit on side

1.3 mm

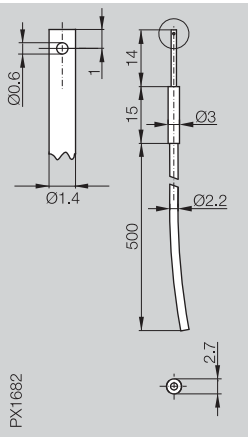
1 mm

Ø 2 mm

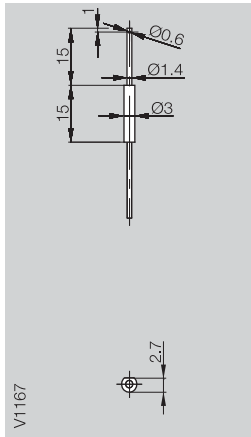
Light exit on side

1.3 mm

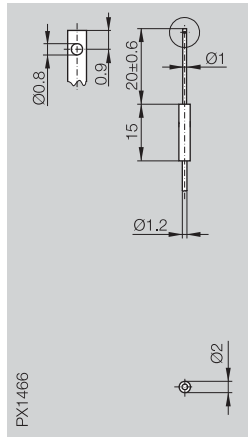
0.5 mm



PX1882



V1167



PX1466

BFO D22-LA-QB-PAK-05-02

BFO D13-LA-WB-EAK-05-02

BFO D13-LA-QB-EAK-05-02

≥ 25 mm

≥ 25 mm

≥ 15 mm

-40...+70 °C

-40...+70 °C

-35...+65 °C

120 mm

75 mm

110 mm

120 mm

75 mm

110 mm

115 mm

70 mm

105 mm

60 mm

35 mm

50 mm

65 mm

20 mm

25 mm

35 mm

20 mm

25 mm

2.2

2.3

Photoelectric sensors accessories page 2.3.2 ...

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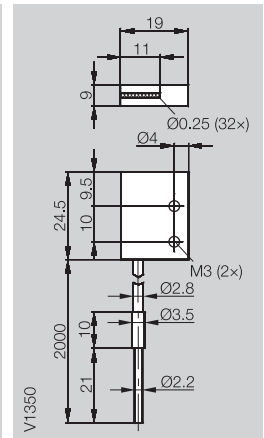
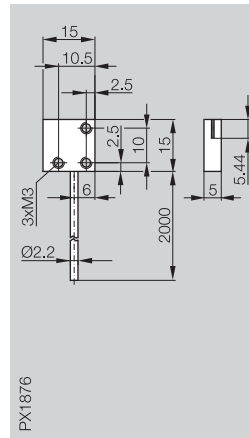
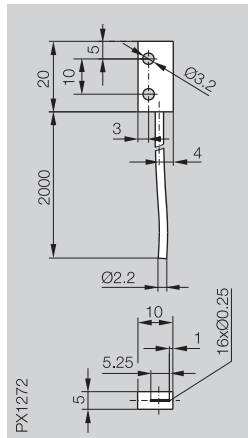
Connectors ... page 5.2 ...

One fiber optic cable each for remitter and receiver are included per packing unit.

Photoelectric Sensors

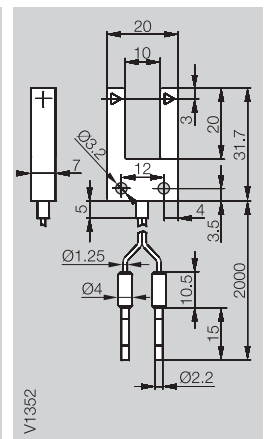
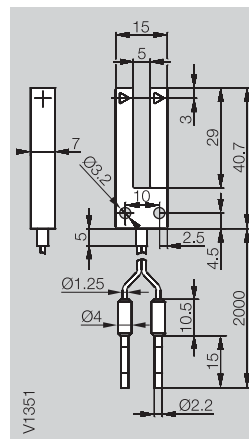
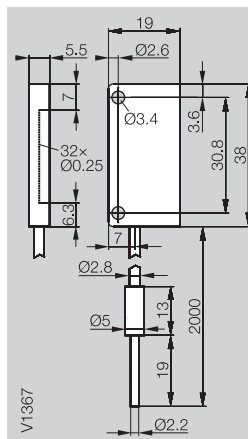
BFO Plastic Fiber Optics Through-beam

Optical head	20x10 mm	15x15 mm	19x25 mm
Features	Light grid	Light grid	Light grid
Jacket Ø	2.2 mm	2.2 mm	2.8 mm
Ø Core	16x0.25 mm	16x0.25 mm	32x0.25 mm



Ordering code	BFO D22-LA-AD-EAK-52-02	BFO D22-LA-BD-EAK-52-02	BFO D25-LA-CD-EAK-110-02
Fiber bending radius	≥ 25 mm	≥ 25 mm	≥ 60 mm
Temperature range	-35...+65 °C	-55...+70 °C	-55...+70 °C
Range	with BFB 75K-001 with BFB 75K-002** with BOS 73K with BOS 74K* with BOS 6K with BOS 18KF	450 mm 400 mm 350 mm 210 mm 180 mm 110 mm	600 mm 600 mm 600 mm 370 mm 350 mm 230 mm

Optical head	19x38 mm	15x41 mm	20x32 mm
Features	Light grid	Fork	Fork
Ø Jacket	2.8 mm	2x1.25 mm	2x1.25 mm
Ø Core	32x0.25 mm	2x0.25 mm	2x0.25 mm



Ordering code	BFO D25-LA-ED-EAK-250-02	BFO D13-LG-05-EAK-30-02	BFO D13-LG-10-EAK-30-02
Fiber bending radius	≥ 60 mm	≥ 10 mm	≥ 10 mm
Temperature range	-55...+70 °C	-55...+70 °C	-55...+70 °C
Range	with BFB 75K-001 with BFB 75K-002** with BOS 73K with BOS 74K* with BOS 6K with BOS 18KF	550 mm 550 mm 550 mm 350 mm 360 mm 210 mm	5 mm 5 mm 5 mm 5 mm 5 mm 5 mm

*When using base unit BOS 74K-UU-1FS-.. the sensing distance is reduced by 30 %.
**Range in Standard Mode.

Plastic Fiber Optics

Photoelectric Sensors

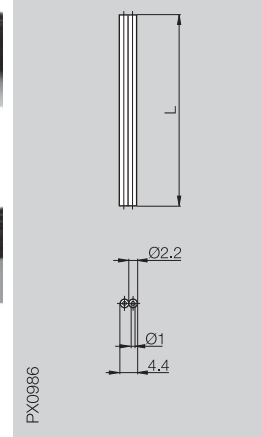
BFO
Plastic Fiber Optics
For user assembly

Individual solutions with user-assembled plastic fiber optics

If “off-the-rack” solutions are not what you’re looking for, we have a better idea. Fiber optics can be user-cut to the desired length from a 20 m roll. This way you only use as much plastic fiber optic cable as you actually need. A considerable saving, especially if multiple sensors are used.

For simple applications you may not need an end piece. A simple clamp will suffice. Or for convenience and flexibility, select from among the available end pieces. The plastic fiber optic cable is simply crimped into the end piece. Tedious gluing is eliminated. The end piece can be removed at any time.

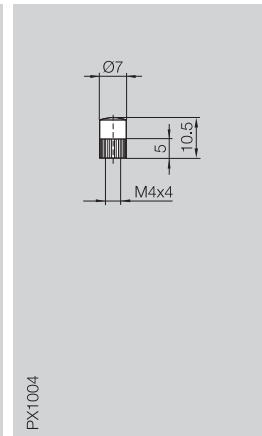
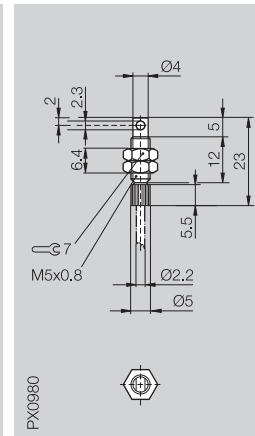
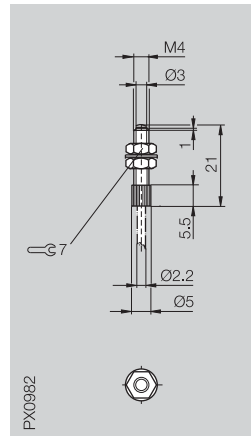
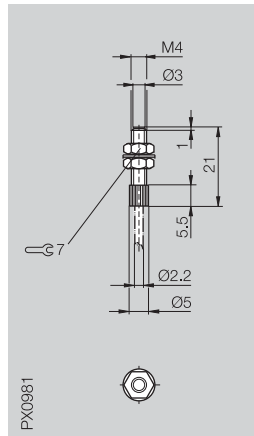
Housing size	2.2x4.4 mm duplex cable
Through-beam	
Range for L = 2 m	150 mm
Cable length	20 m



Ordering code	BFO D22-LD-EAK-10-20
Ambient temperature range T_a	-40...+85 °C
Pull force on fiber optics and connection parts at 20 °C	6 N
Core Ø	2x1 mm
Jacket Ø	2.2 mm
Cutting tool BFO CT is included.	

Housing size	M4	M4	Ø 4 mm	Ø 7 mm
Features	End piece without lens	End piece with lens	90° end piece	Lens
Used with	BFO D22-LD-EAK-10-..	BFO D22-LD-EAK-10-..	BFO D22-LD-EAK-10-..	BFO D22-LA-BC-10
Range	150 mm	450 mm	150 mm	1500 mm

Range when used with 2 m plastic fiber cable.



Ordering code	BFO D22-LA-BC-10	BFO D22-LA-CC-30	BFO D22-LA-AC-20	BFO 04-PK-1
Material				
- Optical surface	Plastic (fibers)	Glass	Glass	Glass
- Threaded tube	Stainless steel	Stainless steel	Stainless steel	Stainless steel



2.2

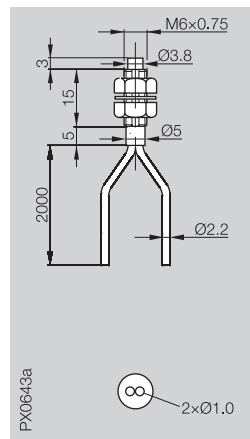
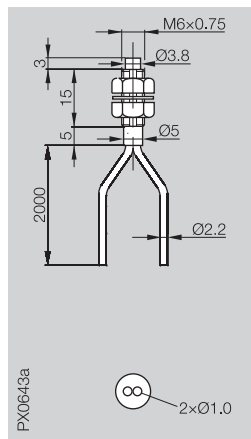
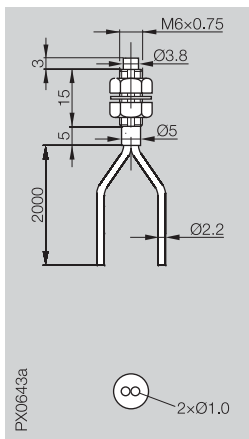
2.3

Photoelectric sensors accessories page 2.3.2 ...

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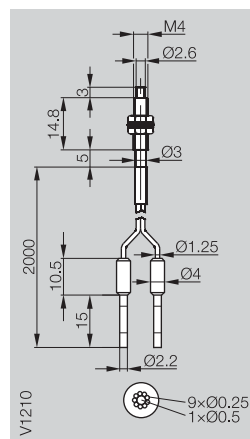
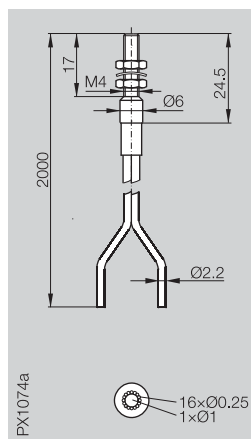
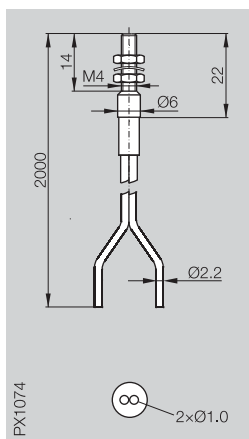
Connectors ... page 5.2 ...

Optical head	M6 thread	M6 thread	M6 thread
Features	Standard	Highly flexible	Temperature-rated
Ø Jacket	2x2.2 mm	2x2.2 mm	2x2.2 mm
Ø Core	2x1 mm	2x1 mm	2x1 mm



Ordering code	BFO D22-XA-LB-EAK-20-02	BFO D22-XAH-LB-EAK-20-02	BFO D22-XAT-LB-EAK-20-02
Fiber bending radius	≥ 25 mm	≥ 2 mm	≥ 25 mm
Head bending radius			
Temperature range	-55...+70 °C	-40...+70 °C	-55...+115 °C
Sensing distance			
with BFB 75K-001	150 mm	120 mm	130 mm
with BFB 75K-002**	150 mm	120 mm	130 mm
with BOS 73K	150 mm	120 mm	130 mm
with BOS 74K*	80 mm	60 mm	80 mm
with BOS 6K	100 mm	70 mm	90 mm
with BOS 18KF	50 mm	30 mm	50 mm

Optical head	M4 thread	M4 thread	M4 thread
Features	Standard	Coaxial	Coaxial
Ø Jacket	2x2.2 mm	2x2.2 mm	2x1.25 mm
Ø Core	2x1 mm	1x1 mm/16x0.25 mm	1x0.5 mm/9x0.25 mm



Ordering code	BFO D22-XA-UB-EAK-20-02	BFO D22-XB-UB-EAK-15-02	BFO D13-XB-KB-EAK-10-02
Fiber bending radius	≥ 25 mm	≥ 25 mm	≥ 15 mm
Head bending radius			
Temperature range	-35...+65 °C	-40...+60 °C	-55...+70 °C
Sensing distance			
with BFB 75K-001	120 mm	130 mm	60 mm
with BFB 75K-002**	120 mm	130 mm	60 mm
with BOS 73K	120 mm	130 mm	60 mm
with BOS 74K*	70 mm	80 mm	30 mm
with BOS 6K	80 mm	90 mm	
with BOS 18KF	40 mm	50 mm	20 mm

*When using base unit BOS 74K-UU-1FS-.. the sensing distance is reduced by 30 %.

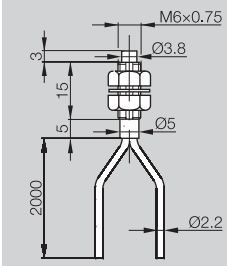
**Sensing distance in Standard Mode.

Plastic Fiber Optics

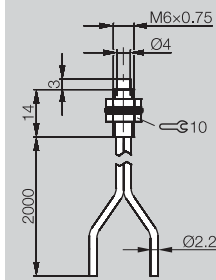
Photoelectric Sensors

BFO
Plastic Fiber Optics
Diffuse

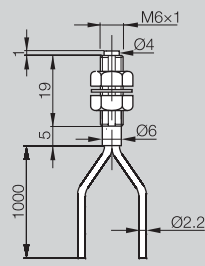
M6 thread	M6 thread	M6x1 thread	M6x1 thread	M6 thread
Long range	Coaxial	Standard	Coaxial, flexible	Bendable optical tip
2x2.2 mm	2x2.2 mm	2x2.2 mm	2x2.2 mm	2x2.2 mm
2x1.5 mm	1x1 mm/16x0.25 mm	2x1 mm	1x1 mm/16x0.25 mm	2x1 mm



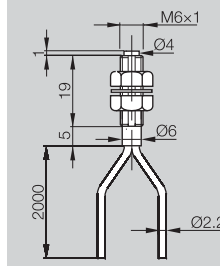
PX0643b
∞ 2xØ1.5



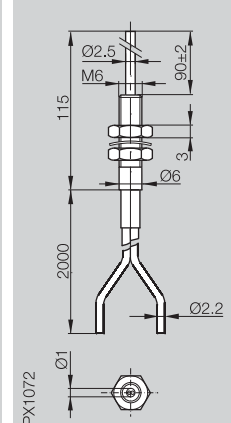
V1208
Ø1
16xØ0.25



PX0643c
∞ 2xØ1.0



PX0643d
Ø1
16xØ0.25

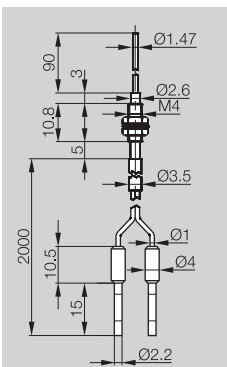


PX1072
Ø1

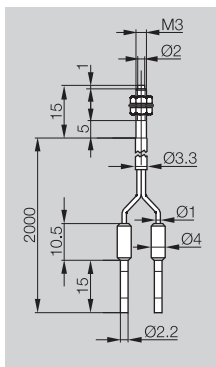
BFO D22-XAP-LB-EAK-30-02	BFO D22-XB-LB-EAK-15-02	BFO D22-XA-DB-EAK-20-01	BFO D22-XBF-LB-EAK-15-02	BFO D22-XA-SB-EAK-20-02
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≥ 40 mm	≥ 25 mm	≥ 25 mm	≥ 5 mm	≥ 25 mm
-55...+70 °C	-55...+70 °C	-40...+60 °C	-40...+60 °C	-35...+65 °C
180 mm	120 mm	140 mm	110 mm	130 mm
180 mm	120 mm	140 mm	110 mm	130 mm
180 mm	120 mm	140 mm	120 mm	130 mm
130 mm	70 mm	90 mm	60 mm	80 mm
130 mm	80 mm	100 mm	70 mm	90 mm
100 mm	50 mm	50 mm	30 mm	40 mm

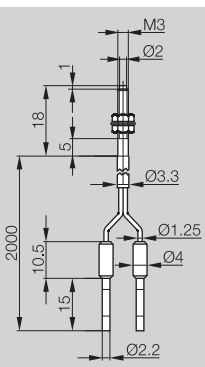
M4 thread	M3 thread	M3 thread	M3 thread	Ø 3 mm
Bendable optical tip	Standard	Coaxial	Bendable optical tip	Standard
2x1 mm	2x1 mm	2x1.25 mm	2x1 mm	2x2.2 mm
2x0.5 mm	2x0.5 mm	1x0.5 mm/9x0.25 mm	2x0.5 mm	2x1 mm



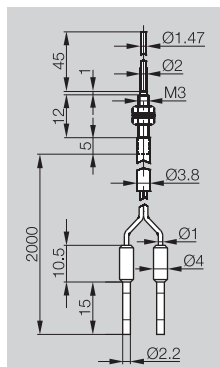
V1343
∞ 2xØ0.5



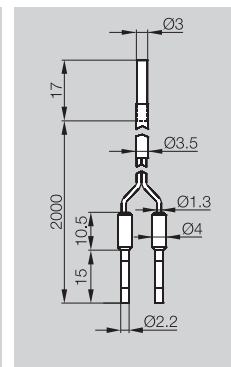
V1099
∞ 2xØ0.5



V1098
9xØ0.25
1xØ0.5



V1363
∞ 2xØ0.5



V1364
∞ 2xØ1

BFO D10-XA-HB-EAK-10-02	BFO D10-XA-RB-EAK-10-02	BFO D13-XB-RB-EAK-10-02	BFO D10-XA-GB-EAK-10-02	BFO D13-XA-JB-EAK-20-02
-------------------------	-------------------------	-------------------------	-------------------------	-------------------------

≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 25 mm
≥ 10 mm			≥ 10 mm	
-55...+70 °C	-55...+70 °C	-40...+60 °C	-35...+65 °C	-55...+70 °C
50 mm	50 mm	60 mm	50 mm	130 mm
50 mm	50 mm	60 mm	50 mm	130 mm
40 mm	40 mm		40 mm	130 mm
20 mm	20 mm	30 mm	20 mm	80 mm
10 mm	10 mm	20 mm	10 mm	50 mm

2.2

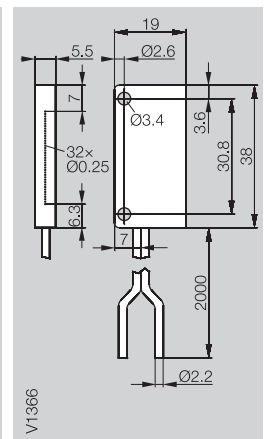
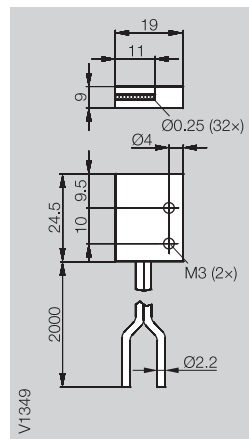
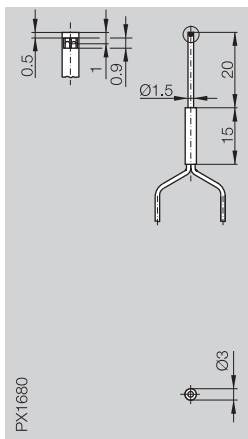
2.3

Photoelectric sensors accessories page 2.3.2 ...

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Connectors ... page 5.2 ...

Optical head	Ø 3 mm	19x25 mm	19x38 mm
Features	Light exit on side	Light grid	Light grid
Ø Jacket	2x1 mm	2.2 mm	2.2 mm
Ø Core	2x0.5 mm	32x0.25 mm	32x0.25 mm

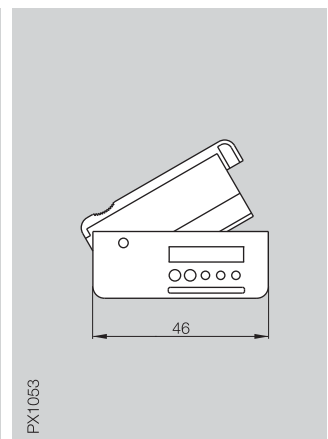
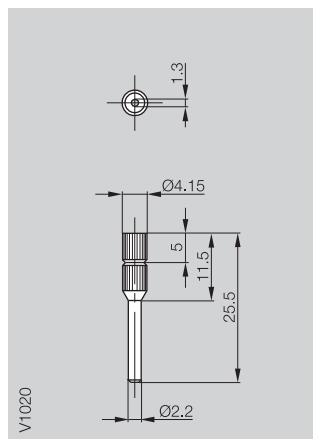
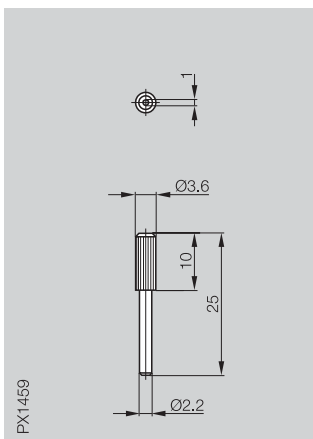


Ordering code	BFO D22-XA-MB-PAK-10-02	BFO D22-XA-CD-EAK-110-02	BFO D22-XA-ED-EAK-250-02
Fiber bending radius	≥ 25 mm	≥ 25 mm	≥ 25 mm
Temperature range	-40...+70 °C	-55...+70 °C	-55...+70 °C
Sensing distance	with BFB 75K-001 with BFB 75K-002** with BOS 73K with BOS 74K* with BOS 6K with BOS 18KF	35 mm 35 mm 25 mm 10 mm 70 mm 40 mm	100 mm 100 mm 100 mm 50 mm 60 mm 30 mm

*When using base unit BOS 74K-UU-1FS-.. the sensing distance is reduced by 30 %.


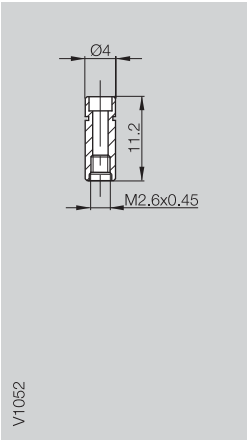
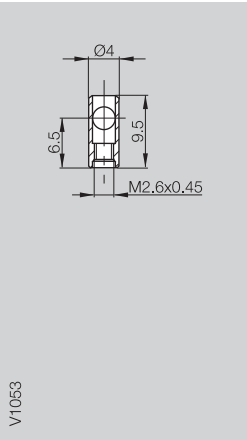
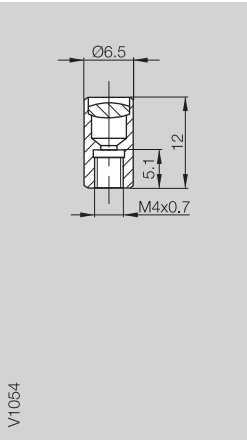
**Sensing distance in Standard Mode.

Description	Adapter	Adapter	Cutting Tool
Use	for plastic fiber optics Ø 1 mm for connecting to fiber optic base units	for plastic fiber optics Ø 1.3 mm for connecting to fiber optic base units	for trimming Plastic Fiber Optics Ø 1 mm to Ø 2.2 mm



Ordering code	BFO D10-LA-DC-10	BFO D13-LA-EC-10	BFO CT
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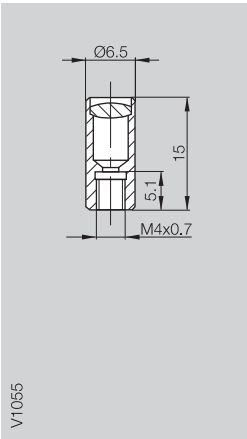
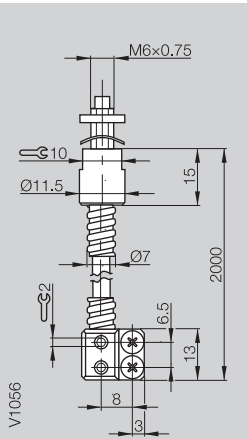
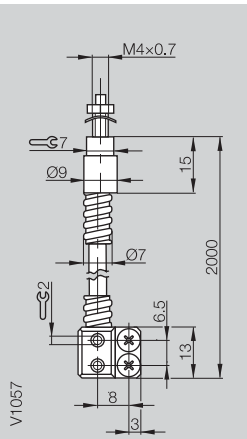


	Lens for through-beam fiber optics M2.6x0.45	90° Rotatable head for through-beam fiber optics M2.6x0.45	Focusing lens for coaxial diffuse fiber optics M4x0.7
			
Ordering code	BFO 02-PK-1	BFO 02-UK-1	BFO 04-FL-1
Range/sensing distance with corresponding fiber optic cable	×10	×0.7	19 mm ±2 mm
Packaging unit	2 pcs.	2 pcs.	1 pc.

2.2

2.3

Photoelectric sensors accessories page 2.3.2 ...

	Focusing lens for coaxial diffuse fiber optics M4x0.7	Metal corrugated tube (stainless steel) for fiber optics M6x0.75	Metal corrugated tube (stainless steel) for fiber optics M4x0.7
			
Ordering code	BFO 04-FL-2	BFO 06-FS-1	BFO 04-FS-1
Range/sensing distance with corresponding fiber optic cable	7 mm ±2 mm		
Packaging unit	1 pc.	1 pc.	1 pc.

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Connectors ... page 5.2 ...

Series **BFO 18** glass fiber optic cables are designed for series BOS 18M tubular sensors and are used wherever a high level of function reserve or chemical resistance is required. Extreme temperatures are also no problem.

Various straight or right-angle versions are available with polyurethane jacket, corrugated metal armor or silicon protective jacket.

Construction from the outside in

UZG type

Polyurethane jacket
Strain relief
Glass fiber bundle

- Flexible
- Excellent chemical resistance
- Does not get brittle from oils and coolant emulsions
- Temperature range -20...+85 °C

MZG type

Corrugated metal armor
Strain relief
Glass fiber bundle

- High temperature-rated -20...+170 °C (if not flexed up to +250 °C)
- Flexible
- Crush-resistant
- Resistant to hot chips

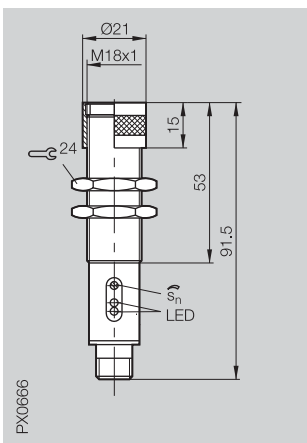
SMG type

Silicon protection jacket
Corrugated metal armor with strain relief
Glass fiber bundle

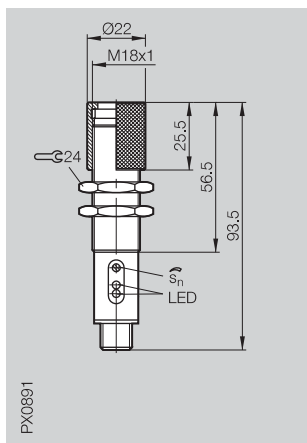
- Extended temperature range -40...+150 °C
- Very flexible
- Crush-resistant

Recommended diffuse base units

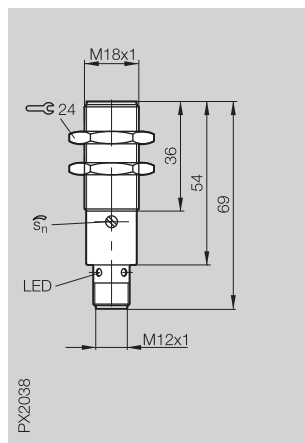
(see page 2.1.23/24/25 and 2.1.94)



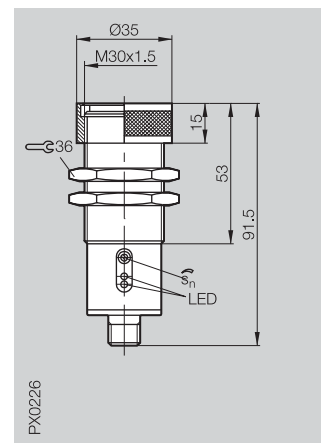
BOS 18M-GU-1PF-...




BOS 18M-PU-1PD-SA...



BOS 18M-PA-1PF-...,
BOS 18M-PA-1PD-...



BOS 30M-GA-1PH-...

Type	Max. sensing distance	Version		Light exit		Auto-mobile approval	Page
		Through-beam	Diffuse	Straight	Right angle		
 Fiber optics							
BFO 18A-LGG-...-10...	400 mm	■		■			2.2.28
BFO 18A-LFF-...-10...	400 mm	■			■		2.2.28
BFO 18A-LAA-...-20...	700 mm	■		■			2.2.29
BFO 18A-LCC-...-20...	700 mm	■		■			2.2.29
BFO 18A-LEE-...-20...	700 mm	■			■		2.2.29
BFO 18V-LCC-...-23...	2000 mm	■		■		■	2.2.29
BFO 18V-LDD-...-23...	2000 mm	■			■	■	2.2.29
BFO 18A-XAG-...-15...	50 mm		■	■			2.2.30
BFO 18A-XAF-...-15...	50 mm		■		■		2.2.30
BFO 18A-XAA-...-30...	100 mm		■	■			2.2.31
BFO 18A-XAC-...-30...	100 mm		■	■			2.2.31
BFO 18A-XAE-...-30...	100 mm		■		■		2.2.31
BFO 18V-XAC-...-30...	200 mm		■	■		■	2.2.31
BFO 18V-XAD-...-30...	200 mm		■		■	■	2.2.31

2.2

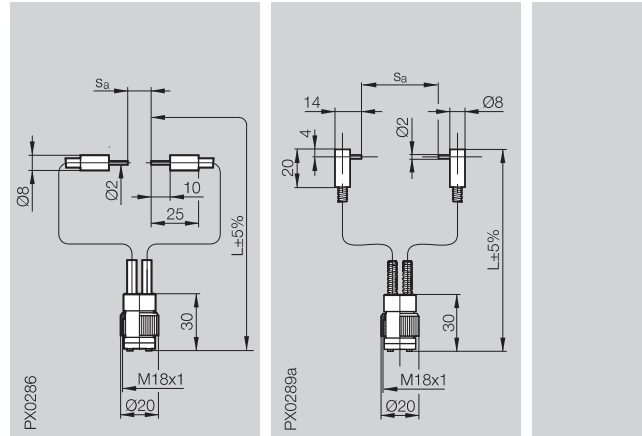
2.3

Photoelectric sensors accessories page 2.3.2 ...

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Connectors ... page 5.2 ...

Through-beam with	BOS 18M-...-PD-...	Range	100 mm	100 mm
	BOS 18M-...-1PF-...	Range	400 mm	400 mm
	BOS 30M-...	Range		



Ordering code	Type	UZG		
	Type	MZG	BFO 18A-LGG-MZG-10-	BFO 18A-LFF-MZG-10-
	Type	SMG	BFO 18A-LGG-SMG-10-	BFO 18A-LFF-SMG-10-
Diameter of glass fiber bundle			1 mm	1 mm
Max. pull force on fiber optics and connection parts			80 N	80 N
Min. bending radius			60 mm	60 mm
For use with	BOS 18M-PA-1PD-...		yes	yes
	BOS 18M-PU-1PD-SA1.../-SA4.../-SA5...		yes (remove adapter disk)	yes (remove adapter disk)
	BOS 18M-GU-1PF-...		yes (remove adapter disk)	yes (remove adapter disk)
	BOS 18M-PA-1PF-...		yes	yes
	BOS 30M-...		no	no

Please append the desired length L of the fiber optics cable to the ordering code. Corrections from 0.5 m to max. 2 m possible. Example:
 BFO 18...-20-**0.5** for **0.5 m** fiber length
 BFO 18...-20-**2** for **2 m** fiber length

Note!

With a through-beam fiber optic cable, the normally open signal of the base unit is converted into a normally closed signal!

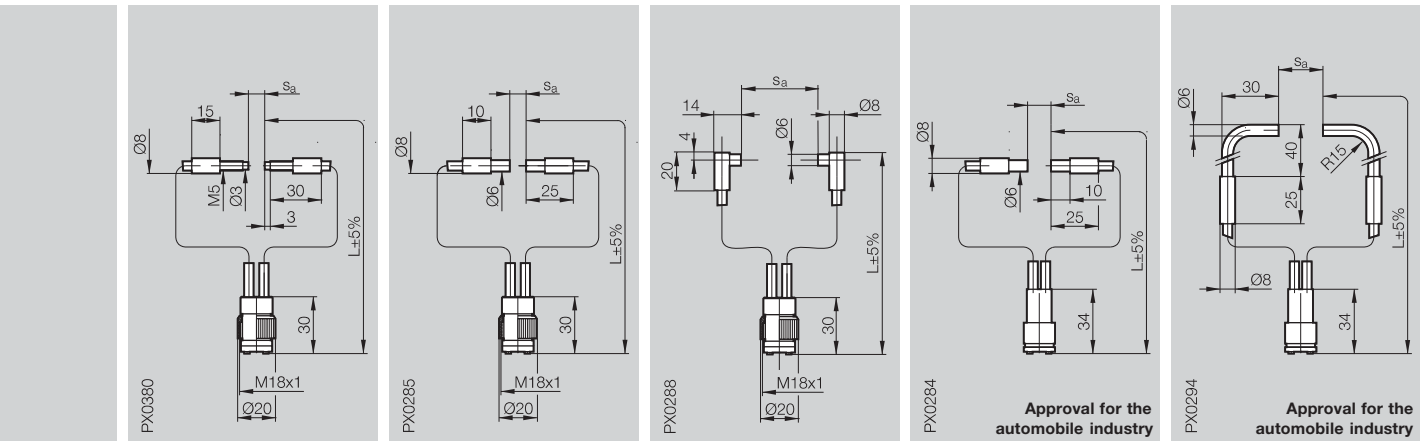


Glass Fiber Optics

Photoelectric Sensors

BFO 18
Glass Fiber Optics
Through-beam

200 mm 700 mm	200 mm 700 mm	200 mm 700 mm	200 mm 2000 mm	200 mm 2000 mm
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BFO 18A-LAA-UZG-20- BFO 18A-LAA-MZG-20-	BFO 18A-LCC-UZG-20- BFO 18A-LCC-SMG-20-	BFO 18A-LEE-UZG-20- BFO 18A-LEE-MZG-20- BFO 18A-LEE-SMG-20-	BFO 18V-LCC-MZG-23- BFO 18V-LCC-SMG-23-	BFO 18V-LDD-MZG-23- BFO 18V-LDD-SMG-23-
--	--	---	--	--

2 mm	2 mm	2 mm	2 mm	2 mm
80 N	80 N	80 N	80 N	80 N
60 mm	60 mm	60 mm	60 mm	60 mm
yes	yes	yes	no	no
yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)
yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	no	no
yes	yes	yes	no	no
no	no	no	yes (remove adapter disk)	yes (remove adapter disk)

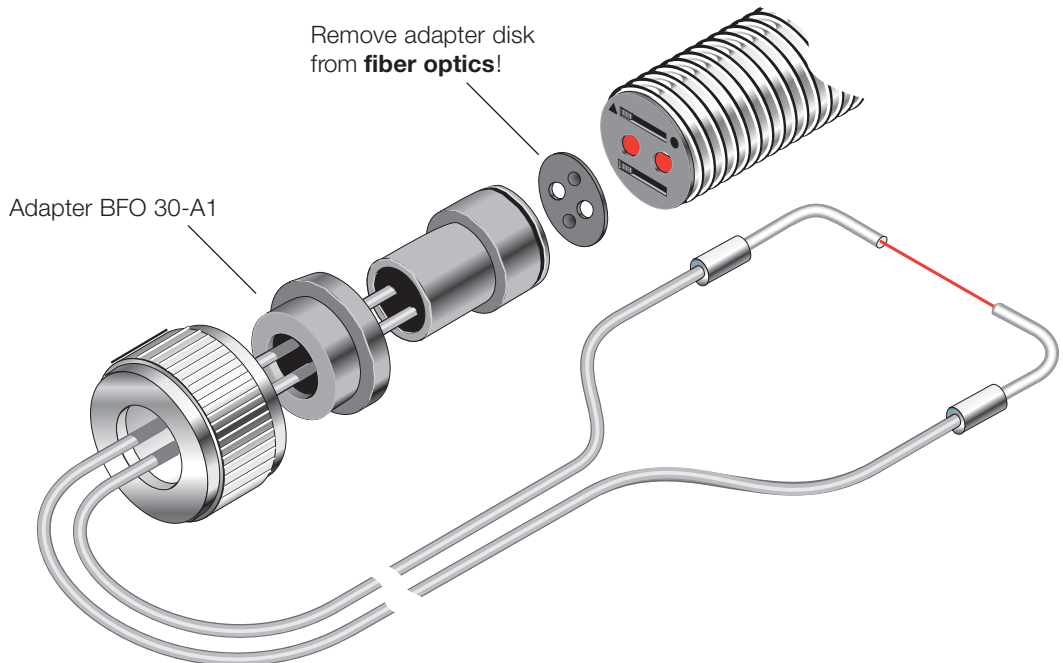
For BOS 30M-... use Adapter BFO 30-A1!
see page 2.3.17

2.2

2.3

Photoelectric sensors accessories page 2.3.2 ...

Installation note BOS 30M with BFO 18V



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Connectors ... page 5.2 ...

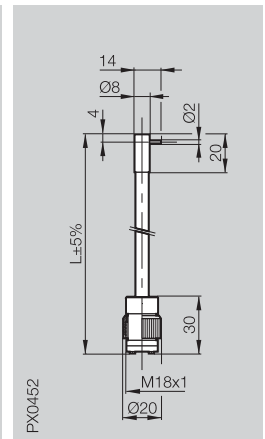
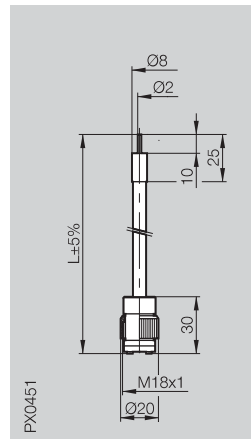
Diffuse with	BOS 18M-...-PD-.../BOS 18M-...-1PF-... BOS 30M-...	Sensing distance Sensing distance
	BOS 18M-...-PD-.../BOS 18M-...-1PF-... BOS 30M-...	Range Range

10 mm/50 mm

10 mm/50 mm

300 mm/1000 mm

300 mm/1000 mm



Ordering code	Type	UZG
	Type	MZG
	Type	SMG

BFO 18A-XAG-MZG-15-

BFO 18A-XAF-MZG-15- BFO 18A-XAF-SMG-15-
--

Diameter of glass fiber bundle		1.5 mm
Max. pull force on fiber optics and connection parts		80 N
Min. bending radius		60 mm
For use with	BOS 18M-PA-1PD-... BOS 18M-PU-1PD-SA1.../-SA4.../-SA5... BOS 18M-GU-1PF-S4-Y BOS 18M-PA-1PF-... BOS 30M-...	yes yes (remove adapter disk) yes (remove adapter disk) yes no
Sensing distance with	BOS 18M-PA-1PD-... BOS 18M-PU-1PD-SA1.../-SA4.../-SA5... BOS 18M-...-1PF-... BOS 30M-...	10 mm 10 mm 50 mm
Range with	BOS 18M-PA-1PD-... BOS 18M-PU-1PD-SA1.../-SA4.../-SA5... BOS 18M-...-1PF-... BOS 30M-...	300 mm 300 mm 1000 mm

1.5 mm
80 N
60 mm
yes
yes (remove adapter disk)
yes (remove adapter disk)
yes
no
10 mm
10 mm
50 mm
300 mm
300 mm
1000 mm

1.5 mm
80 N
60 mm
yes
yes (remove adapter disk)
yes (remove adapter disk)
yes
no
10 mm
10 mm
50 mm
300 mm
300 mm
1000 mm

Sensing distances referenced to Kodak gray card 90 % Reflexion.

Diffuse with glass fiber optics used as retroreflective:
Ranges are referenced to BOS R-1 reflector.

When using as a retroreflective type, twice the switching distance must be used as the object dead zone.

Please append the desired length L of the fiber optics cable to the ordering code!

Corrections from 0.5 m to max. 2 m possible.

Example:

BFO 18...-30-**0.5** for **0.5 m** fiber length

BFO 18...-30-**2** for **2 m** fiber length

Glass Fiber Optics

Photoelectric Sensors

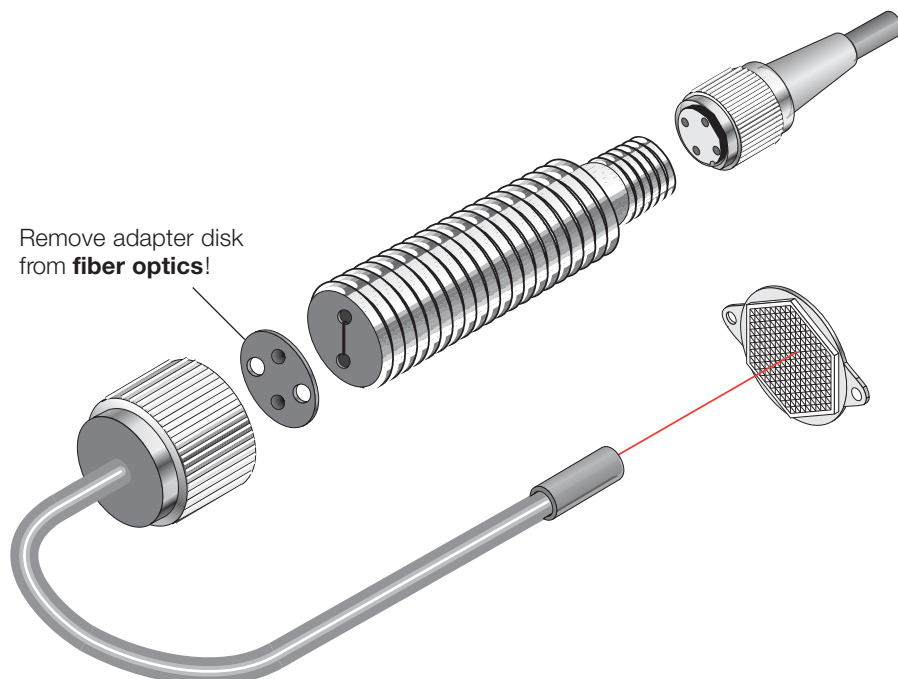
BFO 18
Glass Fiber Optics
Diffuse

	20 mm/100 mm	20 mm/100 mm	20 mm/100 mm	20 mm 200 mm 500 mm 2000 mm	20 mm 200 mm 500 mm 2000 mm
	500 mm/1000 mm	500 mm/1000 mm	500 mm/1000 mm		
	BFO 18A-XAA-UZG-30- BFO 18A-XAA-MZG-30- BFO 18A-XAA-SMG-30-	BFO 18A-XAC-SMG-30-	BFO 18A-XAE-UZG-30- BFO 18A-XAE-MZG-30- BFO 18A-XAE-SMG-30-	BFO 18V-XAC-MZG-30- BFO 18V-XAC-SMG-30-	BFO 18V-XAD-MZG-30- BFO 18V-XAD-SMG-30-
	3 mm	3 mm	3 mm	3 mm	3 mm
	80 N	80 N	80 N	80 N	80 N
	60 mm	60 mm	60 mm	60 mm	60 mm
	yes	yes	yes	no	no
	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)
	yes (remove adapter disk)	yes (remove adapter disk)	yes (remove adapter disk)	no	no
	yes	yes	yes	no	no
	no	no	no	yes (remove adapter disk)	yes (remove adapter disk)
	20 mm	20 mm	20 mm	20 mm	20 mm
	20 mm	20 mm	20 mm	20 mm	20 mm
	100 mm	100 mm	100 mm	200 mm	200 mm
	500 mm	500 mm	500 mm	500 mm	500 mm
	500 mm	500 mm	500 mm	500 mm	500 mm
	1000 mm	1000 mm	1000 mm	2000 mm	2000 mm

For BOS 30M-... use Adapter BFO 30-A1!
see page 2.3.17

Installation note

When using the BOS 18M-GU-1PF-S4-Y or BOS 18M-PU-1PD-SA... please remove the adapter disk from the **fiber optic cable!**



2.2

2.3

Photoelectric sensors
accessories
page 2.3.2 ...

5

Connectors ...
page 5.2 ...