Plastic fiber-optic sensors

Our plastic fiber optic sensors are used wherever small objects must be detected and mounting space is limited. Through a range of modular fiber optics and accessories, they can be adapted to the respective application. For tophat rail mounting, the fiber-optic amplifiers can be arranged in series as desired.

di-soric

OLV-K Amplifier 97

KL Plastic fiber optics 98

OLV-K AMPLIFIER

di-soric fiber optic amplifiers can be easily operated and simultaneously offer maximum control. The very high-performance and efficient amplifiers stand out for their very long ranges, time functions and simple operation. Alternatively, amplifiers with two digital LED displays or potentiometers are available.

Technical data (typ.)	+20 °C, 24 V DC	
	OLVK 61 …	**OLK 71 …**
Emitted light	Red light, clocked	Red light, clocked
Switching output	Transistor, 200 mA, NO/NC, switchable	100 mA, NO/NC, programmable
Ambient temperature	-25 to +55 °C	-10 to +55 °C
Protection class	IP 64	IP 54
Housing material	PBTP (Crastin)	ABS / PC

CE

	Housing design Size (mm)	Sensitivity adjustment by means of	Service voltage (V)	Activation time (ms)	Polarity	Digital LED display	Switching hysteresis (%)	Temperature drift (%/K)	No-load current (mA)	Plug connector	Connection cable (optionally available)	Product description
OLV-K Amplifiers for glass fiber optic cables												
	60 x 31 x 10	Potenti-ometer	10 to 30	0.33	pnp		10	0.2	15	M8	TK …	OLVK 61 P3K-TSSL/3
					pnp		10	0.2			TK … /4	OLVK 61 P3FK-TSSL
	69 x 33 x 10.5	Teach	12 to 24	0.25 to 1.25	pnp	■			40	M8	TK … /4	OLK 71 P3-T4
					npn	■						OLK 71 N3-T4
	69 x 33 x 10.5	Teach	12 to 24	0.25 to 1.25	pnp	■			40		Cable 2.0 m	OLK 71 P3-3
					npn	■						OLK 71 N3-3

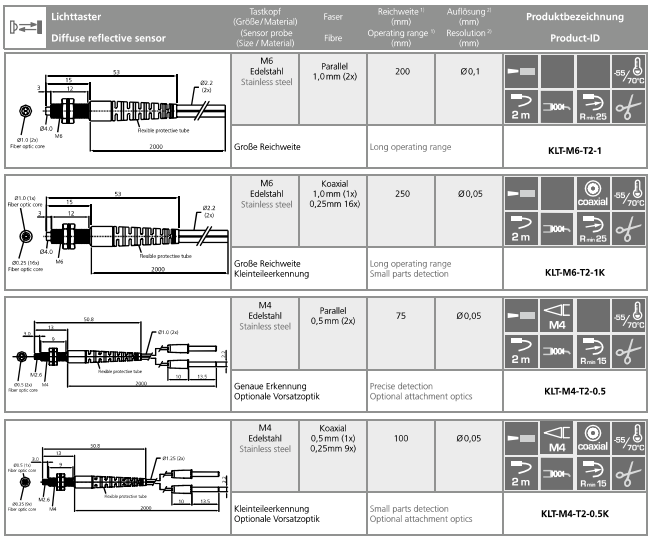
Range specifications for plastic fiber-optic cables

The maximum range specification for fiber-optic cables refers to measurements using the reference amplifier OLK 71 … with a light intensity of 200% and a standard target of 100 x 100 mm, white. When using another amplifier or a different amplifier setting, determine the expected range based on the calculation factor.

Fiber-optic amplifier	Calculation factor compared to the reference amplifier OLK 71 … [1] (typ.)
OLK 71 … [1]	**100 %**
OLVK 61 P3K-TSSL/3	100 %
OLVK 61 P3FK-TSSL	100 %

Light intensity	Range factor [1]	Activation time
200 %	100 %	1.25 ms
100 %	75 %	0.63 ms
50 %	70 %	0.42 ms
25 %	40 %	0.31 ms
12 %	25 %	0.25 ms

[1] OLK71 … with light intensity 12 to 200%



KL PLASTIC FIBER OPTICS

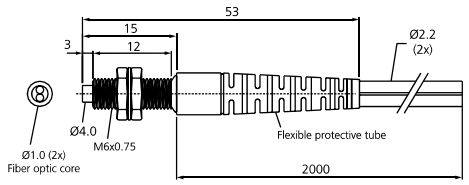
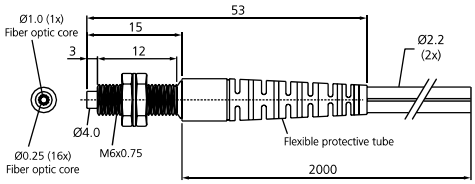
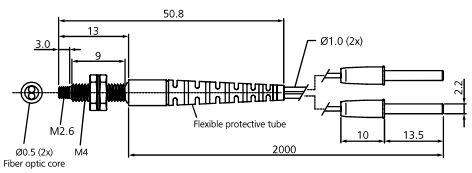
di-soric offers a wide range of fiber optic products with accessories. The portfolio includes, among others, sensor probes made of stainless steel with bend protection, sensor probes with light bands for range monitoring and fiber optics for detection of the smallest parts.

Technical data (typ.)	+20 °C, 24 V DC
For more information, visit	www.di-soric.com

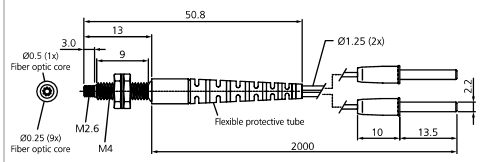
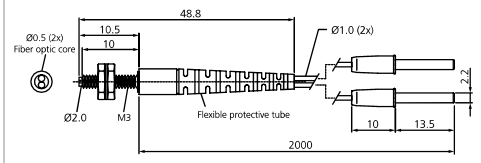
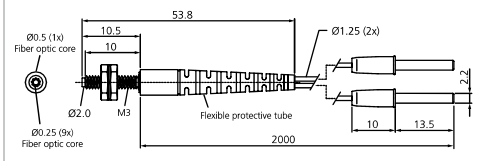
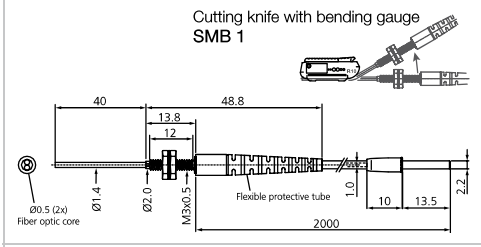
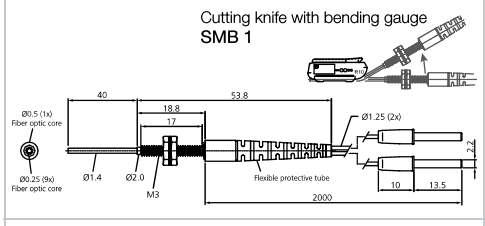
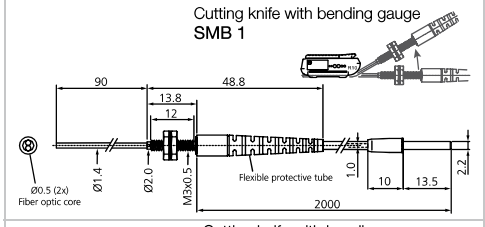
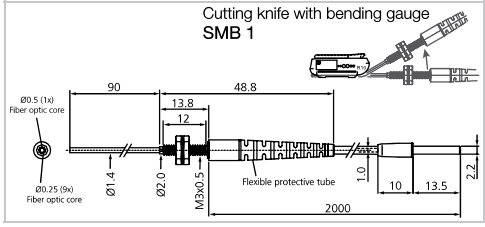
CE

Order information

Axial light aperture	Optional attachment optics	Minimum permitted bending radius of the fiber-optic cable
Radial light aperture	Coaxial fiber arrangement	Fiber-optic cable can be cut to size, cutting knife included
Flexible sensor probe	Ambient temperature	Fiber-optic cable cannot be cut to size
Area detection	Length of the fiber-optic cable	
Fixed-focus detection	Cable grommet	

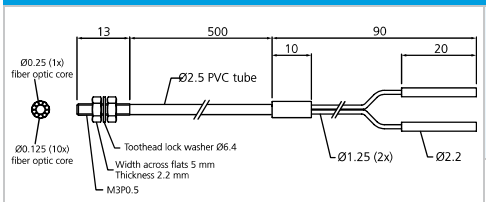
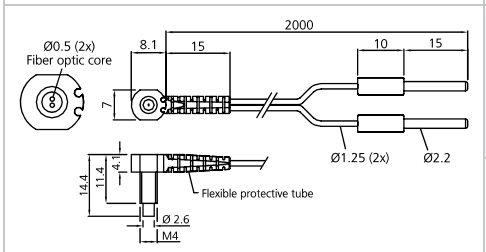
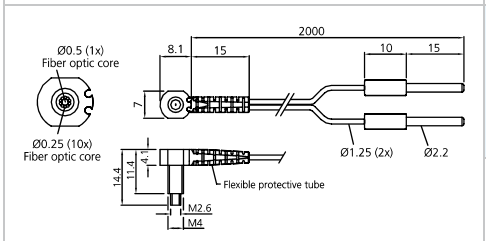
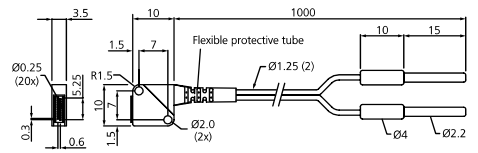
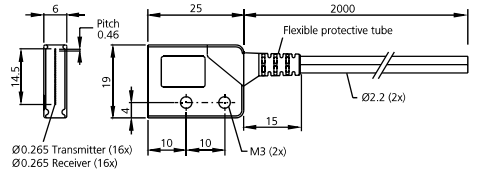
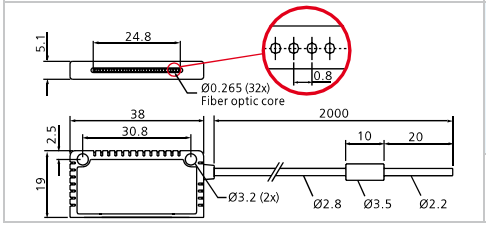
	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable diffuse sensor					
	M6 Stainless steel	Parallel 1.0 mm (2x)	200 [1]	Ø0,1 [2]	
	Large range				**KLT-M6-T2-1**
	M6 Stainless steel	Coaxial 1.0 mm (1x) 0.25 mm (16x)	250 [1]	Ø0,05 [2]	
	Large range Small parts detection				**KLT-M6-T2-1K**
	M4 Stainless steel	Parallel 0.5 mm (2x)	75 [1]	Ø0,05 [2]	
	Accurate detection Optional attachment optics				**KLT-M4-T2-0.5**

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.
[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

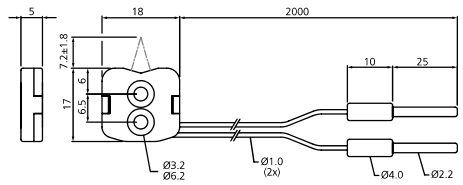
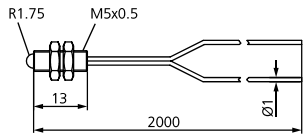
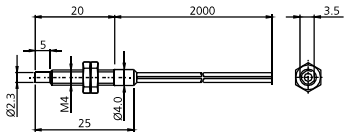
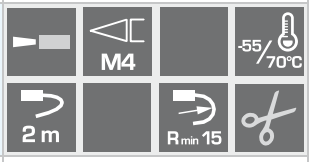
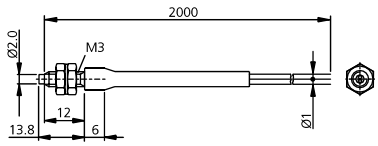
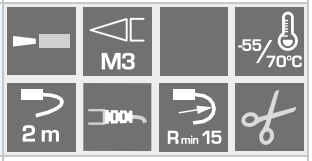
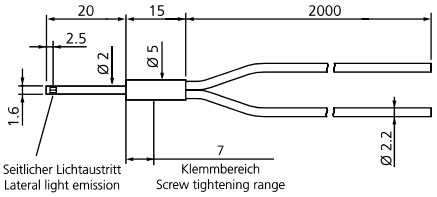
	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable diffuse sensor					
	M4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 [1]	Ø0,05 [2]	M4 coaxial -55/70°C 2 m Rmin 15
Small parts detection Optional attachment optics					**KLT-M4-T2-0.5K**
	M3 Stainless steel	Parallel 0.5 mm (2x)	75 [1]	Ø0,05 [2]	M3 -55/70°C 2 m Rmin 15
Accurate detection Optional attachment optics					**KLT-M3-T2-0.5**
	M3 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 [1]	Ø0,05 [2]	M3 coaxial -25/70°C 2 m Rmin 15
Small parts detection Optional attachment optics					**KLT-M3-T2-0.5K**
	M3 / Ø1.4 Stainless steel	Parallel 0.5 mm (2x)	75 [1]	Ø0,1 [2]	-55/70°C 2 m Rmin 15
Flexible sensor probe / R min. > 10 mm Accurate detection					**KLT-M3-B40-T2-0.5**
	M3 / Ø1.4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 [1]	Ø0,05 [2]	coaxial -55/70°C 2 m Rmin 15
Flexible sensor probe / R min. > 10 mm Small parts detection					**KLT-M3-B40-T2-0.5K**
	M3 / Ø1.4 Stainless steel	Parallel 0.5 mm (1x)	75 [1]	Ø0,1 [2]	-55/70°C 2 m Rmin 15
Flexible sensor probe / R min. > 10 mm Accurate detection					**KLT-M3-B90-T2-0.5**
	M3 / Ø1.4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 [1]	Ø0,05 [2]	coaxial -55/70°C 2 m Rmin 15
Flexible sensor probe / R min. > 10 mm Small parts detection					**KLT-M3-B90-T2-0.5K**

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.

[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

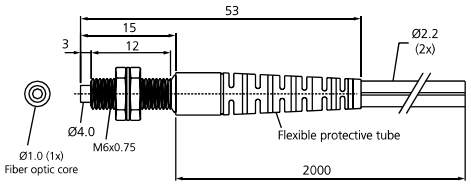
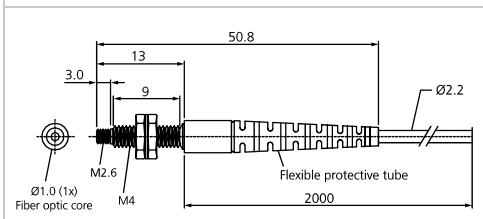
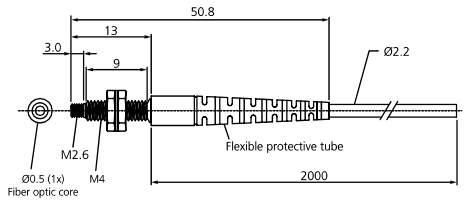
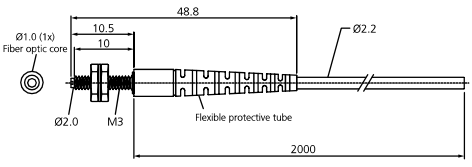
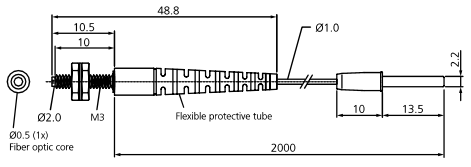
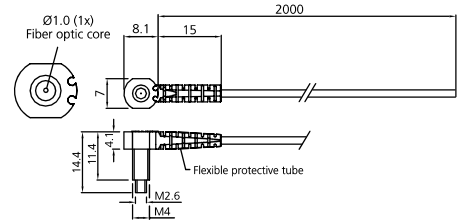
	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable diffuse sensor					
	M3 Stainless steel	Coaxial Ø0.25 (1x) Ø0.125 (10x)	40 [1]	Ø0.02 [2]	M3 · coaxial · -55/70°C · 0.5 m · Rmin 5
Highly accurate detection Optional attachment optics					**KLT-M3-S0.5-0.25K**
	M4 Stainless steel	Parallel 0.5 mm (2x)	60 [1]	Ø0,1 [2]	M4 · -55/70°C · 2 m · Rmin 15
Low installation depth 90° deflection Accurate detection Optional attachment optics					**KLTR-M4-T2-0.5**
	M4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (10x)	90 [1]	Ø0,05 [2]	M4 · coaxial · -55/70°C · 2 m · Rmin 15
Low installation depth 90° deflection Small parts detection Optional attachment optics					**KLTR-M4-T2-0.5K**
	10 x 10 x 3.5 mm Stainless steel	5.25 mm Transmitter 0.265 mm (16x) Receiver	100 [1]	Ø0,1 [2]	-55/70°C · 1 m · Rmin 25
Area detection without gaps Accurate detection					**KLTM-Q10-T1-5**
	19 x 25 x 6 mm Plastic	14.5 mm Transmitter 0.265 mm (16x) Receiver 0.265 mm (16x)	240 [1]	Ø0,5 [2]	-25/70°C · 1 m · Rmin 5
Area detection Large range					**KLTM-Q25K-T1-14**
	38 x 19 x 5 mm Plastic	24.8 mm Transmitter 0.265 mm (32x) Receiver	200 [1]	Ø1,0 [2]	-25/70°C · 1 m · Rmin 60
Area detection 90° deflection Large range					**KLTMR-Q38K-1-24**

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.
[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

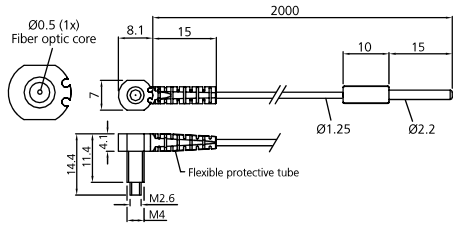
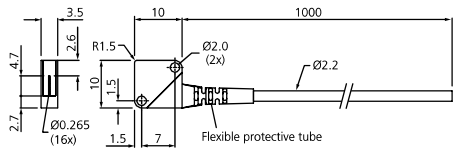
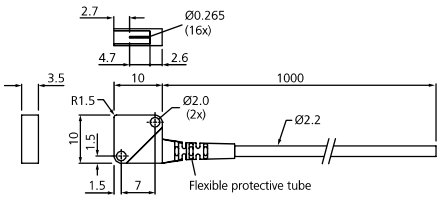
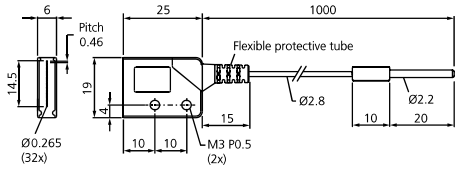
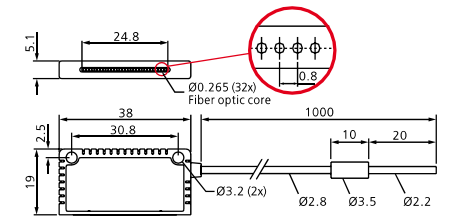
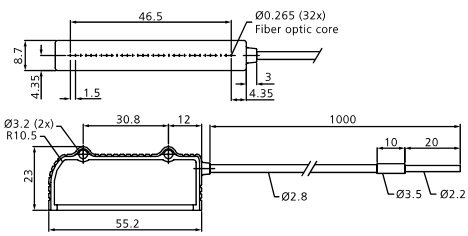
	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable diffuse sensor					
	18 x 17 x 5 mm Plastic	A: 7.2 mm parallel Ø0.5 (2x)	5 to 10 [1]	Ø0,1 [2]	
	Fixed-focus detection 90° deflection Low installation depth				**KLTVR-Q18-2-10**
	M5 Stainless steel	0.5 mm	200 [1]	Ø0,1 [2]	
	Ball-shaped optics for cylindrical beam Ø 8 mm				**WRBT 2000 K-M5-Z8**
	M4 Stainless steel	Parallel 0.5 mm (2x)	75 [1]	Ø0,05 [2]	
	Accurate detection Optional attachment optics				**WRBT 2000 K-M4-1.0**
	M3 Stainless steel	Parallel 0.5 mm (2x)	75 [1]	Ø0,05 [2]	
	Accurate detection Optional attachment optics				**WRBT 2000 KR-5.0-2.0**
	Ø5 Stainless steel	Ø 0.8 mm	100 [1]	Ø0,2 [2]	

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.

[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

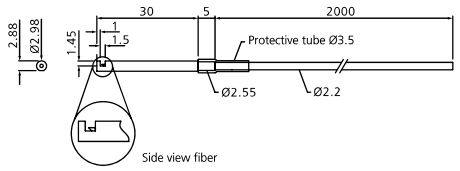
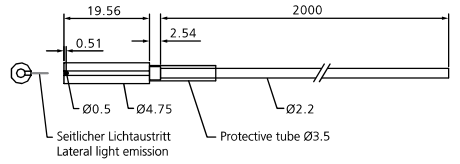
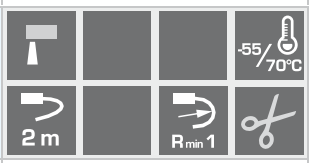
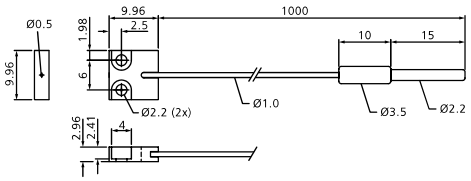
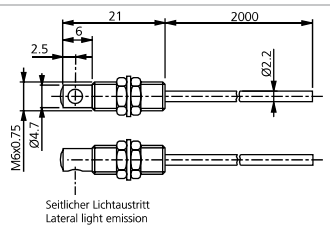
	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable through-beam sensor					
	M6 Stainless steel	1.0 mm	1,000 [1]	Ø0,2 [2]	-55/70°C 2 m Rmin 25
	Large range				**KLE-M6-T2-1**
	M6 Stainless steel	1.0 mm	1,000 [1]	Ø0,2 [2]	-55/70°C 2 m Rmin 25
	Large range				**KLE-M4-T2-1**
	M4 Stainless steel	0.5 mm	250 [1]	Ø0,1 [2]	M2.6 -55/70°C 2 m Rmin 15
	Accurate detection Optional attachment optics				**KLE-M4-T2-0.5**
	M3 Stainless steel	1.0 mm	1,000 [1]	Ø0,2 [2]	-55/70°C 2 m Rmin 25
	Large range				**KLE-M3-T2-1**
	M3 Stainless steel	0.5 mm	250 [1]	Ø0,1 [2]	-55/70°C 2 m Rmin 15
	Accurate detection				**KLE-M3-T2-0.5**
	M4 Stainless steel	1.0 mm	400 [1]	Ø0,2 [2]	M2.6 -55/70°C 2 m Rmin 25
	Low installation depth 90° deflection Large range Optional attachment optics				**KLER-M4-T2-1**

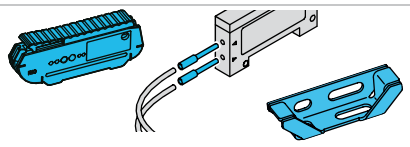
[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.
[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable through-beam sensor					
	M4 Stainless steel	0.5 mm	200 [1]	Ø0,1 [2]	
	Low installation depth 90° deflection Accurate detection Optional attachment optics				**KLER-M4-T2-0.5**
	10 x 10 x 3.5 mm Stainless steel	4.24 mm 0.265 mm (16x)	200 [1]	Ø0,1 [2]	
	Area detection without gaps Large range Accurate detection				**KLEM-Q10-T1-4**
	10 x 10 x 3.5 mm Stainless steel	4.24 mm 0.265 mm (16x)	200 [1]	Ø0,1 [2]	
	Area detection without gaps 90° deflection Large range Accurate detection				**KLEMR-Q10-T1-4**
	19 x 25 x 6 mm Plastic	14.5 mm 0.265 (32x)	1,000 [1]	Ø0,5 [2]	
	Area detection Large range				**KLEM-Q25K-T1-14**
	38 x 19 x 5 mm Plastic	24.8 mm 0.265 (32x)	800 [1]	Ø1,0 [2]	
	Area detection 90° deflection Large range				**KLEMR-Q38K-1-24**
	55 x 23 x 9 mm Plastic	46.5 mm 0.265 (32x)	800 [1]	Ø2,0 [2]	
	Area detection 90° deflection Large range				**KLEMR-Q55K-1-46**

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.

[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
KL plastic fiber-optic cable through-beam sensor					
	Ø 2.98 mm Stainless steel	1.0 mm	600 [1]	Ø0,2 [2]	
	Low installation depth 90° deflection Large range				**KLER-D3-30-S2-1**
	Ø 4.75 mm Stainless steel	Ø0.5 mm	200 [1]	Ø0,05 [2]	
	Low installation depth 90° deflection Highly accurate object detection				**KLER-D4.75-19-S2-0.5**
	10 x 10 x 3 mm Metal	Ø0.5 mm	200 [1]	Ø0,05 [2]	
	Accurate detection Flat design				**KLE-Q10M-1-0.5**
	M6 Brass	Ø 1.0 mm	1,200 [1]	Ø0,2 [2]	
	Low installation depth Large range				**WRBE 2000 KR-M6-1.0**



Accessories for plastic fiber-optic cables

see “Accessories for plastic fiber-optic cables”, page 204

[1] Maximum values (typ.) for a standard target 100 x 100 mm, white.

[2] Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).